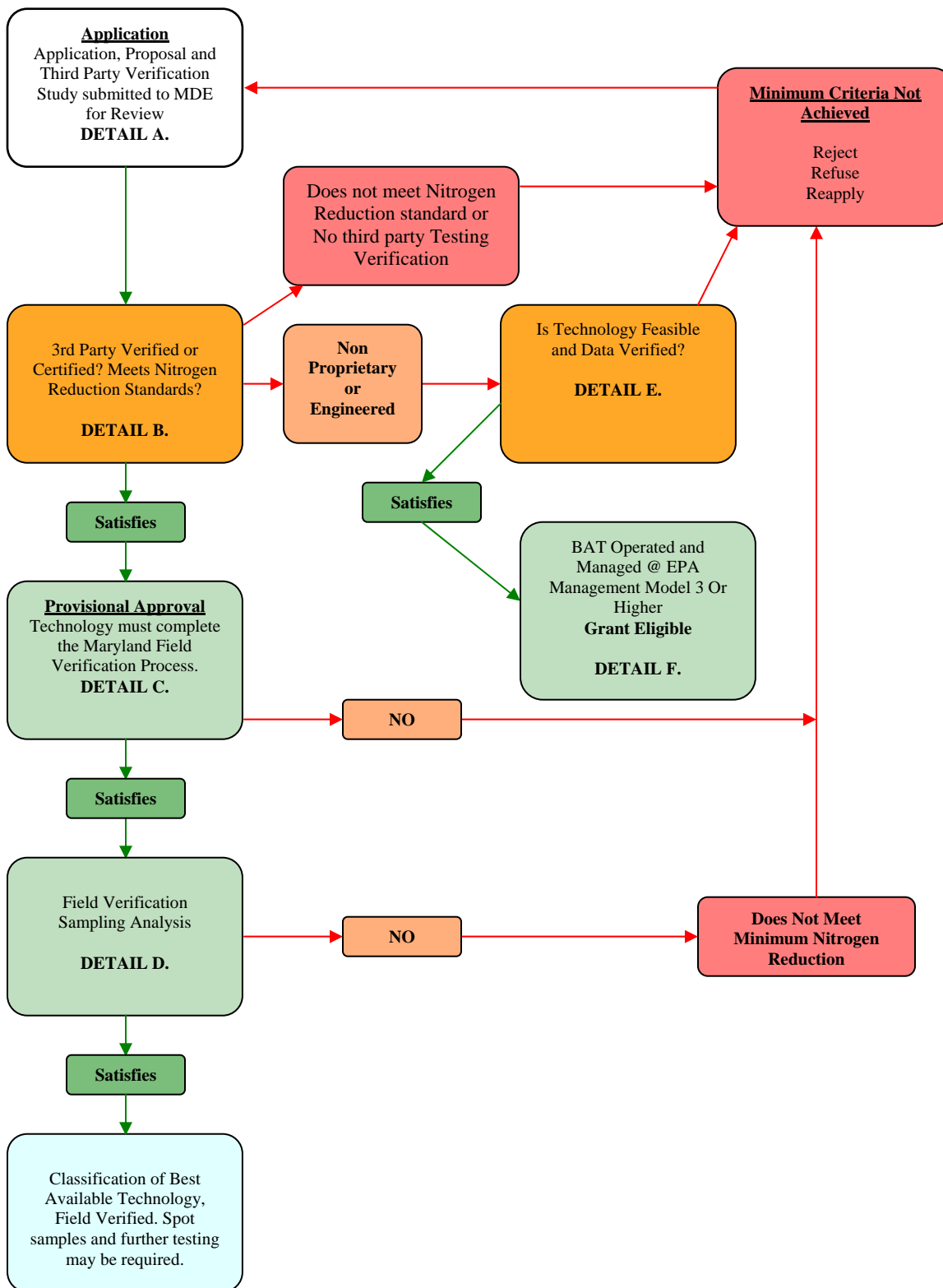


BAT VERIFICATION PROGRAM FLOWCHART 2012

Revised October 5, 2012



Required Total Nitrogen (TN) Standards: A standard of an assumed 60 mg/L TN will be used as the influent value. The Arithmetic mean effluent TN concentration must be 30 mg/L or less to be classified as a Field Verified Technology.

BEST AVAILABLE TECHNOLOGY (BAT) VERIFICATION PROGRAM FLOWCHART DETAIL 2012

- Detail A.** Submit an application for BAT review to the Maryland Department of the Environment (MDE) including vendor contacts, general technology description, operating manuals and third party performance verification. NSF/ANSI 245-2010 is an example of a third-party testing standard for nutrient reduction residential wastewater treatment systems. The application is reviewed by the BAT Review Committee, which consists of 3 individuals with expertise and knowledge in nutrient reduction technologies. Any changes to the technology, throughout tenure of BAT classification, must first be presented to the BAT Review Committee for approval.
- Detail B.** The BAT Review Committee evaluates the third party evaluation/certification's test methods, independent performance evaluations and test results to verify the vendor's claim. The application must include average daily ambient temperature data. Daily average ambient air temperatures will be compared from the testing location for the duration of the testing to the Baltimore Region for the same time period. Not more than ten (10) sampling days in the test period should be greater than fifteen degrees (15°F) Fahrenheit warmer than that of the Maryland based comparison. If the results of the third party testing indicate the MDE nitrogen reduction standard can be met, the technology proceeds to Detail C and is approved as a provisional technology. If the results of the third party testing indicate the MDE nitrogen reduction standard cannot be met, the technology must re-apply. If the technology is individually engineered or deemed non-proprietary, proceed to detail E.
- Detail C.** Provisional technologies enter the Maryland Field Verification Process. The first twelve (12) installations, BRF funded or not, will be used in the initial analysis. Three (3) additional systems will be designated as reserve systems in the need of a replacement for one of the original twelve. MDE approval must be given prior to any changes. The vendor/applicant must submit a field verification plan that includes detailed instructions for collecting samples and a sampling schedule. All technologies must sample a minimum of 12 units 4 times each in consecutive quarters to include at least one quarter of winter time samples. Winter time is classified as December 15 through February 15 of a given season. Adequately trained sample collection personnel shall be provided by a certified laboratory and shall be independent of the technology vendor, technology vendor's authorized service provider and the system design engineer of record. The technology vendor is responsible for the training of the sampling laboratory personnel. All monitoring results must be reported to MDE and the local Approving Authority on an as sampled basis by the sampling organization. A service provider certified by the vendor and MDE shall be responsible for operating and maintaining the system. The review committee will analyze the sampling data on a quarterly basis. Should the arithmetic mean of the total nitrogen for the twelve systems in the verification program exceed 30 mg/L the technology will not be permitted to install any further systems for the duration of the field verification period. At the conclusion of the field verification period, the vendor/applicant shall submit to MDE final report that includes all monitoring information and a summary of all maintenance activities at the systems monitored.
- Detail D.** The BAT Review Committee is responsible for evaluating the final report submitted by the applicant/vendor at the conclusion of the field verification period. Forty eight (48) TN effluent data points per technology will be used in the analysis, no more or less will be considered unless previously approved by the review committee. The arithmetic mean of the effluent TN shall be equal to or less than 30 mg/l TN. If the nitrogen reduction standard has been met, the technology receives an unconditional approval. The Field Verification classification awards the Manufacturer to competitively market the BAT as a Field Verified Technology. Spot sampling may be required of technologies with unconditional approval. These spot samples may be used in an analysis for continuation of performance and viability of technology. Systems not meeting the nitrogen removal standard will either be rejected or remain in a modified field verification program. Any modified field verification program must be proposed by the vendor/applicant and approved by the BAT Review Committee. New installations of a technology will not be permitted while in a modified field verification program. The vendor must comply with all MDE and local regulations, policies and guidance.
- Detail E.** For non-proprietary technologies, the vendor/applicant must provide a detailed description of the technology process, which illustrates sound scientific fundamentals and engineering practice. Non-proprietary technologies which have undergone independent field verification through national demonstration projects, university research studies or other formal state verification programs may be approved as a highly managed system and enter Detail F. Technologies not demonstrated to meet the nitrogen removal standard are rejected.
- Detail F.** Highly managed systems must have renewable operating permits and/or a responsible management entity; or a combination of both. Plans must be submitted to and approved by the BAT Review Committee. Provisions must be made for sampling, reporting, maintenance and enforcement. Nitrogen reduction standards established for third party verified/certified systems must be met.