**North Carolina Department of Health and Human Services**
**Division of Public Health**

Pat McCrory
Governor

Aldona Z. Wos, M.D.
Ambassador (Ret.)

Secretary DHHS

Penelope Slade-Sawyer
Division Director

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**POSITION STATEMENT:** Expanded Design Daily Flow Exemption for Low-Flow Design Alternatives for Wastewater Systems

**PURSUANT TO:** Session Law 2014-120 and 2013-413, 2013-14 Legislative Session

**SOURCE:** Nancy Deal, Onsite Water Protection Branch Head

**ISSUE:** Amendments to Rule 15A NCAC 18A .1949(b)

**DISCUSSION AND RATIONALE:**

Session Law 2013-413 adopted last year granted a design daily flow exemption for facilities identified in Table No. 1 of Rule .1949(b) if flow reduction can be achieved through ***engineering design utilizing low-flow fixtures and low-flow technologies***. Session Law 2014-120, effective September 18, 2014, expands the design daily flow exemption to include dwelling units. Any such flow reduction design is still required to be "prepared, sealed and signed" by a NC- licensed professional engineer. This law continues to state that the Department (DHHS) and Commission (for Public Health) may establish lower limits on reduced flow rates "as necessary to ensure wastewater system integrity and protect public health, safety and welfare." The new law now also requires any such limits to be established by rule and be based on "scientific evidence specific to soil types found in North Carolina that the lower limits are necessary for those soil types."

As in the 2013 Session Law, the 2014 Session Law provides that State review of engineered design is not required pursuant to Rule .1938(e) if the proposed daily design flows for wastewater systems are calculated to be less than 3,000 gallons per day. This year's Session Law adds the provision that neither "the State nor any local health department shall be liable for any damages caused by a system approved or permitted pursuant to this section."

Section 34(c) of last year's Session Law remains in effect, requiring the Commission to amend Rule .1949 consistent with this year's re-written Session Law, and the amended rule is to be "substantively identical" to the Session Law's provisions.

The relevant sections of these two Session Laws are as follows:

***From Session Law 2013-413:*** ***"SECTION 34(a):****15A NCAC 18A .1949(b) (Sewage Flow Rates for Design Units). – Until the effective date of the revised permanent rule that the Commission is required to adopt pursuant to Section 34(c) of this act, the Commission, the Department, and any other political subdivision of the State shall implement 15A NCAC 18A .1949(b) (Sewage Flow Rates for Design Units) as provided in Section 34(b) of this act."*

***From Session Law 2014-120****: "****SECTION 53****:* Section 34(b) of S.L. 2013-413 reads as rewritten:

> ***SECTION 34.(b)*** *Implementation. – Notwithstanding the Daily Flow for Design rates listed for dwelling units in 15A NCAC 18A .1949(a) or for other establishments in Table No. 1 of 15A NCAC 18A .1949(b) (Sewage Flow Rates for Design Units), a wastewater system shall be exempt from the Daily Flow for Design, and any other design flow standards that are established by the Department of Health and Human Services or the Commission for Public Health provided flow rates that are less than those listed in ~~Table No. 1 of 15A NCAC 18A .1949(b)~~15A NCAC 18A .1949 (Sewage Flow Rates for Design Units) can be achieved through engineering design that utilizes low-flow fixtures and low-flow technologies and the design is prepared, sealed, and signed by a professional engineer licensed pursuant to Chapter 89C of the General Statutes. The Department and Commission may ~~establish~~ establish, by rule, lower limits on reduced flow rates as necessary to ensure wastewater system integrity and protect public health, safety, and ~~welfare~~welfare, provided that the Commission relies on scientific evidence specific to soil types found in North Carolina that the lower limits are necessary for those soil types. Rules adopted pursuant to this section shall become effective as provided in G.S. 150B-21.3(b1) as though 10 or more written objections had been received as provided by G.S. 150B-21.3(b2). Proposed daily design flows for wastewater systems that are calculated to be less than 3,000 total gallons per day shall not require State review pursuant to 15A NCAC 18A .1938(e). Neither the State nor any local health department shall be liable for any damages caused by a system approved or permitted pursuant to this section."*

***From Session Law 2013-413:*** ***"SECTION 34.(c):*** *Additional Rule-Making Authority. – The Commission shall adopt a rule to amend 15A NCAC 18A .1949(b) (Sewage Flow Rates for Design Units) consistent with Section 34(b) of this act. Notwithstanding G.S. 150B-19(4), the rule adopted by the Commission pursuant to this section shall be substantively identical to the provisions of Section 34(b) of this act. Rules adopted pursuant to this section are not subject to G.S. 150B-21.8 through G.S. 150B-21.14. Rules adopted pursuant to this section shall become effective as provided in G.S. 150B-21.3(b1) as though 10 or more written objections had been received as provided by G.S. 150B-21.3(b2)."*

***From Session Law 2013-413:*** ***"SECTION 34.(d):*** *Sunset. – Section 34(b) of this act expires on the date that rules adopted pursuant to Section 34(c) of this act become effective."*

The enactment of this new law raises questions regarding its implementation since it affects other requirements and allowances in statute and rule pertaining to design flow, state review and system permitting. The information below provides guidance and addresses questions posed thus far.

**RESPONSE/INTERPRETATION:**

**Questions**

1. Is the local health department (LHD) now required to act on applications submitted which utilize this new alternative for calculating design flow?

   Response: Yes. However in considering alternative design flow the following conditions must all be met:
   a. Proposed flows are less than those listed for dwelling units in Rule .1949(a) or in Table No. 1, Rule .1949(b) for other establishments;
   b. Reduction shall be based on engineering design that utilizes ***low-flow fixtures and low-flow technologies.***
   c. The design is prepared, sealed and signed by a professional engineer licensed pursuant to Chapter 89C of the General Statutes;
   d. The proposed flow complies with any reduced limits that may be established by Rule by the Department or Commission as necessary to ensure wastewater system integrity and protect public health, safety, and welfare, that are determined by the Commission to be necessary based on scientific evidence specific to soil types found in North Carolina; and
   e. The owner is made aware of the disclaimer, and any permits issued can and should include the statement: "Neither the State nor local health department shall be liable for any damages caused by an engineered system approved or permitted pursuant to Session Law 2014-120 Section 53."

2. Is State review required for systems with design flows initially determined to be over 3,000 gallons per day [by Rule .1949(a) or by Table No. 1 of Rule .1949(b)] but then designed under 3,000 gallons per day (gpd) by the engineer based upon use of low-flow fixtures and low-flow technologies?

   Response: No.

3. Can the LHD request a State review of a system as described in Question Number 2?

   Response: Yes. Although the new law states that proposed systems described in Number 2 do not require State review, it does not prohibit the local health department from requesting State review.

4. Do flow reductions allowed pursuant to this Session Law apply to residential systems?

   Response: Yes. They apply to flow rates listed for dwelling units in Rule .1949(a) in addition to establishments listed in Table No. 1 of Rule .1949(b).

5. Are Rules .1949(c)(1) and (2) still applicable as an alternate means by which a flow reduction may be sought? If so, is State review required when the system has a design flow over 3,000 gpd as determined in Rule .1949(a) or Table No. 1 of Rule .1949(b)

and the calculated reduced flow rate is less than 3,000 gallons per day based on either of these subparagraphs?

Response: In accordance with Rule .1949(c)(1), a flow reduction may be granted based upon documented data from that facility or a comparable facility. State review would still be required if the initial computation of design flow is greater than 3,000 gpd prior to a justified reduction pursuant to this subparagraph.

This new statute appears to supersede Rule .1949(c)(2) which previously provided for flow reductions based upon use of water-conserving fixtures for engineered systems. Rule .1949(c)(2) remains applicable for non-engineered systems serving a facility included in Rule .1949(b), requiring review by the local health department and the State on a case-by-case basis.

6. Have the Department and Commission established lower limits on reduced flow rates pursuant to this Statute?

   Response: No. The Department will initiate the process to include lower limits in the Rules by working with the Commission for Public Health. The Session Law requires such limits to be established based upon scientific evidence specific to soil types found in North Carolina as necessary to ensure wastewater system integrity and protect public health, safety, and welfare for those soil types.

7. How should health departments respond to these reduced design flows for dwelling units and for the various establishments in Table No. 1 of Rule .1949(b) until lower limits have been established by the Department and Commission?

   Response: Until lower limits are formally established by the Department and Commission through the rule making process, it is incumbent on the design engineer to propose reductions that do not exceed limits necessary to ensure wastewater system integrity and adequate protection of public health, safety, and welfare based on scientific evidence specific to the soil present on the site.

   As discussed above, counties may request State review of flow reduction proposals for any particular project. Such reviews will be limited to review of the flow reduction proposal unless the LHD specifically requests broader review.

8. Does the reduced flow apply to the pretreatment system design in addition to the drainfield?

   Response: The design engineer must address this on a project-specific basis. The normal standard of practice is to base pretreatment system components on unreduced flows since the total wastewater constituent load remains unreduced when using water-conserving fixtures. The design and capacity of pretreatment system components should account for increased constituent concentrations expected due to use of low-flow fixtures.

9. Do flow reductions allowed pursuant to this Session Law apply to industrial process wastewater (IPWW) systems?

   Response: No. The flow reductions apply only to dwelling units and to establishments listed in Table No. 1 of Rule .1949(b). The requirement for State review of IPWW systems remains as described in G.S. 130A-336(c) and Rule .1938(f).

10. Does the allowance for reducing flows below 3,000 gpd exempt the project from system classification for establishing Operation and Maintenance requirements?

    Response: These Session Law(s) do not reference system classifications as related to Operation and Maintenance requirements. System classification is based on the unreduced design flow whether or not it has been reviewed by the State or if a Professional Engineer proposes a reduced flow to below 3,000 gpd pursuant to this section. However, the designer may propose and provide justification for a reduction in required inspection/maintenance frequency in conjunction with system design that utilizes low-flow fixtures and low-flow technologies.

11. Does a project with reduced flows below 3,000 gpd based on low-flow fixtures require an evaluation and report prepared by a Licensed Soil Scientist (LSS)?

    Response: Not necessarily. A report from an LSS may be required pursuant to other applicable rules (e.g., Rule .1969) or approval conditions (Rule .1969). An engineer may elect to include an LSS report in their submittal to justify the flow reduction or reduced O&M requirements.

12. When is an engineering design considered to qualify as using "low-flow fixtures and low-flow technologies" that will provide flow rate reductions pursuant to this Section?

    Response: The design engineer is responsible for providing the basis of design, including documentation that proposed fixtures and technologies will achieve the projected flow rate reductions incorporated into the system design on a case-by-case basis. One criterion would be a comparison of the documented consumption of a proposed fixture to the maximum rate allowable for that fixture type under the North Carolina Plumbing Code (Table 604.4, Section 604.4 specifies maximum water consumption flow rates and quantities for all plumbing fixtures and fixture fittings). We note that "low-flow" fixtures have already become a standard of practice for over a decade, mandated by the US Energy Policy Act of 1992 and the North Carolina Plumbing Code. To comply with this Section, fixture capacities should be lower than what have become the accepted standards of practice.

    The Environmental Protection Agency's (EPA) Water sense program provides a comprehensive list of products certified to meet specified reduced water consumption rates in addition to meeting other recognized fixture performance standards. For example, the NC Plumbing Code allows a water closet to use 1.6 gallons per flush, while a "Water Sense" toilet cannot exceed 1.28 gallons per flush. The calculated reduction associated with any particular fixture would also need to be based on an

appropriate estimate of that fixture's relative contribution to the facility's daily water use. It is incumbent on the designer to verify that the proposed reduced-capacity fixtures comply with other Plumbing Code requirements, including allowable minimum flows for the associated plumbing system.

13. What other permitting requirements are necessary to assure systems approved pursuant to this section are in compliance?

Response: As a system required to be designed by a Professional Engineer, prior to Operation Permit issuance, the owner is required to submit to the local health department a statement signed by the Engineer stating that construction is complete and in accordance with approved plans and specifications. This statement should re-iterate that the design and approval are based on the use of low-flow fixtures and low-flow technologies specified in the design and verify such fixtures/technologies are or will be in place. The Operation Permit shall also include as a condition that these will remain in use for the life of the applicable system, in addition to the liability disclaimer statement.

**References:**

NC Plumbing Code, On-Line:
http://ecodes.biz/ecodes_support/free_resources/2012NorthCarolina/Plumbing/12NC_plumbing.html

EPA Water Sense Fixture Specifications:
http://www.epa.gov/WaterSense/partners/product_program_specs.html

NOTE: Position statements are policy documents intended to clarify how to interpret or enforce a law or rule. They are not enforceable on their own, but are intended to promote uniform interpretation and enforcement of the underlying law or rule.