

Appendix D: Use of Non-generally approved technology pursuant to 12VAC5-613-90.D.1.b

12VAC5-613-90.D.1.b allows for designs that do not use approved BMPs. This option is for designers who are seeking approval for a given reduction in TN at a specific site. These designs specify a non-generally approved treatment unit and follow standard engineering practice. These designs are not usually supported by the treatment unit manufacturer. A designer may seek approval for the use of a proprietary treatment unit through this BMP protocol, but the approval is site specific and will not be extended to other sites. The owner must have an understanding of the approved back-up plan should the system not meet the performance criteria of this BMP. There is a two step protocol. Step one is an engineering justification for the design; step two is field verification of the design.

The engineering justification must follow standard engineering practice for the reduction of N and must be site specific. At a minimum, engineering calculations must include oxygen delivered versus required level; safety factors; nitrogen, hydraulic and organic loading rates; pump rates; recirculation rates; and N removal calculations to project end-of-pipe concentration. The process used must be based on demonstrated N reduction in similar designs such as peer reviewed articles or published engineering texts or references.

Field testing will follow the monitoring frequency for non-generally approved systems (see 12VAC 5-613-100.E). An initial effluent sample for TN will be obtained within 180 days and then four additional samples will be collected semiannually for two years. At least two of the samples must be collected from November to February. Effluent grab samples for TN are sufficient. Influent sampling is recommended, but not required. The designer may opt to utilize the default influent value of 60 mg/l. The percent removal will be calculated by $((\text{influent N} - \text{effluent N}) / \text{influent N}) \times 100$. The mean of the percent removal must be equal to or greater than 50 percent.