

Georgia Department of Natural Resources

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Richard E. Dunn, Director

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MEMORANDUM

TO: James Capp

FROM: Jeff Larson, Elizabeth Booth, Gigi Steele, Audra Dickson 

RE: NPDES Permitting Strategy for Addressing Ammonia Toxicity, the 2013 Ammonia Toxicity Criteria and Total Nitrogen for Municipal and Industrial Wastewater Treatment Plants

GA EPD is required to develop numeric nutrient criteria for both Total Phosphorus and Total Nitrogen. This document is a permitting strategy to address Total Nitrogen, which includes ammonia, organic nitrogen, and nitrate/nitrite. There is a separate document that addresses the permitting strategy for Total Phosphorus.

Ammonia

On August 22, 2013, EPA published national recommended ambient water quality criteria for the protection of aquatic life from effects of ammonia in freshwater. These new criteria are meant to protect mussels from ammonia toxicity. Ammonia toxicity varies based on pH and temperature; as temperature and pH increase, organisms become more sensitive to ammonia.

States have the discretion to adopt these criteria or, where appropriate, other scientifically defensible water quality criteria different from these national recommendations. Water quality criteria can be either narrative or numeric. Numeric criteria need to be scientifically derived values that protect aquatic life or human health from the toxic effects of pollutants in ambient water. The Watershed Protection Branch's (WPB) intent is not to adopt the numeric ammonia criteria, but to implement it through the narrative toxicity criteria, the wasteload allocation (WLA) process, and instream monitoring. EPD's narrative toxicity criteria are given in the Georgia Rules, 391-3-6-.03(5)(e) (hereinafter Rules). "All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life." This approach is protective of aquatic life since permits must have water quality based limits that consider the effects of critical pH and critical temperature, and instream monitoring will allow GA EPD to determine if the narrative toxicity criteria for mussels are being met.

For municipal NPDES permit holders, the following table summarizes the WPB permitting strategy for complying with the 2013 ammonia criteria:

		Table 1 Summary of NPDES Permit Strategy for Addressing Ammonia in State Waters	
Point Source Applicant			Strategy
Category 1	NPDES municipal and privately owned permits already contain ammonia limits that comply with 2013 criteria.		Reissue the NPDES permit with the current ammonia limit.
Category 2	NPDES municipal and privately owned permits that contain ammonia limits that DO NOT comply with 2013 criteria. However, the facility can meet the 2013 criteria based on demonstrated performance.		Reissue the NPDES permit with an ammonia limit that complies with 2013 criteria.
Category 3	Major (i.e., permitted monthly flow of 1 MGD and greater) and minor (i.e., permitted monthly flow of 0.5 MGD up to 1 MGD) NPDES municipal and privately owned permits that contain ammonia limits that DO NOT comply with 2013 criteria.		Reissue the NPDES permit to comply with the 2013 criteria and include a compliance schedule.
Category 4	Minor municipal and privately owned NPDES permitted facilities with permitted monthly flows less than 0.5 MGD that contain ammonia limits that DO NOT comply with 2013 criteria.		Ensure effluent ammonia monitoring is included in the reissued NPDES permit along with an upstream and downstream monitoring requirement. If data indicates there is a problem with water quality then reissue or modify NPDES permit with an ammonia limit that complies with the 2013 criteria and include a compliance schedule.
Category 5	Municipal or privately owned NPDES permitted facilities that DO NOT have ammonia limits.		Ensure effluent ammonia monitoring is included in the reissued individual NPDES permit. As resources allow and as permits are coming up for reissuance, <u>EPD</u> will conduct instream monitoring upstream and downstream of the facility. If data indicates a problem with the narrative toxicity criteria for mussels then, based on a priority consideration regarding water quality impact, reissue or modify NPDES permits with an ammonia limit that complies with 2013 criteria and include a compliance schedule.

For new municipal facilities, or municipal facilities proposing to increase their wasteload, the 2013 national ammonia criteria will be implemented in the development of the WLA. For routine municipal and privately owned NPDES permit reissuances, or modifications, EPD will evaluate the need for ammonia limitations based on the above strategy.

Industrial NPDES permits discharging ammonia will also require WLAs for ammonia and therefore the WPB will need to ensure limits are included in permits that comply with the 2013 criteria. For industrial NPDES permitted facilities whose discharge already complies with 2013 criteria, the WPB will reissue permits based on categories 1 and 2 above. For those industrial NPDES permitted facilities that do not have ammonia limits or facilities that have limits that do not comply with the 2013 criteria, the WPB will reissue industrial NPDES permits with ammonia limits that comply with 2013 criteria and include compliance schedules. For new industrial facilities, or industrial facilities proposing to increase their load, the 2013 ammonia criteria, where applicable, will be implemented in the development of the WLA. Federal facilities that only discharge treated domestic wastewater will adhere to categories 1-5 above, with the

table's municipal permitted flow criteria replaced by actual average industrial monthly flows (calculated over the most recent 12 month period).

The WPB has already begun to issue WLAs that contain ammonia limitations based on EPA 2013 recommended ammonia criteria.

Total Nitrogen

All municipal and industrial wastewater treatment plants that discharge any form of nitrogen will be required to monitor and report Total Kjeldahl Nitrogen (TKN), nitrate/nitrite, and organic nitrogen as part of this permitting strategy. For municipal facilities that monitor BOD more than once a month, the monitoring frequency for the above mentioned parameters will be once a month. For all other municipal or privately owned facilities, the monitoring frequency for the above mentioned parameters will be the same as the BOD monitoring frequency. For All industrial facilities that discharge any form of nitrogen, the monitoring frequency for the above mentioned parameters will be once a month. TKN, nitrate/nitrite, and organic nitrogen shall be analyzed from the same effluent sample at the frequency listed above.

