**POTPOURRI**

**Department of Environmental Quality**

**Office of the Secretary**

**Legal Affairs Division**

**La. R.S. 49:963(B) Report on Proposed Rule WQ114**

In accordance with Section 963 of Title 49 of the Louisiana Revised Statutes, the Louisiana Department of Environmental Quality submits the following 49:963(B) report. (2405Pot2)

I. A STATEMENT IDENTIFYING THE SPECIFIC RISKS BEING ADDRESSED BY THE POLICY, STANDARD, OR REGULATION AND ANY PUBLISHED, PEER-REVIEWED SCIENTIFIC LITERATURE USED BY THE DEPARTMENT TO CHARACTERIZE THE RISKS. La. R.S. 49:963(B)(1)(a)

Water quality standards are provisions of state or federal law, which consist of designated uses for surface waters and water quality criteria based upon the designated uses. Water quality standards are developed to protect public health and welfare, protect aquatic species, and enhance the overall quality of surface waters. Code of Federal Regulations, Part 40, Section 131.4 requires states to review, establish, and revise water quality standards. Code of Federal Regulations Part 40, Section 131.11 (a) requires that criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. Additionally, “States must review water quality data and information on discharges to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated water use or where the levels of toxic pollutants are at a level to warrant concern and must adopt criteria for such toxic pollutants applicable to the water body sufficient to protect the designated use.”

In accordance with 40 CFR 131.11(b), states should establish numerical values based on (i) 304(a) Guidance; (ii) 304(a) guidance modified to reflect site-specific conditions; or (iii) other scientifically defensible methods. EPA initially published aquatic life criteria recommendations for ammonia in 1976, followed by a 1985 criteria revision, then a 1999 revision, each revision incorporating newer data and better models. The draft nationally recommended freshwater ammonia criteria were published on December 30, 2009, and provided the public an opportunity to comment and provide scientific views. Supporting and related material published by the EPA, and comments submitted by the public on the draft freshwater ammonia criteria are available in the EPA Docket Center and are identified by Docket ID No. EPA-HQ-OW-2009-0921 (https://regulations.gov/docket/EPA-HQ-OW-2009-0921/document). EPA evaluated the new data and information and incorporated acceptable data in the development of the final recommended freshwater ammonia criteria. See EPA 822-R-18-022, *Aquatic Life Ambient Water Quality Criteria for Ammonia-Freshwater*. On August 22, 2013, EPA published final nationally recommended ambient water quality criteria for the protection of aquatic life from the effects of ammonia in freshwater (78 FR 52192). The EPA’s final nationally recommended ambient water quality criteria incorporates the latest scientific knowledge on the toxicity of ammonia to freshwater aquatic life.

Elevated concentrations of ammonia in freshwater have a direct toxic effect on aquatic life, exacerbated by elevated pH and temperature. Many effluents must be treated in order to keep concentrations of ammonia in surface waters from being unacceptably high. Freshwater mussels belonging to Family Unionidae are the primary aquatic organisms sensitive to ammonia and such freshwater mussels are widely distributed in Louisiana. Criteria are expressed in the form of a formula, in which temperature and pH are input to calculate the ammonia criterion.

The magnitude of ammonia toxicity to aquatic life is highly dependent on the temperature and the pH of the ambient water body. Thus, EPA presents the 2013 nationally recommended freshwater ammonia criteria as formulas, including inputs for local pH and temperature data, as well as toxicity values for the most sensitive species. The final 2013 nationally recommended criteria formulas were adjusted to specifically include toxicity values for Unionid mussel species, for which data was not previously available. Unionid mussel species are prevalent in most of the Eastern United States, including Louisiana (https://gbif.org/species/3461). LDEQ is obligated to consider criteria that are protective of aquatic species that will result in enhancement of the overall quality of surface waters of the state.

II. A COMPARATIVE ANALYSIS OF THE RISKS ADDRESSED BY THE POLICY, STANDARD, OR REGULATION RELATIVE TO OTHER RISKS OF A SIMILAR OR ANALOGOUS NATURE TO WHICH THE PUBLIC IS ROUTINELY EXPOSED. La. R.S. 49:963(B)(1)(b).

No risks of a similar or analogous nature comparable to the toxic component of ammonia in surface waters could be identified. As compared to other toxic pollutants, the risk posed by ammonia is ubiquitous, as it is a common toxic pollutant discharged by all municipal treatment works (publicly and privately owned) and a large number of industry types, such as refineries, food processors, and fertilizer manufacturers. LDEQ’s universe of facilities with individual LPDES permits is approximately 1,200. Based upon facility type, LDEQ has identified approximately 500 sanitary treatment plants (publicly and privately owned), 18 major industrial and 130 minor industrial facilities, which have the potential to discharge significant concentrations of ammonia. Therefore, approximately 54 percent of the universe of individual LPDES permits have the potential to discharge ammonia at toxic levels to surface waters. No other toxic criteria adopted into LAC 33:IX, Chapter 11 (Louisiana Water Quality Standards) are as prevalent in wastewaters discharged into *Waters of the State*, as defined by LAC 33:IX.1105. Other pollutants that are commonly present in wastewater discharges, such as fecal coliform, biological oxygen-demanding pollutants and suspended solids are not considered toxic in nature. Therefore, the risks addressed by proposed rule WQ114 cannot be compared to other risks of a similar or analogous nature.

III. AN ANALYSIS BASED UPON PUBLISHED, READILY AVAILABLE PEER-REVIEWED SCIENTIFIC LITERATURE, DESCRIBING HOW THE PROPOSED AND FINAL POLICY, STANDARD, OR REGULATION WILL ADVANCE THE PURPOSE OF PROTECTING HUMAN HEALTH OR THE ENVIRONMENT AGAINST THE SPECIFIED IDENTIFIED RISKS. La. R.S. 49:963(B)(1)(c).

Ammonia concentration in effluent is currently reported by 384 facilities covered by individual LPDES permits. As stated in Section II, a larger number of facilities have the potential to discharge a significant concentration of ammonia in effluent. Discharge Monitoring Reports (DMRs) from LPDES permitted facilities between January 2016 and December 2021 included concentration values between 0.1 and 462 mg/L with an average value of 4.58 mg/L. The nationally recommended criteria, calculated using a temperature value of 20 degrees C and a pH of 7 results in a 1.9 mg/L (chronic, 30-day average) and a 17 mg/L (acute, 1-hour average) criteria. Surface waters in Louisiana are often higher in temperature and pH can vary widely among surface waters of the state. Calculations using temperature and pH from Louisiana’s Water Quality Monitoring Network (<https://waterdata.deq.louisiana.gov/>) indicate that criteria values less than the nationally recommended criteria are often necessary to protect aquatic life. For example, utilizing the mussels present/salmonids absent formulas, an average temperature of 25 degrees C and pH value of 7.4, the resulting water quality criteria values are 1.1 mg/L (chronic, 30-day average) and 7.05 mg/L (acute, 1-hour average). According to the EPA nationally recommended freshwater ammonia criteria formulas, the higher the average temperature and pH, the lower the criteria. Average temperatures in Louisiana surface waters often exceed 25 degrees C and are sometimes as high as 27 degrees C. Utilizing the above-referenced DMR dataset approximately 41 percent of DMR values exceed 1.1 mg/L. Approximately 18 percent exceed of DMR values exceed 7.05 mg/L.

Taking into account the higher than average surface water temperatures and available DMR data, controlling ammonia discharges into surface waters from point sources becomes a necessity to meet the requirements of the Clean Water Act and the Code of Federal Regulations. As mentioned in Section I of this report, 40 CFR 131.11(a), states are required to review both water quality data and information on dischargers, and must adopt criteria for toxic pollutants that are sufficient to protect the designated use. Nearly all of LDEQ’s delineated subsegments are assigned the designated use of Fish and Wildlife Propagation (FWP). Documented species of Unionid mussels are widespread throughout the state (https://gbif.org/species/3461). Adoption of appropriate freshwater ammonia criteria will provide protection for the aquatic life, as well as enhancing the overall water quality.

However, LDEQ recognizes that species survey data is not 100 percent complete across all state waters. Proposed rule WQ114 is proposing to adopt the mussels present criteria formulas, and the mussels absent criteria formulas which will be implemented in LPDES permits through a performance-based approach. A performance-based approach relies on the adoption of a process rather than a specific outcome and does not require site-specific decisions to be codified in the regulations, so long as the process is transparent, predictable, repeatable and also provides the opportunity for the public participation. In conjunction with proposed rule WQ114, LDEQ is proposing revisions to the *Water Quality Management Plan, Volume 3*, *Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards,* which defines the process for implementing the mussels present or mussels absent criteria formulas in LPDES permits through a survey of the receiving water body to determine current and historical prescence or absence of Unionid mussels. The inclusion of both sets of criteria formulas and the performance-based approach in LPDES permitting provides the required protection of all aquatic species in Louisiana.

IV. AN ANALYSIS AND STATEMENT THAT, BASED ON THE BEST READILY AVAILABLE DATA, THE PROPOSED OR FINAL POLICY, STANDARD, OR REGULATION PRESENTS THE MOST COST-EFFECTIVE METHOD PRACTICALLY ACHIEVABLE TO PRODUCE THE BENEFITS INTENDED REGARDING THE RISKS IDENTIFIED IN SUBPARAGRAPH (A) OF THIS PARAGRAPH. La. R.S. 49:963(B)(1)(d).

Sections I-III of this report demonstrate the necessity and the requirement for LDEQ to adopt freshwater ammonia criteria that is protective of the designated use of Fish and Wildlife Propagation. The implementation of criteria into LPDES permits, meaning the development of Water Quality Based Effluent Limitations (WQBELs), is the key for the desired result of achieving water quality standards, while including the most cost-effective options to the regulated community for compliance with those standards. The presence of Unionid mussels and the criteria protective of those mussels yield the most stringent WQBELs, while the mussels absent formulas yield less stringent WQBELs. Utilizing the mussels present formulas, calculations of WQBELs completed for some facilities to date yield numbers that would require advanced treatment technology, a cost burden to the state’s publicly and privately owned treatment works, landfills and some industries. The adoption of a performance-based approach allows a regulated entity or group of regulated entities within the same receiving stream or watershed to complete a survey, defining the presence or absence of Unionid mussel species. This method is allowed for by EPA guidance through *Flexibilities for States Applying EPA's Ammonia Criteria Recommendation*s (April 2013, EPA-820-F-13-001) and the *Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-specific WQC for Ammonia* (August 2013, EPA 800-R-13-003).

In addition to the performance-based approach, provisions for compliance schedules have been included in the proposed revisions to the *Water Quality Management Plan, Volume 3: Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards.* A standard, 3-year compliance schedule will be included in all reissued permits that include more stringent, water quality based ammonia limits. Extended compliance schedules (with no definite limit) may be granted on a case-by-case basis. Considerations for granting an extended compliance schedule include the time to identify and design upgrades to the facility, the time to secure funding, procure equipment and contractors, and the construction and start-up periods. The combination of compliance schedules, the adoption of a performance-based approach in LPDES permits and accompanying implementation procedures will yield the most appropriate criteria, protective of the receiving water body, which may also prevent unnecessarily stringent WQBELs that will be a burden to the regulated community. The combination of criteria and implementation options is the most cost-effective method available to LDEQ and affected facilities, while maintaining compliance with all state and federal regulations, and achieving the ultimate goals of the Clean Water Act.

Based on the best readily available data, the proposed or final policy, standard, or regulation presents the most cost-effective method practically achievable to produce the benefits intended regarding the risks identified.

Aurelia S. Giacometto Secretary