On-Site Rule Revision Issue - Proprietary Product and Bacterial Reduction Testing and Requirements
WAC 246-272A-0110, 246-272A-0120, 246-272A-0130, plus related sections for WAC 246-272A-0200, and WAC 246-272A-0270

Problem Statement

Sections 0110, 0120, and 0130 contain obsolete language and need updating. Specifically, references to NSF/ANSI standards, and the "Testing Organization and Verification Organization" are unclear and lead to confusion. Several other changes are needed for consistency with other language throughout the WAC. Other changes are recommended to improve clarity.

The onsite review committee recommended that field verification of sewage technology performance be considered and that permitting of technologies which include add-on disinfection (e.g. ultraviolet disinfection units) be revised to ensure that the application and performance of these technologies is adequate to protect public health. So along with the changes to the product registration process, we also included affected sections of the sections on permitting and owner responsibilities for O&M&M.

The recommended revisions will improve clarity and accuracy of language and references as well as provide tools for LHOs to ensure that field performance of OSS on sites requiring advanced treatment is appropriately protective of public health.

Recommended Rule Language

Blue = Additions ~~Red~~ = Deletions

WAC 246-272A-0110

Proprietary treatment products—Certification and registration.

(1) Manufacturers shall register their proprietary treatment products with the department before the local health officer may permit their use.

(2) To qualify for product registration, manufacturers desiring to sell or distribute proprietary treatment products in Washington state shall:

(a) Verify product performance through testing using the testing protocol established in Table I and register their product with the department using the process described in WAC 246-272A-0120;

(b) Report product test results of influent and effluent sampling obtained throughout the testing period (including normal and stress loading phases) for evaluation of constituent reduction according to Table II;

(c) Demonstrate product performance according to Table III. All thirty-day averages and geometric means obtained throughout the test period must meet the identified threshold values to qualify for registration at that threshold level; and

(d) ~~v~~Verify bacteriological reduction according to WAC 246-272A-0130 ~~F~~for product registration utilizing ~~at~~ disinfection levels ~~A~~DL1, ~~B~~DL2, and ~~C~~DL3 ~~verify bacteriological reduction according to WAC 246-272A-0130~~.

(3) Manufacturers verifying product performance through testing according to the following standards or protocol~~s~~ shall have product testing conducted by a testing facility accredited by ANSI:

(a) ~~ANSI/~~NSF/ANSI Standard 40: Residential Wastewater Treatment Systems;

(b) NSF/ANSI Standard 41: Non-Liquid Saturated Treatment Systems;

(c) NSF Protocol P157 Electrical Incinerating Toilets - Health and Sanitation; ~~or~~

(d) NSF/ANSI Standard 245: Residential Wastewater Treatment Systems - Nitrogen Reduction; or

(e) NSF/ANSI Standard 385: Residential Wastewater Treatment Systems – Disinfection Mechanics ~~Protocol~~ for bacteriological reduction described in WAC 246-272A-0130.

(4) Manufacturers verifying product performance through testing according to ~~the following standards or protocols~~ EPA/NSF—Protocol for the Verification of Wastewater Treatment Technologies shall have product testing conducted by a testing facility meeting the requirements established by the Testing Organization and Verification Organization, consistent with the test protocol and plan. ~~:~~

~~(a) EPA/NSF—Protocol for the Verification of Wastewater Treatment Technologies; or~~

~~(b) EPA Environmental Technology Verification Program protocol for the Verification of Residential Wastewater Treatment Technologies for Nutrient Reduction.~~

(5) Treatment levels ~~used in these rules~~ established in Table III below are ~~not~~ intended to ~~be applied as field compliance standards. Their intended use is for~~ establish~~ing~~ treatment product performance in a product testing setting under established protocols by qualified testing entities. Field compliance standards for proprietary treatment products shall follow the requirements in WAC 246-272A-0120(5).

TABLE I

Testing Requirements for Proprietary Treatment Products	
Treatment Component/Sequence Category	**Required Testing Protocol**
Category 1 Designed to treat sewage with strength typical of a residential source when septic tank effluent is anticipated to be equal to or less than treatment level E.	~~ANSI/~~NSF/ANSI Standard 40: Residential Wastewater Treatment Systems (~~protocols~~ versions dated between ~~July 1996~~ January 2009 and the effective date of these rules)
Category 2 Designed to treat high-strength sewage when septic tank effluent is anticipated to be greater than treatment level E. "(Such as at restaurants, grocery stores, mini-marts, group homes, medical clinics, certain unique residences, etc.)	EPA/NSF Protocol for the Verification of Wastewater Treatment Technologies/ EPA Environmental Technology Verification (April 2001)
Category 3 Black water component of residential sewage (such as composting* and incinerating** toilets).	*NSF/ANSI Standard 41: Non-Liquid Saturated Treatment Systems ~~(September 1999)~~ (versions dated between February 2011 and the effective date of these rules) **NSF Protocol P157 Electrical Incinerating Toilets – Health and Sanitation (April 2000)
Total Nitrogen Reduction in Categories 1 & 2 (Above)	~~Protocol for the Verification of Residential Wastewater Treatment Technologies for Nutrient Reduction/EPA Environmental Technology Verification Program (November, 2000)~~ NSF/ANSI Standard 245: Residential Wastewater Treatment Systems – Nitrogen Reduction (versions dated between January 2018 and the effective date of these rules)

TABLE II

Test Results Reporting Requirements for Proprietary Treatment Products	
Treatment Component/Sequence Category	**Testing Results Reported**
Category 1 Designed to treat sewage with strength typical of a residential source when septic tank effluent is anticipated to be equal to or less than treatment level E.	Report test results of influent and effluent sampling obtained throughout the testing period for evaluation of constituent reduction for the parameters: CBOD5, and TSS: □ Average □ Standard Deviation □ Minimum □ Maximum □ Median □ Interquartile Range □ 30-day Average (for each month) For bacteriological reduction performance:~~,~~ 1) Complete treatment train testing as described in Table III, Category 1 and report fecal coliform or E. coli test results of influent and effluent sampling by geometric mean from samples drawn within thirty-day or monthly calendar periods, obtained from a minimum of three samples per week throughout the testing period~~ See~~ as in WAC 246-272A-0130~~.~~ ; or 2) Complete testing for supplemental bacteriological reduction technology[1] when the required treatment levels for fecal coliform or E. coli in Table III, Category 1 are not met by the primary proprietary treatment product. For both options, t~~T~~est reports must also include the individual results of all samples drawn throughout the test period.
Category 2 Designed to treat high-strength sewage when septic tank effluent is anticipated to be greater than treatment level E. (Such as at restaurants, grocery stores, mini-marts, group homes, medical clinics, certain unique residences, etc.)	Report all individual test results and full test average values of influent and effluent sampling obtained throughout the testing period for: CBOD5, TSS and O&G. Establish the treatment capacity of the product tested in pounds per day for CBOD5.
Category 3 Black water component of residential sewage (such as composting and incinerating toilets).	Report test results on all required performance criteria according to the format prescribed in the NSF test protocol described in Table I.
Total Nitrogen Reduction in Categories 1 & 2 (Above)	Report test results on all required performance criteria according to the format prescribed in the test protocol described in Table I.

[1]Supplemental bacteriological reduction technology must be tested for influent/effluent fecal coliform or E. coli per WAC 246-272A-0130 (bacteriological reduction testing protocol) or NSF Standard 385. Supplemental fecal coliform or E. coli reducing technologies will be rated for log base 10 removal of fecal coliform or E. coli. The lowest 30 day geometric mean will be used to rate reduction level. The highest monthly geometric mean for treatment technology fecal coliform or E. coli reduction will be used as the baseline value for review.

TABLE III

Product Performance Requirements for Proprietary Treatment Products

Treatment Component/Sequence Category	Product Performance Requirements

Category 1 Designed to treat sewage with strength typical of a residential source when septic tank effluent is anticipated to be equal to or less than treatment level E.

Treatment System Performance Testing Levels

Level	Parameters					
	CBOD5	TSS	O&G	FC	TN	E coli
A	10 mg/L	10 mg/L	——	~~200/100 ml~~	——	
B	15 mg/L	15 mg/L	——	~~1,000/100 ml~~	——	
C	25 mg/L	30 mg/L	——	~~50,000/100 ml~~	——	
~~D~~DL1	~~25 mg/L~~	~~30 mg/L~~	——	200/100 ml	——	126/100 ml
DL2				1,000/100 ml		1,000/100 ml
DL3				50,000/100 ml		50,000/100 ml
E	~~125~~ 228 mg/L	80 mg/L	20 mg/L	——	——	
N	——	——	——	——	30 mg/L or 50% reduction based on mass loading as required in section -0320	

Values for Levels A - ~~D~~C are 30-day values (averages for CBOD5 and TSS~~, and geometric mean for FC~~.) All 30-day averag
throughout the test period must meet these values in order to be registered at these levels.
Values for Levels DL1 – DL3 are 30-day geometric mean values. All 30-day geometric means throughout the test period mu
meet these values in order to be registered at these levels.
DL stands for Disinfection Level. ~~This can be changed to any other category that makes sense per other parts of the Regu~~
Values for Levels E and N are derived from full test
averages.~~Treatment Level D is no longer needed as it is replaced by Treatment Level C~~
~~Treatment Level N1 was added based upon other changes. First because~~
~~NSF 245 is based on 50% TN reduciton. Second because the Nitrogen~~
~~Loading for lot size is based upon an assumed TN in the wastewater of~~
~~60 mg/l. As an example, the old TL A is the same as TL A + DL1 on this chart~~
~~Manufacturers may choose between FC and E coli test~~

Category 2 Designed to treat high-strength sewage when septic tank effluent is anticipated to be greater than treatment level E.

(Such as at restaurants, grocery stores, mini-marts, group homes, medical clinics, certain unique residences, etc.)

All of the following requirements must be met:

(1) All full test averages must meet Level E; and
(2) Establish the treatment capacity of the product tested in pounds per day for CBOD5.

Category 3 Black water component of residential sewage (such as composting and incinerating

Test results must meet the performance requirements established in the NSF test protocol.

toilets).	
Total Nitrogen Reduction in Categories 1 & 2 (Above)	Test results must establish product performance effluent quality meeting Level N, when presented as the full test average.

WAC 246-272A-0120

~~RED~~ = Deletion BLUE = Addition

Proprietary treatment product registration—Process and requirements.

(1) Manufacturers shall register their proprietary treatment product(s) with the department by submitting a complete application in the format provided by the department, including:

(a) Manufacturer's name, mailing address, ~~street address and~~ phone number, email address, and website;

(b) Contact individual's name and title, mailing address, ~~street address, and~~ phone number, and email address. The contact individual must be vested with the authority to represent the manufacturer in this capacity;

(c) Name, including specific brand and model, of the proprietary treatment product;

(d) A description of the function of the proprietary treatment product along with any known limitation(s) on the use of the product;

(e) Product description and technical information, including process flow drawings and schematics; materials and characteristics; component design specifications; design capacity, volumes and flow assumptions and calculations; components; dimensioned drawings and photos;

(f) For treatment systems in Category 2, daily capacity of the model or models in pounds per day of $CBOD_5$;

(g) Siting and installation requirements;

(h) Detailed description, procedure and schedule of routine service and system maintenance events;

(i) Estimated operational costs for the first five years of the treatment component's life. This shall include both estimated annual electricity costs, and routine maintenance costs, including replacement of parts;

(j) Identification of information subject to protection from disclosure of trade secrets;

(k) Most current, dated ~~C~~copies of product brochures & manuals: *Sales & Promotional; Design; Installation; Operation & Maintenance; and Homeowner Instructions*;

(l) The most recently available product test protocol dated no earlier than the dates in Table I, and the testing results report;

(m) A signed and dated certification by the manufacturer's agent specifically including the following statement, "I certify that I represent (INSERT MANUFACTURING COMPANY NAME) and I am authorized to prepare or direct the preparation of this application for registration. I attest, under penalty of law, that this document and all attachments are true, accurate, and complete. I understand and accept that the product testing results reported with this application for registration are the parameters and values to be used for determining conformance with Treatment System Performance Testing Levels established in chapter 246-272A WAC";

(n) A signed and dated certification from the testing entity including the statement, "I certify that I represent (INSERT TESTING ENTITY NAME), that I am authorized to report the testing results for this proprietary treatment product. I attest, under penalty of law, that the report about the test protocol and results is true, accurate, and complete"; and

(o) The fee described in WAC 246-272~~A-990~~-2000.

(2) Products within a single series or model line (sharing distinct similarities in design, materials, and capacities) may be registered under a single application, consistent with the provisions of their test protocol for the certification of other products within a product series. Products outside of the series or model line must be registered under separate applications.

(3) Upon receipt of an application the department shall:

(a) Verify that the application is complete, including dated and current copies of all the required manuals;

(b) If complete, place the product on the list of proprietary treatment products.

(4) All registrations are valid for up to one year, expiring on December 31 of each year. Required f~~F~~ees are not prorated.

(5) In order to renew a proprietary treatment product technology registration, a manufacturer shall:

(a) Apply for renewal of product registration using the form or in the format provided by the department~~;.~~

(b) Submit the report from the testing entity ~~results of~~:

(i) ~~retesting~~ if the product has completed retesting according to the protocol required for registration ~~and a report from the testing entity has been issued since initial registration or previous renewal. Renewal shall be based on the most recent test results~~;

(ii) to verify field performance as identified in departmental standards and guidance (DS&G). If field performance results demonstrate that the product has failed to meet the requirements in the performance DS&G the manufacturer shall report to the department describing the reasons for the failure to meet the requirements consistent with the DS&G.

(c) Provide an affidavit to the department verifying whether or not the product has changed over the previous year. If the product has changed, the affidavit must also include a full description of the changes. If the product has changed in a way that affects performance, the product may not be renewed and shall meet the requirements for initial registration;

(d) Provide a statement that all required dated manuals are current, or submit the updated and dated new manuals; and

(~~d~~e) Submit the fee established in WAC 246-272~~A-990~~-2000.

(6) As part of product registration renewal, the department shall:

(a) Request field assessment comments from local health officers no later than October 31st of each year. These comments may include concerns about a variety of field assessment issues~~,~~ including:

(i) product function, including verification of field performance testing as identified in DS&G;~~,~~

(ii) product reliability;~~,~~and

(iii) problems arising with operation and maintenance.~~;~~

(b) Discuss with the TA~~C~~G any field assessment information that may impact product registration renewal;

(c) Notify the manufacturer of any product to be discussed with the TA~~C~~G, prior to discussion with the TA~~C~~G, regarding the nature of comments received; ~~and~~

(d) Renew the product registration unless:

(i) The manufacturer of a product does not apply for renewal; or

(ii) The department, after deliberation with the TA~~C~~G, concludes product registration renewal should not be given or should be delayed until the manufacturer submits information that satisfactorily answers concerns and issues; and

(e) Provide a compliance plan to the manufacturer within 90 days based on departmental concerns of public health risk related to the product.

(7) The department shall maintain a list of proprietary treatment products meeting the registration requirements established in this chapter. The product registration is a condition of approval for use.

(8) Manufacturers shall have readily accessible information for designers, homeowners, regulators, system owners and other interested parties about their product posted on the manufacturer's website including the most current, dated version of:

(a) Product manuals;

(b) Design instructions;

(c) Installation instructions;

(d) Operation and maintenance;

(e) Homeowner instructions; and

(f) How to locate A list of representatives and manufacturer certified service providers, if any.

WAC 246-272A-0130

Bacteriological reduction.

This section establishes the requirements for registering bacteriological reduction processes.

(1) Manufacturers shall, for the purpose of product registration as described in WAC 246-272A-0110 and 246-272A-0120 for meeting treatment levels DL 1, DL 2, or DL 3 ~~A, B, or C,~~ verify bacteriological reduction performance by sampling for fecal coliform or E. coli.

~~(a) For products not yet tested according to ANSI/NSF Standard 40 testing protocol dated July 1996 or later, the requirements of both ANSI/NSF Standard 40 and the protocol specified in subsection (2) of this section for verifying bacteriological reduction must be met.~~

~~(b) For products that have been tested according to ANSI/NSF Standard 40 dated July 1996 or later but have not yet been tested for bacteriological reduction, treatment performance of the treatment product or sequence may be established based on test results for $CBOD_5$ and TSS obtained from the previous ANSI/NSF Standard 40 testing and bacteriological reduction performance based on testing according to the protocol in subsection (2) of this section. Provided that the testing entity must verify the influent wastewater stream throughout the bacteriological testing period meets the influent threshold levels for $CBOD_5$ and TSS required by ANSI/NSF Standard 40 testing protocol.~~

(2) All test data submitted for product registration shall be produced by an ANSI accredited, third-party testing and certification organization whose accreditation is specific to on-site wastewater treatment products. Bacteriological reduction performance must be determined either:

(a) According to the procedures in NSF/ANSI Standard 385 for add-on disinfection mechanics; or

(b) While the treatment product or sequence is tested according to the ~~ANSI/~~NSF/ANSI Standard 40 testing protocol. During this testing, the following requirements apply:

(a) Collect samples from both the influent and effluent streams, identifying the treatment performance achieved by the full treatment process (component or sequence)

(b) Obtain influent characteristics falling within a range of 10^4 - 10^8 fecal coliform/100 mL or 10^2 – 10^6 E. coli/100 mL calculated as thirty-day geometric means during the test.

(c) Test the influent to any disinfection unit and report the following at each occasion of sampling performed in (d) of this subsection:

(i) Flow rate;

(ii) pH;

(iii) Temperature;

(iv) Turbidity; and

(v) Color.

(d) Obtain samples for fecal coliform analysis during both the design loading and stress loading periods identified by NSF/ANSI Standard 40. Grab samples shall be collected from both the influent and effluent on three separate days of the week. Each set of influent and effluent grab samples must be taken from a different dosing time frame (morning, afternoon, or evening) so that samples have been taken from each dosing time frame by the end of the week.

(e) Conduct analyses according to standard methods;

(f) Report the geometric mean of fecal coliform test results from all samples taken within thirty-day or monthly calendar periods;

(g) Report the individual results of all samples taken throughout the test period design and stress loading; and

(h) Report all maintenance and servicing conducted during the testing period, including for example, instances of cleaning a UV lamp, or replenishment of chlorine chemicals.

(3) Manufacturers may register products using NSF 385/ANSI-certified add-on disinfection technology in treatment levels ~~A~~ DL1 and DL2 ~~B using disinfection~~.

(4) Manufacturers may not register products using NSF 385/ANSI-certified add-on disinfection technology for treatment level DL3 ~~C using disinfection~~.

(portion) WAC 246-272A-0200 ~~RED~~ - deleted BLUE - added

Permit requirements

(4) The local health officer shall:

(a) Respond to an application within thirty days as required in RCW 70.05.074.

(b) Permit only public domain technologies that have departmental RS&G. Permit only proprietary products that are registered by the department. During the period of transition from the list of approved systems and products to the registered list, the local health officer may permit products on the list of approved systems and products.

(c) Issue a permit when the information submitted under subsection (1) of this section meets the requirements contained in this chapter and in local regulations;

(d) Identify the permit as a new installation, repair, expansion, modification, or operational permit;

(e) Specify the expiration date on the permit. The expiration date may not exceed five years from the date of permit issuance;

(f) Include a reminder on the permit application of the applicant's right of appeal; and

(g) If requiring an operational permit, state the period of validity and the date and conditions of renewal, including any required field compliance.

(portion) WAC 246-272A-0270 ~~RED~~ - deleted BLUE - added

Operation, monitoring, and maintenance—Owner responsibilities.

(1) The OSS owner is responsible for operating, monitoring, and maintaining the OSS to minimize the risk of failure, and to accomplish this purpose, shall:

(a) Request assistance from the local health officer upon occurrence of a system failure or suspected system failure;

(b) Obtain approval from the local health officer before repairing, altering or expanding an OSS required by section 0200;

(c) Secure and renew contracts for periodic maintenance ~~where~~ if required by the local health jurisdiction;

(d) Obtain and renew operation permits if required by the local health jurisdiction;

(e) ~~Assure a complete evaluation of the~~ Obtain an inspection, as required in WAC 246-272A-0260, by an inspector authorized by the local health officer, of all ~~system~~ OSS components and~~/or~~ property to determine functionality, maintenance needs and compliance with regulations and any permits:

(i) At least once every three years for all ~~systems~~ OSS consisting solely of a septic tank and gravity SSAS;

(ii) Annually for all other systems unless more frequent inspections are specified by the local health officer; ~~including the required field compliance standards for any OSS with a proprietary treatment product meeting Treatment Level A or B, or including DL1 or DL2.~~