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## MEMORANDUM

**TO:** Committee on Legal Services

**FROM:** Thomas Morris, Office of Legislative Legal Services

**DATE:** December 5, 2017

**SUBJECT:** Rules of the Water Quality Control Commission, Department of Public Health and Environment, concerning On-site Wastewater Treatment System Regulation, 5 CCR 1002-43 (LLS Docket No. 170245; SOS Tracking No. 2016-00640).<sup>1</sup>

### Summary of Problems Identified and Recommendations

Section 24-4-103 (12.5)(a), C.R.S., authorizes agencies to adopt rules that incorporate by reference standards adopted by a nationally recognized organization or association if the rules meet listed requirements. But the Commissioner's Rules 43.3.91., Table 3-1, 43.9.B.3.a., 43.9.B.5.a., 43.9.B.6.a., 43.9.D.1.b., 43.9.D.1.c., 43.9.I.1.b., 43.9.I.1.c., 43.9.I.2.c., Table 10-1A footnote 5, 43.10.G.1.a., 43.10.I.6.c.(3), 43.11.C.2.e.(1), 43.11.C.4.d., 43.11.C.4.e., 43.11.C.5.d.(1), 43.11.C.5.f.(1), 43.11.C.5.g.(1),

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<sup>1</sup> Under § 24-4-103, C.R.S., the Office of Legislative Legal Services reviews rules to determine whether they are within the promulgating agency's rule-making authority. Under § 24-4-103 (8)(c)(I), C.R.S., the rules discussed in this memorandum will expire on May 15, 2018, unless the General Assembly acts by bill to postpone such expiration.

43.12.A.1.b., 43.12.E.5.a., 43.12.E.6.a., 43.12.G.6.a., 43.13.D.3.b., 43.13.D.3.j., 43.14.E.3.c., and 43.16, which attempt to incorporate various organizations' standards, conflict with the statute by not stating where copies of the incorporated standards are available from the organization that originally issued the standards. **Because these rules conflict with the statute, we recommend that Rules 43.3.91., Table 3-1, 43.9.B.3.a., 43.9.B.5.a., 43.9.B.6.a., 43.9.D.1.b., 43.9.D.1.c., 43.9.I.1.b., 43.9.I.1.c., 43.9.I.2.c., Table 10-1A footnote 5, 43.10.G.1.a., 43.10.I.6.c.(3), 43.11.C.2.e.(1), 43.11.C.4.d., 43.11.C.4.e., 43.11.C.5.d.(1), 43.11.C.5.f.(1), 43.11.C.5.g.(1), 43.12.A.1.b., 43.12.E.5.a., 43.12.E.6.a., 43.12.G.6.a., 43.13.D.3.b., 43.13.D.3.j., 43.14.E.3.c., and 43.16 of the rules of the Water Quality Control Commission concerning On-site Wastewater Treatment System Regulation not be extended.**

Section 24-4-103 (4)(b)(III), C.R.S., requires that agencies' rules be clearly and simply stated so that their meaning will be understood by any party required to comply with them. But Rules 43.9.I.1.b., 43.9.I.2.c., 43.9.I.7.a.(6), and Table 10-1A footnote 5 are so vague that it is impossible to know specifically how to comply with the rules.

**Because these rules conflict with the statute, we recommend that Rules 43.9.I.1.b., 43.9.I.2.c., 43.9.I.7.a.(6), and Table 10-1A footnote 5 of the rules of the Water Quality Control Commission concerning On-site Wastewater Treatment System Regulation not be extended.**

## **Analysis**

- 1. The Commission's rules attempt to incorporate various organizations' standards, but the rules do not state where copies of the incorporated standards are available from the organization that originally issued the standards.**

Section 24-4-103 (12.5), C.R.S., of the State Administrative Procedure Act authorizes agencies to adopt rules that incorporate by reference standards adopted by a nationally recognized organization or association if the rules meet listed requirements, including that a rule must state where copies are available from the organization or association originally issuing the standard:

**24-4-103. Rule-making - procedure - definitions - statutory citation correction - repeal. (12.5) (a) A rule may incorporate by reference all or any part of a code, standard, guideline, or rule that has been adopted by an agency of the United States, this state, or another state, or adopted or published by a nationally recognized organization or association, if:**

(IV) **The rule states** where copies of the code, standard, guideline, or rule are available for a reasonable charge from the agency adopting the rule and **where copies are available from the** agency of the United States, this state, another state, or the **organization or association originally issuing the** code, **standard**, guideline, or rule; and **(Emphases added)**

The Commission has both general and specific rule-making authority regarding on-site wastewater treatment systems:

**25-10-104. Regulation of on-site wastewater treatment systems - state and local rules.** (1) The division shall develop, and recommend to the commission for adoption, **rules setting forth minimum standards for the location, design, construction, performance, installation, alteration, and use of on-site wastewater treatment systems** within Colorado. The commission may establish criteria for issuing variances in the rules.

(3) **If a local board of health has not adopted rules** in compliance with this section and submitted them to the commission, **the commission shall promulgate rules** for the areas of the state for which no complying rules have been adopted, except for areas serviced exclusively by a sewage treatment works. Rules for such areas of the state promulgated by the commission **must comply with the rules adopted under subsection (1) of this section** and sections 25-10-105 and 25-10-106. The rules must be the same for all the areas of the state for which the commission promulgates such rules, except as may be appropriate to provide for differing geologic conditions. **(Emphases added)**

Nothing in the Commission's rule-making authority allows the Commission's rules to be inconsistent with the State Administrative Procedure Act's incorporation by reference requirements.

The Commission's rules that attempt to incorporate various organizations' standards by reference are attached as **Addendum A**. In particular, Rule 43.16 (reproduced on the final page of the Addendum) is the general incorporation by reference rule; it states:

#### **43.16 Materials Incorporated by Reference**

Throughout these regulations, standards and requirements by outside organizations have been adopted and incorporated by reference. The materials incorporated by reference cited herein include only those versions that were in effect as of April 10, 2017, and not later amendments to the incorporated material. Materials incorporated by reference are available for public inspection during normal business hours from the Water Quality Control Division, 4300 Cherry Creek Drive South, Denver, Colorado 80246. Copies may be purchased from the source organizations.

This rule could have stated where copies of the incorporated standards are available from the organizations or associations originally issuing the standards, but does not.

Alternatively, Table 3-1 (reproduced on the first page of the Addendum), which lists each of the organizations and associations that originally issued the standards, could have stated where copies of the incorporated standards are available from the organizations or associations originally issuing the standards, but does not. Nor do any of the various rules that refer to the standards<sup>2</sup> state where copies are available.

Additionally, Rule 43.12.A.1.b. states that certain guidelines "must be followed":

#### **43.12 Design Criteria – Other Facilities**

##### **A. Evapotranspiration and Evapotranspiration/Absorption Systems:**

##### **1. Non-Pressurized Drip Dispersal System (NDDS):**

b. *The Colorado Professionals in Onsite Wastewater **Guidelines** for the Design and Installation of Non-Pressurized Drip Dispersal Systems (NDDS)*, September, 2016 is the procedural guideline in the design of a NDDS and **must be followed** when an NDDS is proposed. (**Emphases added**)

If "guidelines" must be followed, they aren't really guidelines; they have the force and effect of law and should either be properly incorporated by reference or adopted as rules. But the Commisison's rules neither incorporate these guidelines by reference nor do they properly adopt them as rules.

Because the rules do not state where copies of the standards are available from the organization originally issuing them and because Rule 43.12.A.1.b. does not meet any of the incorporation by reference requirements, Rules 43.3.91., Table 3-1, 43.9.B.3.a., 43.9.B.5.a., 43.9.B.6.a., 43.9.D.1.b., 43.9.D.1.c., 43.9.I.1.b., 43.9.I.1.c., 43.9.I.2.c., Table 10-1A footnote 5, 43.10.G.1.a., 43.10.I.6.c.(3), 43.11.C.2.e.(1), 43.11.C.4.d., 43.11.C.4.e., 43.11.C.5.d.(1), 43.11.C.5.f.(1), 43.11.C.5.g.(1), 43.12.A.1.b., 43.12.E.5.a., 43.12.E.6.a., 43.12.G.6.a., 43.13.D.3.b., 43.13.D.3.j., 43.14.E.3.c., and 43.16 conflict with the statute and should not be extended.

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<sup>2</sup> Those are: Rules 43.3.91., 43.9.B.3.a., 43.9.B.5.a., 43.9.B.6.a., 43.9.D.1.b., 43.9.D.1.c., 43.9.I.1.b., 43.9.I.1.c., 43.9.I.2.c., Table 10-1A footnote 5, 43.10.G.1.a., 43.10.I.6.c.(3), 43.11.C.2.e.(1), 43.11.C.4.d., 43.11.C.4.e., 43.11.C.5.d.(1), 43.11.C.5.f.(1), 43.11.C.5.g.(1), 43.12.A.1.b., 43.12.E.5.a., 43.12.E.6.a., 43.12.G.6.a., 43.13.D.3.b., 43.13.D.3.j., and 43.14.E.3.c.

2. Rules that are so vague that it is impossible to know specifically how to comply with them conflict with the statute, which requires agencies' rules to be clearly and simply stated so that their meaning will be understood by any party required to comply with them.

Section 24-4-103 (4)(b)(III), C.R.S., requires that agencies' rules be clearly and simply stated so that their meaning will be understood by any party required to comply with them:

**24-4-103. Rule-making - procedure - definitions - statutory citation correction - repeal.** (4) (b) All proposed rules shall be reviewed by the agency. No rule shall be adopted unless:

(III) To the extent practicable, the regulation is clearly and simply stated so that its meaning will be understood by any party required to comply with the regulation;

But Rules 43.9.I.1.b., 43.9.I.2.c., 43.9.I.7.a.(6), and Table 10-1A footnote 5 are so vague that it is impossible to know how to comply with them. Each of these rules is found in Addendum A other than Rule 43.9.I.7.a.(6), which states:

#### **43.9 Design Criteria – Components**

##### **I. Wastewater Pumping and Dosing Siphon Systems**

##### **7. Controls**

a. Control panels or other electrical boxes used to control the functions of an OWTS must comply with the following, as appropriate:

(6) Must bear the seal of a Nationally Recognized Testing Laboratory (NRTL), such as UL or ETL.

While the term "UL" is defined in Table 3-1 to mean "Underwriters' Laboratories," the terms "Nationally Recognized Testing Laboratory," "NRTL," or "ETL" are not defined anywhere in the rule. The rule is therefore not clearly and simply stated, and not every regulated entity would be able to understand its meaning.

Rules 43.9.I.1.b. and 43.9.I.2.c. both state that certain equipment must be certified to the "applicable" UL or CSA electrical safety standard, but the rules do not clarify what the "applicable" standard is.

Table 10-1A footnote 5 states that "[t]he percentage of rock may be determined by a gradation conducted per ASTM standards, or an appropriate field evaluation by volume," but the footnote does not identify which ASTM standards may or must be used.

Because these rules are so vague that it is impossible to know specifically how to comply with them, they conflict with the statute. We therefore recommend that Rules

43.9.I.1.b., 43.9.I.2.c., 43.9.I.7.a.(6), and Table 10-1A footnote 5 of the Commission concerning On-site Wastewater Treatment System Regulation not be extended.

## **Recommendation**

We therefore recommend that Rules 43.3.91., Table 3-1, 43.9.B.3.a., 43.9.B.5.a., 43.9.B.6.a., 43.9.D.1.b., 43.9.D.1.c., 43.9.I.1.b., 43.9.I.1.c., 43.9.I.2.c., 43.9.I.7.a.(6), Table 10-1A footnote 5, 43.10.G.1.a., 43.10.I.6.c.(3), 43.11.C.2.e.(1), 43.11.C.4.d., 43.11.C.4.e., 43.11.C.5.d.(1), 43.11.C.5.f.(1), 43.11.C.5.g.(1), 43.12.A.1.b., 43.12.E.5.a., 43.12.E.6.a., 43.12.G.6.a., 43.13.D.3.b., 43.13.D.3.j., 43.14.E.3.c., and 43.16 of the rules of the Water Quality Control Commission concerning On-site Wastewater Treatment System Regulation not be extended because they conflict with statutes.

## ADDENDUM A

### REGULATION NO. 43 - ON-SITE WASTEWATER TREATMENT SYSTEM REGULATION

#### 43.3 Definitions

91. "Nitrogen reduction" means a minimum 50 percent reduction of influent nitrogen strength which is the minimum objective of NSF/ANSI Standard 245 - Wastewater Treatment Systems - Nitrogen Reduction.

**Table 3-1 Abbreviations and Acronyms**

AASHTO	American Association of State Highway and Transportation Officials
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
C.R.S.	Colorado Revised Statutes
CBOD	Carbonaceous Biochemical Oxygen Demand
CSA	Canadian Standards Association
gpd	gallons per day
IAPMO	International Association of Plumbing and Mechanical Officials
ISDS	Individual Sewage Disposal System
LTAR	Long-term Acceptance Rate
mg/L	milligrams per Liter
MPI	Minutes Per Inch
NAWT	National Association of Wastewater Technicians
NDDS	Non-pressurized Drip Dispersal System

NPCA	National Precast Concrete Association
NSF	National Sanitation Foundation
OWTS	On-site Wastewater Treatment System(s)
STA	Soil Treatment Area
TL	Treatment Level
TN	Total Nitrogen
TSS	Total Suspended Solids
UL	Underwriters' Laboratories

### 43.9 Design Criteria – Components

#### B. Septic Tanks

##### 3. Inspection and Testing of Septic Tank Watertightness

- a. Testing of septic tanks must be performed and evaluated as specified in section 9 of ASTM C1227-13 (Standard Specification for Precast Septic Tanks) for concrete tanks or in Standard IAPMO/ANSI Z1000-2013 (American Standards for Prefabricated Septic Tanks) for other prefabricated septic tanks.

##### 5. Concrete Septic Tank Structural Design

- a. Concrete septic tanks must comply with the structural design criteria of ASTM C1227-13 (Standard Specification for Precast Septic Tanks).

##### 6. Fiberglass, Fiberglass-Reinforced Polyester, and Plastic Tanks

- a. All fiberglass, fiberglass-reinforced polyester, and plastic tanks must meet the minimum design and structural criteria of IAPMO/ANSI Z1000-2013 (American Standards for Prefabricated Septic Tanks) and be certified by a professional engineer as meeting these standards. The professional engineer certifying the criteria must be registered or licensed in the United States, but need not be registered in Colorado.

#### D. Pipe Standards and Bedding Requirements:

##### 1. Pipe Standards

- b. Where unperforated plastic pipe and fittings are used for gravity flow, the minimum wall thickness of the pipe must conform to ASTM Standard D 3034 or equivalent or greater strength. Schedule 40 pipe is preferred.
- c. Perforated distribution pipe surrounded by rock within a soil treatment area must have a minimum wall thickness and perforations conforming to ASTM Standard D 2729 or equivalent or greater strength. Corrugated polyethylene pipe with smooth interior that meets ASTM F405 or AASHTO M252 specifications or equivalent may be used.

#### I. Wastewater Pumping and Dosing Siphon Systems

##### 1. Pumps

- b. Pumps must be certified to the **applicable** UL or CSA electrical safety standard, bear the seal of approval of CSA, UL or an equivalent testing program and be constructed of corrosion resistant materials.



- c. Grinder pumps must also be certified to NSF/ANSI Standard 46 and bear the seal of approval of the NSF or equivalent testing and certification program.
2. Floats and Switches
  - c. Float switches must be certified to the **applicable** UL or CSA electrical safety standard, bear the seal of approval of CSA, UL or an equivalent certification program and be constructed of corrosion resistant materials.

#### 43.10 Design Criteria – Soil Treatment Area

- C. Calculation of Infiltrative Surface of Soil Treatment Area
  2. Long-term acceptance rates (LTARs) are shown in Tables 10-1 and 10-1A.

Table 10-1A Design Criteria for Soils with High Rock Content (Type “R” Soils) <sup>1,2,3,4</sup>

Soil Type, Percentage of Rock, LTAR, Distribution				Required Sand or Media Depth Relative to the Quality of Effluent Applied to the Distribution System				
Soil Type	Percentage and Size of Rock <sup>5</sup>	Maximum LTAR (Gal./sq.ft./ day)	Type of Distribution Required	Treatment Level 1 <sup>6</sup>	Treatment Level 2	Treatment Level 2N	Treatment Level 3	Treatment Level 3N
R-0	Soil Type <sup>7</sup> 1 with more than 35% Rock (>2mm)	Unlined Sand Filter: 1.0 for “Preferred Sand Media”; 0.8 for “Secondary Sand Media”	Pressure Distribution <sup>8</sup>	Minimum 3-foot deep Unlined Sand Filter	Minimum 3-foot deep Unlined Sand Filter	Minimum 2.5-foot deep Unlined Sand Filter	Minimum 2.5-foot deep Unlined Sand Filter	Minimum 2-foot deep Unlined Sand Filter
R-1; Option 1	Soil Type <sup>7</sup> 2 – 5, >35 - 65% Rock (>2mm) ; with ≥50% of the Rock <20 mm (3/4 inch)	Use TL1 LTAR from Table 10-1 for the soil type corresponding to the soil matrix, with a maximum LTAR of 0.8	Pressure Distribution <sup>8</sup>	Minimum 2-foot deep Unlined Sand Filter	Minimum 1-foot deep Unlined Sand Filter	Minimum 1-foot deep Unlined Sand Filter	Sand media not required	Sand media not required
R-1; Option 2	Soil Type <sup>7</sup> 2 and 2A, >35 - 65% Rock (>2mm); with ≥50% of the Rock <20 mm (3/4 inch)	The allowable LTAR's are defined in each individual treatment level column in this Table	Pressure Distribution <sup>8</sup>	Remove, mix, replace 4 feet of existing material; with a maximum LTAR of 0.6	Remove, mix, replace 2 feet of existing material; with a maximum LTAR of 0.7	Remove, mix, replace 2 feet of existing material; with a maximum LTAR of 0.7	Remove, mix, replace 2 feet of existing material; with a maximum LTAR of 0.8	Remove, mix, replace 2 feet of existing material; with a maximum LTAR of 0.8
R-2	Soil Type <sup>7</sup> 2 – 5, >65 Rock (>2mm), <b>OR</b> ≥50% of Rock >20 mm (3/4 inch)	Use TL1 LTAR from Table 10-1 for the soil type corresponding to the soil matrix, with a maximum LTAR of 0.8	Timed, Pressure Distribution <sup>8</sup>	Minimum 3-foot deep Unlined sand filter	Minimum 3-foot deep Unlined Sand Filter	Minimum 2.5-foot deep Unlined Sand Filter	Minimum 2.5-foot deep Unlined Sand Filter	Minimum 2-foot deep Unlined Sand Filter

5. The percentage of rock may be determined by a gradation conducted **per ASTM standards**, or an appropriate field evaluation by volume.

#### G. Storage/Distribution Media

1. Rock and Pipe
  - a. The perforated pipe must be surrounded by clean, graded gravel, rock, or other material of equal efficiency which may range in size from 1/2 inch to 2 1/2 inches. AASHTO M 43 size No. 3 coarse aggregate meets this specification.

- I. Repairs
    - 6. Seepage Pits
      - c. A seepage pit must consist of a buried structure of precast perforated concrete, or cinder or concrete block laid dry with open joints.
        - (3) The over-excavated volume must be filled with clean, graded gravel or rock, which may range in size from ½ inch to 2 ½ inches. AASHTO M 43 size No 3 coarse aggregate meets this specification.
- 43.11 Design Criteria – Higher Level Treatment Systems**
- C. Sand Filters
    - 2. Intermittent (Single Pass) Sand Filters; General Requirements
      - e. Gravel Requirements
        - (1) Clean, graded gravel, or rock, must range in size from 1/2 inch to 2 1/2 inches. AASHTO M 43 size No.3 coarse aggregate meets this specification.
    - 4. Lined Sand Filters
      - d. An intermediate layer of pea gravel, two inches in thickness, must be placed between the sand filter media and the course under-drain media to prevent the migration of sand into the lower layer of under-drain gravel. ASTM C 33, No. 8, coarse aggregate meets this specification.
      - e. A minimum four-inch diameter slotted SCH40 PVC under-drain pipe must be used to collect the treated effluent. The under-drain pipe must be installed in the center of a 5 inches thick bed of washed, graded gravel, or rock ranging in size from 1/2 inch to 2 1/2 inches. AASHTO M 43, No.3 coarse aggregate meets this specification.
    - 5. Recirculating Sand Filter, Minimum Requirements:
      - d. Top gravel requirements:
        - (1) Washed, graded gravel, or rock, must range in size from 1/2 inch to 2 1/2 inches. AASHTO M 43, No.3 coarse aggregate meets this specification.
      - f. Intermediate gravel layer:
        - (1) An intermediate layer of pea gravel, two inches in thickness, must be placed between the coarse underdrain media and the sand filter media to prevent the migration of sand into the lower layer of under-drain gravel (ASTM C 33, No. 8, coarse aggregate).
      - g. Under-drain requirements:
        - (1) A minimum four-inch diameter slotted SCH40 PVC under-drain pipe must be used to collect the treated effluent. The under-drain pipe must be installed in the center of a 5 inches thick bed of washed, graded gravel, or rock ranging in size from 1/2 inch to 2 1/2 inches. AASHTO M 43, No.3 coarse aggregate meets this specification.
- 43.12 Design Criteria – Other Facilities**
- E. Incinerating, Composting and Chemical Toilets
    - 5. Composting Toilets
      - a. Composting toilets must meet the requirements of NSF/ANSI Standard 41 and bear the seal of approval of the NSF or an equivalent testing and certification program.
    - 6. Incinerating Toilets Acceptance Requirements
      - a. Incinerating toilets must meet the requirements of the NSF Protocol P157 and bear the seal of approval of the NSF or an equivalent testing and certification program.
  - G. Treatment Systems Other Than Those Discharging Through a Soil Treatment Area or Sand Filter System
    - 6. Methods of Analysis - Sampling Points:

- a. All effluent samples must be analyzed according to the methods prescribed in the American Public Health Association, American Water Works Association, and Water Environment Federation: Standards Methods for the Examination of Water and Wastewater, 21st edition.

#### **43.13 Technology Review and Acceptance**

##### **D. Proprietary Treatment Product Acceptance Requirements**

##### **3. Field Performance Testing**

- b. Testing for residential applications must be performed on a minimum of 12 single-family homes under normal operating conditions unless otherwise noted below:

- (1) If the proprietary treatment product is requesting TL2 acceptance and that product has received NSF/ANSI 40 certification, the number of home sites to be tested may be reduced to six. The NSF/ANSI 40 certification must be submitted if the reduced number of test sites is requested.
- (2) If the proprietary treatment product is requesting TL2N acceptance and that product has received NSF/ANSI 245 certification, the number of home sites to be tested may be reduced to six. The NSF/ANSI 245 certification must be submitted if the reduced number of test sites is requested.

- j. If a proprietary product had been previously accepted for use in Colorado under NSF/ANSI 40 or equivalent testing and at least one product unit had been installed in Colorado prior to June 30, 2013, the acceptance for use in Colorado may continue as treatment level 2. A request for this continued acceptance must be submitted to the Division on the forms provided by the Division. Documentation of a product installation must be provided.

#### **43.14 Operation and Maintenance**

##### **E. Monitoring and Sampling**

- 3. Any owner or occupant of property on which an OWTS is located may request the local public health agency to collect and test an effluent sample from the system. The local public health agency may perform such collection and testing services. The owner or occupant must pay for these services.
- c. Sampling and analysis must be performed according to American Public Health Association, American Water Works Association, and Water Environment Federation: Standards Methods for the Examination of Water and Wastewater, 21st edition.

#### **43.16 Materials Incorporated by Reference**

Throughout these regulations, standards and requirements by outside organizations have been adopted and incorporated by reference. The materials incorporated by reference cited herein include only those versions that were in effect as of April 10, 2017, and not later amendments to the incorporated material.

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