Electric Power Generation Association

800 North Third Street, Suite 303
Harrisburg, Pennsylvania 17102
Telephone (717) 909-3742
Fax (717) 909-1941
www.epga.org

2841

June 15, 2010

Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

Subject: Proposed Rulemaking, Environmental Quality Board
[25 PA. CODE CH 93], Ambient Water Quality Criterion: Chloride (Ch) [40 Pa.B. 2264]
[Saturday, May 1, 2010]

Environmental Quality Board:

Following are comments of the Electric Power Generation Association (EPGA) on the Environmental Quality Board Proposed Rulemaking 25 Pa Code Ch. 93, which appeared in the Pennsylvania Bulletin on May 1, 2010.

EPGA is a trade association of electric generating companies with headquarters in Harrisburg, Pa. Collectively, our members own and operate 140,000 megawatts of electric generating capacity, approximately half of which is located in Pennsylvania and surrounding states. Our members include:

AES Beaver Valley, LLC
Allegheny Energy Supply
Cogentrix Energy, Inc.
Dynegy Inc.
Edison Mission Group
Exelon Generation
FirstEnergy Generation Corp
LS Power Associates, L.P.
PPL Generation
RRI Energy, Inc.
Sunbury Generation
Tenaska, Inc.
UGI Development Company

These comments represent the views of EPGA as an association of electric generating companies, not necessarily the view of any individual member company with respect to any specific issue.

We believe that the Department should conduct a broad-based and detailed assessment of the scientific toxicity data and information contained in the USEPA's *Ambient Water Quality Criteria for Chloride* (USEPA, 1988), and reconsider its use as the basis for the criteria the Department is proposing to adopt for chloride. Based upon further review by EPGA's members, we have identified that new aquatic studies and toxicity data on sodium chloride have become available since USEPA published their 1988 criteria. Therefore, we request that the Department review the state of the science related to chloride freshwater toxicity, and if necessary, fill data gaps relevant to State specific concerns, to issue criteria that are scientifically sound and supportive. We provide this comment based on the following research conducted by EPGA's members:

- In 2007, the Iowa Department of Natural Resources (IADNR) completed a review, in coordination with the USEPA's Duluth laboratory, of the state of the science relative to chloride aquatic toxicity. They completed this assessment due to the age of the data contained in EPA's 1988 criteria document. This review found that there were additional studies not included in the 1988 document and that data gaps in the science existed (IADNR, 2009).
- As a result of IADNR's review, additional WET testing was completed under contract to EPA's Great Lakes Environmental Center and the Illinois Natural History Survey (INHS). The results of this additional testing are reported in the USEPA's report "Acute Toxicity of Chloride to Select Freshwater Invertebrates," and should be thoroughly evaluated by the Department (USEPA, 2008).
- Based on the most up-to-date scientific information, the IADNR recognized that the hardness concentrations, and to a lesser degree, sulfate concentrations, found in freshwater streams plays a very important role in regulating the toxicity of chloride (i.e., with higher hardness comes decreased toxicity). In response to this important scientific data, the IADNR and EPA developed baseline chloride criteria for their State that takes into account average hardness concentrations (through a hardness adjustment) found in Iowa's freshwater systems. In addition, the IADNR allows the regulated community to take into account site-specific hardness concentrations to adjust this criterion as appropriate.
- Based on a conversation with staff at EPA's Duluth laboratory, they have recently completed a new literature search for chloride toxicity data in December 2009 (personal communication of Jason Speicher/FirstEnergy with Christine Russom and Charles Stephan, June 8, 2010). The results of this literature search identified other relevant chloride aquatic toxicity studies that may contain data appropriate for the refinement of chloride standards. While EPA's Duluth laboratory is still evaluating the data contained in these studies, the primary source information and data for these studies has been incorporated into their Ecotox database recently.

Based on this information, EPGA believes that the Department should adopt a similar approach as used by IADNR in setting baseline chloride standards (acute and chronic) that would take into account the average hardness encountered in Pennsylvania water systems. In addition, we recommend such chloride criteria allow flexibility for site-specific adjustments of the standards based on observed hardness.

While freshwater systems in Pennsylvania may, on average, have lower hardness concentrations than many Midwestern states, hardness in water bodies statewide is quite variable. This is recognized by the Department's usage of the Limestone Stream Methodology for benthic macroinvertebrates employed in support of the Instream Comprehensive Evaluation (ICE) program. Smaller watersheds or those that exhibit higher chloride concentrations may be more or less susceptible to chloride toxicity depending on the hardness concentrations of that specific water body. Because hardness varies based upon geologic and contributing watershed factors, hardness should be utilized as a component of the model(s) used to determine chloride standards.

Furthermore, consideration should be given to a tiered or site-specific chloride standard that incorporates hardness concentrations because of its capability to mitigate toxic effects of chloride ions on fish and aquatic life. A site-specific approach to the application of a chloride standard is also important in smaller watersheds where the potential exists for one discharger or a few to consume the majority of the assimilative capacity of that stream. Similarly, a site-

specific chloride standard may be beneficial in watersheds that are dominated by effluent and exhibit a reduced assimilative capacity for chlorides. The use of site-specific chloride standard seems more appropriate as it is able to address the complexities in individual watersheds.

Lastly, while some scientists could contend that the chloride criteria equation developed by IADNR has data associated with it that do not support its chloride criteria equation at lower hardness concentrations, the lower hardness data in these studies should be further examined to understand any differences and whether any concern is valid. In addition, if PADEP is concerned that there may be a lack of clarity in the data at lower hardness concentrations, further chloride toxicity testing with a tighter, but lower range of hardness concentrations (e.g., control, 20, 40, 60, 80, 100, and 120 mg/L), may be necessary in order to assess whether further refinement of IADNR's hardness adjustment equation is appropriate for application in Pennsylvania.

As we explained during the Total Dissolved Solids (TDS) regulation process, the technology needed to remove chlorides has not been developed for use in our industry's applications and is not in commercial use in the United States at flows that commonly occur from many of the electric generation plants in the State. Costs to retrofit these technologies to our systems are extremely high with no guarantee that the needed reductions will be obtained with that equipment. Further, annual operation and maintenance costs are very high because of the amount of energy, water and chemicals used by these systems. Also, the fact that these systems are not designed for Flue Gas Desulfurization (FGD) wastewater and cooling tower blowdown would create long periods of "down-time" for maintenance and overhaul.

Thus, the information contained in the preamble of the regulation does not reflect accurate costs or the technology's maturity and practical application for the electric generation industry. If the Department was only referring to the application of such technology for oil and gas industry related drilling discharges, we recommend strongly that this distinction be clearly drawn in the preamble to the proposed criteria.

Finally, EPGA would like to mention that the EPA is in the process of evaluating the Effluent Limitation Guidelines (ELG) for 40 CFR Part 423 Steam Electric Generating category. The evaluation will likely result in new and revised permit limitations for the industry and may include chlorides, since FGD wastewater is being evaluated as one of the new technologies for the industry. The Department should consider this process by the EPA when determining chloride standards and how they would apply to steam electric stations.

Thank you for your consideration of these comments.

Sincerely,

Douglas L. Biden, President
Electric Power Generation Association

REFERENCES

Iowa DNR, 2009. Water Quality Standards Review: Chloride, Sulfate and Total Dissolved Solids. Iowa Department of Natural Resources. Consultation Package. February 9, 2009.

U.S. EPA. September 26, 2008. Acute Toxicity of Chloride to Select Freshwater Invertebrates. EPA Contract Number: 68-C-04-006, Work Assignment 4-34 Sub-task

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June 15, 2010

Environmental Quality Board

Subject: Proposed Rulemaking, [25 PA. CODE CH 93], Ambient Water Quality Criterion: Chloride (Ch) [40 Pa.B. 2264] [Saturday, May 1, 2010]

EPGA believes that the Department should conduct a broad-based and detailed assessment of the scientific toxicity data and information contained in the USEPA's *Ambient Water Quality Criteria for Chloride* (USEPA, 1988), and reconsider its use as the basis for the criteria the Department is proposing to adopt for chloride. New aquatic studies and toxicity data on sodium chloride have become available since USEPA published their 1988 criteria. Therefore, EPGA feels that the Department must review the state of the science related to chloride freshwater toxicity in order to issue criteria that are scientifically sound and supportive.

Based on a conversation with Christine Russom and Charles Stephan (June 8, 2010), EPA staff at the Duluth laboratory, EPGA has found that a recently completed literature search for chloride toxicity data in December 2009 identified other relevant chloride aquatic toxicity studies that may contain data appropriate for the refinement of chloride standards. While EPA's Duluth laboratory is still evaluating the data contained in these studies, the primary source information and data has been incorporated into their Ecotox database recently.

Based on this information, EPGA believes that the Department should adopt a similar approach as used by the Iowa Department of Natural Resources (IADNR) and other states in setting baseline chloride standards (acute and chronic). In addition, we recommend such chloride criteria allow flexibility for site-specific adjustments of the standards based on observed hardness. Hardness in Pennsylvania water bodies is quite variable statewide. This is recognized by the Department's usage of the Limestone Stream Methodology for benthic macroinvertebrates employed in support of the Instream Comprehensive Evaluation (ICE) program.

As we explained during the Total Dissolved Solids (TDS) regulation process, the technology needed to remove chlorides has not been developed for use in our industry's applications and is not in commercial use in the United States at electric generation plants. Costs to retrofit these technologies to our systems are extremely high with no guarantee that the needed reductions will be obtained with that equipment. If the Department was only referring to the application of such technology for oil and gas industry related drilling discharges, we recommend strongly that this distinction be clearly drawn in the preamble to the proposed criteria.

The EQB should be aware that EPA is evaluating the Effluent Limitation Guidelines for the Steam Electric Generating category (40 CFR Part 423) that will likely result in new and revised permit limitations. These standards may include chloride. This should be considered when determining chloride criteria for Pennsylvania.

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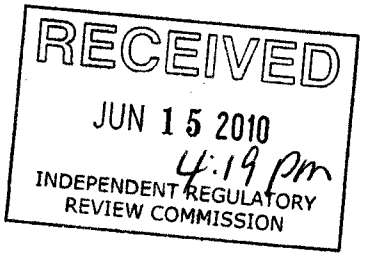
From: Sharon Barbour [sharon@epga.org]
Sent: Tuesday, June 15, 2010 10:22 AM
To: EP, RegComments
Subject: EPGA Cummary & Comments on Proposed Rulemaking [25 Pa. CODE CH 93] Ambient Water Quality Criterion: Chloride (Ch) [40 Pa.B. 2264] [Saturday, May 1, 2010]
Attachments: 20100615_EPGA_Comments_Ch_93.pdf; 20100615_EPGA_Summary_Ch_93.pdf

Environmental Quality Board,

Please find attached a Summary and EPGA Comments on **Proposed Rulemaking [25 Pa. CODE CH 93] Ambient Water Quality Criterion: Chloride (Ch) [40 Pa.B. 2264] [Saturday, May 1, 2010].**

Please confirm receipt of EPGA's Summary and Comments. Thank you.



Regards,

Sharon Barbour for Douglas L. Biden, President
Electric Power Generation Association
800 North Third St., Suite 303
Harrisburg, PA 17102
Phone: 717-909-3742/Fax: 717-909-1941
E-mail: sharon@epga.org or doug@epga.org
Web: www.epga.org