

Commentaries, Definitions, and Procedures for implementation of Section 2.459, Alternative Treatment Systems of the Benzie County Environmental Health Regulations.

Purpose: To set specific criteria to clarify and define the applicability and requirements of this section of the regulations.

Note: Regulation wording is in standard print followed by related Commentary, Definitions, and Procedures in *italics*.

Section 2.459 ALTERNATIVE TREATMENT SYSTEMS

GENERAL INFORMATION

This regulation applies to residential building sites requiring on-site sewage treatment and disposal for compliance under the Benzie County Environmental Health Regulations. The provisions of Section 2.459 Alternative Treatment Systems shall apply in the event that a site does not meet the minimum requirements of Section 2.458 Permit Denial. This regulation does not apply to commercial sites regulated by the Michigan Criteria for Subsurface Sewage Disposal, or the Benzie County Environmental Health Regulations. Subdivisions, site condominiums, and land divisions under and acre are excepted from this Alternative Treatment System regulation. These various types of land developments are regulated by the Michigan DEQ. The DEQ is currently drafting rules as to the implementation of Alternative Treatment Systems in these types of projects. It should be noted that all local and State of Michigan permits (i.e. electrical, soil erosion, wetlands) shall be obtained prior to construction.

Section 2.459

- A. Technological advances in on-site waste treatment and disposal have made it possible to have treatment systems that are alternatives to the septic systems described in Sections 2.450 through 2.458 and that are consistent with protection of public health and environmental resources.

These alternative systems are particularly advantageous when any of the following conditions prevail:

1. Drainfield construction criteria described in Sections 2.450 through 2.458 cannot be achieved, or
2. Holding tank substitutes are sought, or

3. Owner(s) believe the public health and/or environment will benefit.

The Health Department will supply, upon request, a list of suppliers of some alternative systems that can potentially achieve the performance-based standards required for alternative systems.

COMMENTARY AND PROCEDURES

Site Evaluation

The Alternative Treatment System (ATS) permit applicant shall be informed that a vacant land evaluation (commonly known as a site survey) should be completed prior to the submittal of a complete ATS permit application. The purpose of the vacant land evaluation is to:

- a) Determine if the site meets the prescriptive provisions of the Leelanau County Environmental Health Regulations (Sections 2.450 through 2.458), and*
- b) Determine if the site meets the minimum isolation distances of the ATS as spelled out in Section 2.459 B.3. Note: The Environmental Health staff may postpone site work until snow cover has gone from the site if in their professional opinion soil evaluation would be substantially enhanced by a survey of the vegetative growth on the site.*
- c) When the Environmental Health Staff determines the site meets the requirements of the ATS regulations, the permit applicant shall submit a complete application and permit fee to the department. The application shall be completed on a form provided by the department.*

Design Parameters

The property owner shall retain the services of persons demonstrating competence in ATS design such as State of Michigan licensed professional engineer or other qualified individual (i.e. registered sanitarian, professional surveyor) registered with the Department to design, install and monitor the construction and operation of the ATS.

The property owner shall ensure that a professional engineer certifies the construction of the ATS as approved by the Department and provides such certification to the Department prior to the system start up.

Design plans for the alternative treatment system and disposal components shall be submitted to this department for review prior to permit issuance. All design plans shall be completed, or reviewed and approved by a State of Michigan licensed professional engineer. At least two (2) sets of design plans and specifications shall be provided. Plans and specifications shall be legible, clear.

and permanent copies. The following are the minimum required elements of a complete design plan for an alternative treatment system and disposal component(s):

- a) *Soil evaluations/profile locations performed or reviewed by a State of Michigan licensed professional engineer, limited to a minimum of two (2) profiles per disposal area. The soil profiles shall include depth of topsoil, soil texture, soil mottling, and depth to seasonal high ground water elevation as well as a determination as to the hydraulic loading capabilities of the soils. Soil profile evaluations shall be completed using either soil pits or soil borings.*
- b) *Details and configuration layouts depicting how the design is to be constructed and how the design is to accomplish the treatment and dispersal that is claimed. Cross-sections required with elevations of dispersal components.*
- c) *Inclusion of all system sizing calculations, dynamic head calculations, pump selection details, and any other calculations performed for the design of the system(s).*
- d) *Specifications, including a description of the materials for the project and the installation or construction practices and methods to be employed.*
- e) *A site plan with a benchmark, either scaled or dimensioned, delineating and detailing all treatment and dispersal components, and their relationship to minimum isolation distance requirements as set forth in the Benzie County Environmental Health Regulations.*
- f) *The location of all of the following, either existing or proposed, within or adjacent to the alternative treatment system or dispersal component(s):*
 - 1) *Building and other structures*
 - 2) *Water bodies*
 - 3) *Water wells*
 - 4) *Property lines*
 - 5) *Sewage systems*
 - 6) *Road right of ways/easements*
 - 7) *Wetlands*
 - 8) *Critical dunes/high risk erosion areas*
 - 9) *Underground utilities*
 - 10) *Driveway and parking area*

Section 2.549

B. The health officer shall permit the use of alternative on-site waste treatment and disposal systems when it is established by competent, material and substantial evidence that the following performance standards can be achieved. It is the responsibility of the owner to establish that a particular alternative treatment system meets the requirements for approval

1. The treatment facility is capable of producing an effluent with:

- a) BOD less than or equal to 30 mg/L
 - b) TSS less than or equal to 30 mg/L
 - c) Total inorganic nitrogen less than or equal to 25 mg/L
 - d) For discharges within 500 feet of a water body, total inorganic nitrogen less than or equal to 10 mg/L and total phosphorous less than or equal to 2 mg/L
2. The effluent discharge from the treatment system shall be constructed in such a manner that surface flooding will not occur.
 3. A minimum of 24 inches of suitable soil is below the discharge piping for pathogen removal. The health officer may modify this requirement if there is no less than 12 inches of suitable soil below the discharge piping and other means of disinfection result in pathogen removal equal to or better than achieved by 24 inches of suitable soil below the discharge piping.

DEFINITIONS AND PROCEDURES

- a) (B. 1. d) *Distance to a "water body" shall be determined from the high water mark of any of the following:*
 - *The Great Lakes and their connecting water ways*
 - *Inland lakes*
 - *Rivers*
 - *Streams*
 - *Impoundments*
 - *Perennial open drains*
- b) (B 3) *A minimum of 24 inches of suitable soil shall be defined as naturally occurring soils with suitable soil textures listed in Section 2.457 including non-muck topsoil. The 24 inches of suitable soil must be above the seasonal high groundwater elevation.*
- c) (B 3) *No less than 12 inches of suitable soil shall be defined as naturally placed soils with suitable soil textures listed in Section 2.457 including non-muck topsoil. The 12 inches must include 6 inches minimum of non-mottled soils below the topsoil to demonstrate the absence of seasonal high groundwater in the topsoil.*
- d) *The Health Department may require a wetlands determination prior to or subsequent to the completion of the initial site evaluation. This is due to the fact that a wetlands determination may impact the proposed disposal system location.*
- e) (B. 2.) *On all approved drained sites where the bottom of the drained will be on the surface of the topsoil, all vegetation and debris shall be removed and the area "roughed up" with backhoe teeth or other approved method. The equipment shall not cause compaction during drained construction. Dense (fine) sod will need to be totally removed.*
- f) (B. 2.) *Raised drainbeds shall have 4' to 1' minimum side slopes. The department will allow small retaining walls placed at one-half of the*

required side slope. The inside of such walls shall be lined with a construction grade plastic.

- g) *(B. 3.) Pathogen removal equal to or better than achieved by 24 inches of suitable soil below the discharge piping shall be defined as any method which has been shown to substantially remove fecal coliform bacteria from treated on-site septic tank effluent.*

Section 2.549

- C. After an alternative on-site waste system is approved by the health officer, the owner of the system shall comply with all of the following:
1. The owner shall at his or her sole expense comply with a specific maintenance, monitoring and inspection program specified by the health officer to ensure the optimum operation of the alternative treatment system.

COMMENTARY AND PROCEDURES

Maintenance Requirements

The intent of the provisions in Section 2.459 C.1, make clear the requirement that the Health Officer is responsible to specify a maintenance program for ATS installations. The following guidelines are presented to inform and assist applicants and designers to the Department's expectations during the submittal process. The Department realizes each ATS type has special design features and needs, but it is the goal of these policies to insure a comprehensive maintenance plan is implemented that insures the proper operation of that system.

(C. 1.) The maintenance plan shall be submitted to and approved by the Department prior to permit issuance. The following information shall be included in the plan:

- a) *Maintenance requirements for the system shall follow the manufacturer's specifications and recommendations to assure that the system will operate as designed.*
- b) *Maintenance contract between the property owner and a qualified maintenance service provider.*
- c) *A signed statement from the owner that a maintenance contract, approved by the Department, shall be in place for the life of the system and that it is the responsibility of the property owner to ensure system maintenance occurs in accordance with the approved maintenance plan.*
- d) *The property owner shall notify the Department in the event a contract is cancelled, expired or not renewed, and provide the*

- Department with the new maintenance contract service provider for their review and approval within 30 days.*
- e) A system designer/manufacture provided Maintenance and Operation Manual.*
 - f) A signed statement from the owner recognizing that while the Department approves the plan for the ATS, it does not design the ATS, and therefore, the Department is not liable if the system does not function as designed.*

Department staff has access to the permitted property to verify that the system operation is meeting required performance standards. This access authority is detailed in Section 5.17 and 5.171 of the Benzie County Environmental Health Regulations. Maintenance reports shall be submitted to the Department a minimum of 20 days after completion of the maintenance inspection.

Monitoring Requirements

Section 2.459 C.1 of the Alternative Treatment System Regulations mandate that the Health Officer specifies the effluent quality-monitoring program for any ATS installation. The monitoring plan shall be supplied to and approved by the Department prior to permit issuance. The following information and general principles shall be used as a guide in drafting the monitoring plan:

- a) BOD5, TSS and total inorganic nitrogen shall be sampled for all ATS installations permitted by the Department.*
- b) Total phosphorous shall be sampled for all ATS installations permitted within 500 feet of a body of water.*
- c) As a general rule of thumb, an ATS shall be monitored for effluent quality from the treatment discharge point at least quarterly for the first year, biannually for the next three years and annually thereafter (see Compliance Requirements Policies and Procedures).*
- d) More frequent monitoring of the above-noted parameters may be required during the start-up phase (initial six months) of ATS operation.*
- e) More frequent monitoring may be necessary in cases where the technology used in the ATS has minimal performance history.*
- f) The Department, prior to any sample collection, shall approve the individual/firm who samples and the laboratory used for the testing of monitoring parameters of the ATS. Approved standard methods for collection and analysis must be used.*
- g) The monitoring plan shall indicate that parameter sampling will continue throughout the life of the ATS.*
- h) Sampling location shall be identified on the plans as well as any operational requirements that need occur prior to parameter sampling.*
- i) If the sample results exceed the performance standards, the Department may require additional samples. These additional samples' collection costs will be the responsibility of the owner.*

The Department has access to the permitted property to verify that the system operation is meeting required performance standards. This access authority is detailed in Section 5.17 and 5.171 of the Benzie County Environmental Health Regulations. Parameter monitoring reports shall be submitted to the Department a minimum of 20 days after completion of the sample analysis (see Compliance Requirements Policies and Procedures).

Additional Owner Responsibilities

The ATS owner shall inform any prospective purchaser if the subject property is being sold. It shall be the new owners responsibility to follow the ATS maintenance and monitoring requirements.

2. If the system substantially fails to meet the performance standards of subsection B above, the owner shall, at his or her sole expense and within the time frame (based on the degree of harm or potential harm to the environment or to public health) required by the health officer, corrections shall be made to the system so that the performance standards are substantially met. Failure to correct the system as required shall be deemed a violation of the Environmental Health Regulations and shall subject the owner to the enforcement provisions within Chapters IV and V of these regulations.

COMMENTARY AND PROCEDURES

COMPLIANCE REQUIREMENTS

- a) *The required sampling shall be completed at the end of each quarter (March, June, September and December) unless otherwise modified by the Health Department. Biannual samples should be taken at the end of the second and fourth quarters. Annual samples should be taken at the end of the third quarter. The test results shall be submitted to the Health Department by the 20th of the following month that the sample is taken.*
- b) *Test results showing a parameter(s) in non-compliance will initiate a monthly sampling frequency for the parameter(s). Two consecutive monthly samples for that parameter in compliance will put the system back on quarterly sampling. Any modifications or repairs to the system used to achieve compliance shall be reported in writing to the Health Department.*
- c) *If compliance is not met within 6 months of monthly sampling, the system owner's engineer shall submit to the Health Department a written report detailing the method and schedule for achieving compliance. This report shall be received by the Health Department before the end of the seventh month of non-compliance. Monthly sampling will continue.*

- d) *If compliance is not met by 1 year from the date of the initial non-compliance, use of the system shall be terminated.*
- e) *Failure to comply with these Compliance Requirements will result in enforcement action under Chapters IV and V of the Benzie County Environmental Health Regulations.*

D. A technical advisory panel appointed by the Benzie-Leelanau District Board of Health shall regularly review these performance-based regulations. The advisory panel may recommend changes to these performance-based regulations for future installations based on experience with past installations and on the availability of practical treatment technology at that time. Any such recommendations, however, shall not be effective without formal amendment of these Environmental Health Regulations.

COMMENTARY AND PROCEDURES

The Technical Advisory panel shall give recommendations to the Environmental Health Staff in regards to new designs and technologies and their effectiveness in meeting the performance standards. The Technical Advisory panel may submit recommendations as to ATS units which appear to meet the performance standards and provide a list of those systems to the Health Department as discussed in Sec. 2.459 A. In all cases this panels recommendations shall be advisory in nature.