

Falls Lake Nutrient Management Strategy Development Process January 2010 EMC

The Environmental Management Commission faces a tremendous challenge in the months ahead in developing nutrient rules to protect and restore Falls Lake. Nutrient management rules will be drafted by March 2010 with the goal of achieving unprecedented nutrient reductions in the watershed. This document provides background information, rule concepts currently being reviewed by stakeholders, a rulemaking timeline, and an outline of the strategy report that staff will provide the Commission in March.

In 2005 the NC General Assembly passed SL 2005-190 (S981), which includes a requirement for the Commission to adopt a nutrient strategy for Falls Lake. The 2009 regular session produced Senate Bill 1020, a bill devoted to water quality improvements in Falls Lake. This bill revises the EMC adoption deadline to January 15, 2011 and adds certain requirements aimed at water quality improvement in the watershed. The bill was ratified and signed into law on August 26, 2009. A stakeholder meeting process begun in late 2008 is now providing input on draft rule language and will meet to review revised draft rules on January 21, 2010. Staff plans to request EMC approval to take rules to public comment in March 2010.

Lake Background: Following questions in 2004 over the condition of Falls Lake, DWQ began more intensive sampling for use support assessment. A Falls Lake Technical Advisory Committee (TAC) was formed in July 2005 to assist DWQ with the review and modification of the monitoring strategy and developing levels of confidence for decision making associated with the monitoring and lake modeling activities. The field study was completed in fall 2007. Based on water quality data collected between 2002 and 2006, Falls Lake was listed as impaired for chlorophyll *a* on the draft NC 2008 303(d) list. The portion of the lake above I-85 was also listed as impaired for turbidity.

Stakeholder Process: A watershed and lake model were completed by DWQ staff in November 2008 and February 2009 respectively and presented to the TAC for their review. A stakeholder process conducted through a joint effort between the Triangle J Council of Governments (TJCOG) and DWQ began meeting in August 2008 to provide stakeholders an opportunity for input on development of a nutrient strategy for the lake. The stakeholder group has convened eight times over the past year. The group has gained an understanding of lake issues, modeling basics and results, and has begun to grapple with strategy design issues and options. Presentations and meeting summaries are posted to a Falls Lake stakeholder website hosted by TJCOG. An online discussion forum, known as a “wiki”, was also created to provide stakeholders an open forum to raise questions and exchange information between meetings.

Stakeholder Subcommittee Meetings: The stakeholder group broke into four smaller subcommittees that held a total of twelve meetings between September 17th and December 7th, 2009 to work on detailed nutrient reduction rule ideas by source type and provide input on the fiscal impacts of the strategy between. In late November and early December draft rules addressing new development stormwater, existing development, agriculture, and point sources were provided to stakeholders for their review and review with comment. DWQ plans to reconvene the full stakeholder group on January 21st to review revised drafts of the rules before

taking the package to the Environmental Management Commission for approval to go out to public comment in March 2010.

Draft Nutrient Management Strategy Approach

The following is an outline of the rule concepts that have been developed with input from the stakeholders and incorporated in draft rule text provided to the stakeholder subcommittees for review.

Strategy Goal

Meet chlorophyll-a standard lake-wide via reductions in nitrogen and phosphorus loading to surface waters by 30% and 70%, respectively which equates to a 40% and 77% reduction from the 2006 baseline by all regulated sources.

Staged Approach

Given the large reduction needs, DWQ proposes an adaptive / staged approach:

- Stage 1: Initial reductions watershed-wide to ensure the chlorophyll-a standard is met in the lower lake. 10 years.
- Stage 2: Additional reductions in upper watershed (above NC 50) to ultimately achieve the chl a standard lake-wide. Additional 15 years.
- Stage 3: Additional reductions from existing development as needed and feasible up to 40% TN and 77% TP.

Lake Water Quality Monitoring

- Use support assessment every 2 years on Integrated Report cycle
- Data window = 5 years preceding assessment
- Example: 2016-2020 data => 2021 assessment (for 2022 IR)

Rule Stages by Source Type

New Development Stormwater

- Applies to all local governments
- Achieve nutrient export rate targets: **2.2 lbs/ac/yr TN and 0.33 lbs/ac/yr TP**
 - Based on 40% TN and 77% TP reductions from acreage weighted average export rate from buildable land in watershed
- Greatest reasonable level of nutrient control onsite, remaining achieved offsite
- Staged approach does not apply to New Development Rule

Existing Development

- Each local government achieves load reduction goals from existing developed lands
- Stage 1
 - Reduce existing development load to 2006 baseline levels
 - By 2021 (10 yrs)
- Stage 2
 - Possible options:

- Local government proposes compliance timeframe, plan shall meet explicit criteria; or
 - At least half of reductions by 2036 (+15 yrs) before implementing a Stage 3 load reduction program
- Stage 3
 - Local government proposes compliance timeframe to achieve the remainder of reductions up to the 40% TN and 77% TP goal, plan shall meet explicit criteria

Point Sources

- Each nutrient-producing point source achieves reductions in load
 - Waste load allocations for large facilities (>0.1 MGD)
 - Small facilities (<0.1 MGD) implement O&M measures to get reductions
- Stage 1
 - Mass allocations for large facilities in upper watershed based on 20% TN / 40% TP reductions using equivalent concentrations at current flow + 10%
 - Implement Biological Nutrient Removal (BNR) technologies at large package plants in lower watershed.
 - Achieve by 2016 (5 years)
- Stage 2
 - Mass allocations for large facilities in upper watershed based on 40% TN / 77% TP reductions using equivalent concentrations at full permitted flow
 - Achieve by 2031 (+15 years)

Agriculture

- Stage 1
 - Achieve collective N & P reduction goals of 20% TN and 40% TP
 - Residuals application uses RYE N rates and run, comply with PLAT
 - Achieve by 2021 (10 years)
- Stage 2 (if Stage 1 goals achieved)
 - Achieve collective N & P reduction goals of 40% TN, 77% TP
 - Achieve by 2036 (+15 years)
- Stage 2 (if Stage 1 goals not achieved)
 - Buffer all cropland and buffers and exclusion on all pasture, *and*
 - Achieve collective N & P reduction goals of 40% TN, 77% TP
 - Achieve by 2036 (+15 years)

State and Federal Entities

- Similar approach as used in Jordan requirements

Nutrient Trading

- Similar approach as used in Jordan to provide overarching open trading across all sources

Buffer

- No new rules - Existing Neuse Buffer Rules continue to apply

Next Steps in Rule Making Timeline

Rulemaking Task	Date
Final Stakeholder meeting to review draft rule text	January 21, 2010
Submit Fiscal Analysis to OSBM	January 31, 2010 (target)
WQC / EMC approval to take draft rules to public comment	March 2010
Public comment period	TBD
Hearing Officers deliberate public comments	TBD
WQC / EMC approval of final rules	January 15, 2011
Falls Lake Rules go into effect as “temporary rules”	February 1, 2011
Rules Review Commission reviews rule language	February 2011 - TBD
Rules may go to N.C. General Assembly	May 2012

TBD = To be determined based in large part on the fiscal note approval process. The note must be approved by the Office of State Budget Management before public hearings can be held.

Falls Lake Nutrient Management Report

The models developed and used in developing the strategy will be documented in a report that is currently under development. Staff plans to provide this document to the WQC and EMC in March 2010 in support of the draft rules that will be provided then. An outline of the report is provided below.

I. Background

- a. Nutrient Problems
 - i. Map of Violations
 - ii. Graph of Historical Chl-a data
- b. TAC & Stakeholder Process

II. Modeling & Model Application

- a. Two Models
 - i. Serial vs. Parallel Approach
 - ii. Data used by both models
 - iii. Watershed Model loading estimates
 - iv. Loads used by Lake Model
- b. Lake Model Scenario Run
 - i. 2006 Baseline discussion
 - ii. Use of NEU13B as “compliance area”
 - iii. Upper vs. Lower lake
 - iv. Development of “The Curve”

III. Decision on Strategy Development

- a. General Decisions
 - i. Decision on use of 30/70 reduction combination
 - ii. Process to adjust to 40/77 reduction
 - iii. Stage 1 / Stage 2 discussion
 - iv. Trading

- v. Transport factors
- b. Source-specific decisions made based on stakeholder input
 - i. What we decided to do
 - ii. What we decided not to do
 - iii. Others

Links to More Information

Draft Falls Lake Rules

<http://fallslakestakeholder.wikispaces.com/Draft+Rules>

Senate Bill 1020

<http://www.ncleg.net/Sessions/2009/Bills/Senate/PDF/S1020v4.pdf>

Session Law 2005-190

<http://www.ncleg.net/Sessions/2005/Bills/Senate/PDF/S981v5.pdf>

Falls Lake Stakeholder Website

<http://www.fallslakestakeholder.org>

Falls Lake Stakeholder Online Wiki

<http://fallslakestakeholder.wikispaces.com>

Watershed Model Report

<http://h2o.enr.state.nc.us/tmdl/documents/July09DraftFallsLakeWatershedModelReport.pdf>

Lake Model Report

http://h2o.enr.state.nc.us/tmdl/documents/FallsLakeDraftReport8_full.pdf