NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

SEPTIC TANK EFFLUENT FILTER APPROVAL

Septic Tank Effluent Filter Approval Number: EF-18-R1

Issued To: Anua
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For: Septic Tank Effluent Filter Models STF-100, STF-101, STF-104, and STF-110

Date: December 21, 2001
December 31, 2024 Updated for 18E and renewed for 2025

In accordance with G.S. 130A-335 and 130A-335.1 and 15A NCAC 18E .1404 and .1405, an application by Anua for renewal of the approval for septic tank effluent filters has been reviewed and approved when the following conditions are met.

I. Description

a. Effluent filters shall be designed and manufactured in accordance with the plans, specifications and documents submitted by the manufacturer with the application.

b. Effluent filters for the outlet end of the septic tank shall meet the specifications in Table I.

Table I. Approved Filter Model Specifications (GAG Sim/Tech)

Filter Models	Size	Support Case[1]	Case Dimensions		Min. Tank Liquid Depth Required	Min. Access Opening Size[3]
			Above Liquid Level	Below Liquid Level[2]		
STF-110/1	4" dia. x 26"	4" PVC Tee	6”	12-inch minimum[2]	36”	15 x 15 in. or 17 in. dia. or equal
STF-110/2	2 filters, each 4" dia. x 26"	2 cases and 4” PVC Tees	6”	12-inch minimum[2]	36”	17 x 17 in. or 17 in. dia. or equal
STF-110/3	3 filters, each 4" dia. x 26"	3 cases, 4" PVC Cross, and 4" PVC Tees	6"	12-inch minimum[2]	36"	18 x 18 in. or 20 in. dia. or equal

STF- 110/4	4 filters, each 4" dia. x 26"	4 cases, 4" PVC Cross, and 4" PVC Tees	6"	12-inch minimum[2]	36"	22 x 22 in. or 24 in. dia. or equal

Notes:
1. Support cases to be provided by GAG Sim/Tech for models STF-110/2-4.
2. Extend effluent filter case down 25%-40% of liquid depth
3. Other minimum opening sizes or configurations proposed by the septic tank manufacturer shall be approved by the Branch on a case-by-case basis if documentation is provided showing that adequate access is provided for both effluent filter maintenance and pumping the tank compartment.

c. GAG Sim/Tech filter model numbers STF-100, STF-100A, STF-100A2, STF-100A3, STF-101, and STF-104 are to be installed in the pump discharge line. STF-101 is the pressure alarm switch which can be used with models STF-100 and STF-100A2 only. STF-104 is the polyester sock model that can be used with the STF-100 models. The maximum pump flow rate through the pressure filters is 80 gallons/minute.

d. The pressure filter assembly consists of inlet and outlet pipe and disconnect fittings, filter containment cannister, and the filter. The filter is manufactured of Type 347 stainless steel with 0.062-inch diameter holes and a 41 percent open area. The filter is three inches in diameter and 18 inches long. The filter assembly which comes with Model STF-100 includes a two-inch Schedule 40 PVC inlet pipe which attaches to the pump discharge pipe or directly to the pump discharge port, a Schedule 40 PVC filter containment cannister with filter, and a Schedule 80 PVC union for connection with a two-inch PVC discharge pipe. An optional polyester sock with a 600-micron mesh size may also be inserted in the filter. Field assembled Models STF-100A, STF-100A2, and STF-100A3 come with a Schedule 40 PVC filter containment cannister and filter, and inlet and outlet ports to be connected by the installer to the pump and discharge piping. Model 100A has a 3-inch inlet and a 2-inch outlet. Model 100A2 has a 2-inch inlet and a 2-inch outlet. Model 100A3: has a 3-inch inlet and a 3-inch outlet.

e. When using the pressure filter, the pump total dynamic head calculations should assume the filter will increase the friction head losses by up to two feet. This is based on an assumption that the filter is 95 percent clogged and that the flow rate is 80 gallons/minute. The system designer may utilize a lower friction head loss value based upon the manufacturer's recommendations when the pumping rate is less than 80 gallons/minutes.

II. Sizing

The following approved effluent filters may be used in approved septic tanks. The approved flow capacities are shown in Table II. The effluent filter sizing must be compatible with the design daily flow and the minimum septic tank size in accordance with 15A NCAC 18E .0801.

Table II. Effluent Filter Sizing Criteria[1,2]

Filter Model	Maximum Design Flow (gallons/day)
STF-110/1	800
STF-110/2	1,600
STF- 110/3	2,400

STF-110/4	3,000

Notes:

1. Sizing based on domestic strength effluent in accordance with 15A NCAC 18E .0402(a), Table III.
2. If the effluent filters are used in a system with a design daily flow greater than 3,000 gallons/day, the design requires a Professional Engineer and a project specific approval.

III. Installation

a. The effluent filters and effluent filter support case shall be assembled and installed in accordance with the filter manufacturer's specifications and applicable rules. The filter case shall be located in such a manner that the filter can be readily accessible by the operator from the access opening and removable by hand from finished grade. The access opening shall also provide enough room to allow for pumping of the tank compartment. An access device manufactured by Anua shall be provided whenever the tank is installed with the filter handle deeper than 18-inches below the access opening or more than 18-inches below finished grade.

b. The GAG Sim/Tech pressure filter and appurtenances shall be assembled and installed in accordance with the manufacturer's specifications. The filter cannister and the cannister/pump disconnect shall be located in such a manner that they can be readily accessible by the operator beneath the access manhole opening and removable by hand from above finished grade. The pump disconnect shall be located within 18 inches of the top of the riser opening.

c. A check valve shall be installed in the pump discharge line downstream of the filter/pump disconnect.

d. Wherever the pressure alarm switch is also to be installed, a shut-off/pressure adjustment valve shall also be installed in the discharge line downslope of the filter/pump disconnect and within 100 feet of the pump tank. When pumping to a pressure distribution system, the pressure alarm switch shall be adjusted per manufacturer's instructions so that an alarm condition will be triggered when the pressure drop across the filter increases by more than two pounds per square inch. The pressure drop setting shall be tested by simulating a pressure drop in the pressure distribution network by adjustment of the shut-off/pressure adjustment valve.

IV. Operation and maintenance

a. Effluent filters shall be used and maintained in accordance with the effluent filter manufacturer's specifications and applicable laws and rules. Manufacturer-specified procedures shall be followed to minimize the bypass of unfiltered effluent while the filter is being removed when servicing is needed. Anua has available for purchase a slotted sleeve removal tool that prevents material from leaving the outlet tee while the filter is being replaced. Upon removal, effluent filters shall either be replaced with a new effluent filter and the used effluent filter disposed of in an approved disposal method, or debris shall be washed off the effluent filter into the septic tank and the effluent filter placed back into service.

b. An operator shall be required to maintain the system whenever the GAG Sim/Tech filter is used in conjunction with pumping to a pressure dispersal field, to an advanced pretreatment system

which utilizes a pressure dispersal system, or whenever pumping is timer-controlled, such as a flow equalization system.

c. Use of the GAG Sim/Tech pressure filter shall be clearly indicated on the Operation Permit. The filter shall be used and maintained in accordance with manufacturer's specifications and applicable laws and rules. Debris removed from the filter during servicing shall be directed into the septic tank, or otherwise handled in accordance with an alternate approved disposal method.

Approved by:_____ Date:_____