

## EXTENDED TREATMENT PACKAGE SYSTEMS

Description. Manufactured and “packaged” mechanical treatment devices that provide additional biological treatment to septic tank effluent. Such units may use extended aeration, contact stabilization, rotating biological contact, trickling filters or other approved methods to achieve enhanced treatment after primary clarification occurs in an appropriately sized primary clarifier (septic tank). These systems provide secondary wastewater treatment capable of yielding high quality effluent suitable for discharge in environmentally sensitive areas.

Operation, Maintenance and Monitoring Conditions for Approval. The following procedures relating to operation, maintenance and monitoring are either required by the Rules or may be required as permit conditions, as appropriate, per the Rules (IDAPA 58.01.03.005.14) in order to ensure the protection of public health and the environment.

- 1) A maintenance entity will be available to provide continued device operation and maintenance (O&M). Approval of the O&M entity will be made by the Director prior to issuance of a permit. Approvable entities may include:
  - a) Municipal wastewater treatment departments,
  - b) Water or Sewer Districts, or
  - c) Corporations.

An O&M Agreement and an accompanying General Access Easement should be entered into between the property owner and the Non-Profit O&M Entity, as a necessary condition for issuing an installation permit. This agreement and the easement will be recorded with the County as a condition for issuing an installation permit.

- 2) Extended treatment package systems may be used for single family dwellings without an approved maintenance entity **only under all of the following conditions:**
  - a) The site is acceptable for a standard system. All separation distances from ground water and surface waters, limiting layers and soil types shall be met.
  - b) Enough land is available and suitable for two full size drainfields. One complete full sized drainfield shall be installed.
  - c) A State approved effluent filter shall be used at the outlet of the package treatment system and before the drainfield.
- 3) Final effluent disposal will meet the following criteria:
  - a) Surface discharge. System owner will apply for a National Pollution Discharge Elimination System Permit (NPDES) from the U.S. Environmental Protection Agency. Effluent quality will meet the applicable requirements of the Water Quality Standards (IDAPA 58.01.02), the Wastewater Treatment Requirements (IDAPA 58.01.16) and all other applicable regulations.
  - b) Groundwater discharge. Effluent quality will meet the applicable requirements of the Ground Water Quality Rule (IDAPA 58.01.11), Wastewater Rules (IDAPA 58.01.16), and all other applicable regulations. Total Nitrogen discharge shall not exceed that specified in the development’s Nutrient – Pathogen Study in order to prevent the ground water from exceeding the Ground Water Quality Standard for nitrates (IDAPA 58.01.11.200.01.a) and to maintain and protect the existing and projected future beneficial ground water uses (IDAPA 58.01.11.006.02).

## EXTENDED TREATMENT PACKAGE SYSTEMS

- c) Subsurface discharge. If an 85% reduction or better in Carbonaceous Biological Oxygen Demand (CBOD<sub>5</sub>) and Total Suspended Solids (TSS) can be achieved, then the effluent may be discharged to a drainfield satisfying the Sand Filter - Intermittent or the Recirculating Gravel Filter Gravity Disposal Trenches application rate criteria. Otherwise, the effluent must be discharged to a standard drainfield, sized as directed in IDAPA 58.01.03.008. Additional drainfield reduction granted for use of gravelless trench products is not allowed. The 85% reduction is a qualitative criteria. It will be accepted as being met if the effluent exhibits a quantitative value obtained from lab analysis not exceeding 30 mg/L (30 ppm) for both CBOD<sub>5</sub> and TSS.
- d) Monitoring.
- i) Annual monitoring of effluent will be required for all extended treatment package systems that discharge to a reduced size drainfield, to a drainfield with a reduced separation distance to ground water, and/or to a drainfield located in an environmentally sensitive area (area of concern).
  - ii) The monitoring will analytically quantify both CBOD<sub>5</sub> and TSS. Results for CBOD<sub>5</sub> and TSS that exceed 30 mg/L indicate the pretreatment device is not achieving the required 85% reductions. CBOD<sub>5</sub> monitoring will replace BOD<sub>5</sub> monitoring effective January 1, 2008.
  - iii) For those systems installed in areas of concern, including nitrogen sensitive areas, or are used to fulfill nutrient-pathogen study results/requirements, the following additional constituents may be monitored as stipulated on the permit:
    - (1) Total Kjeldahl Nitrogen (TKN), and
    - (2) Nitrate-Nitrite nitrogen (NO<sub>3</sub>+NO<sub>2</sub>-N), and
    - (3) Results for Total Nitrogen (TN = TKN + (NO<sub>3</sub>+NO<sub>2</sub>-N)), that exceed the levels stipulated on the installation permit, in the subdivision approval for sanitary restrictions release or the approved nutrient-pathogen study indicate that the device is failing to achieve the required reductions, or
    - (4) Lab results that exceed the numerical Total Nitrogen values specified in the Total Nitrogen Reduction Policy, Table 1, Column 3, indicate that the treatment device is not achieving the required percent nitrogen reduction, specified in Table 1, Column 2. See Table 1, Best Practical Methods for Onsite Wastewater Systems, on page 85-1.
  - iv) Samples will be collected, stored, transported and analyzed according to the latest version of "Standard Methods for the Examination of Water and Wastewater" and other acceptable procedures. Each sample will have a Chain of Custody sheet, identifying, at a minimum, the sample's source (street address or installation permit number), date and time of collection and the person who extracted the sample(s). The Chain of Custody sheet should also specify the lab analyses to be performed on the sample(s). Sample storage and transport will take place in appropriate containers under appropriate temperature control.
  - v) Samples will be required to be analyzed by a certified laboratory and the monitoring results will be submitted as part of the Annual Report to the local District Health Department. The annual report shall be submitted no later than January 31<sup>st</sup> of each year for the preceding calendar year.

## EXTENDED TREATMENT PACKAGE SYSTEMS

- vi) Additional O&M will be required for devices that fail to achieve the above reductions. Additional sampling will be required to demonstrate the O&M performed successfully restored the treatment system to proper operation. Sample extraction and analysis should occur within 30 days after servicing the system. A maximum of three (3) servicing and subsequent monitoring events, within 90 days, will be allowed to return the system to proper operation. Failure to correct the system within this time frame will result in the system being classified as a 'failing system'. See 'Individual System Sampling Flow Chart' on page 39-3.
  - vii) If an O&M Entity's Annual Report identifies malfunctioning system rates of 10% or more, DEQ will suspend the O&M and require that the O&M Entity, the affected Home Owners, and the Service Provider, in cooperation with the local Health District, enter into a Corrective Action Plan (CAP). The CAP should establish the time frame to return the non-complying systems to proper operation. The suspension will remain in effect until the malfunctioning system rate is below 10%. Suspension will only prevent issuing additional O&M Agreements. Existing system monitoring, reporting and servicing requirements will not be affected by a suspension. See 'O&M Entity Reporting Flow Chart' on page 39-4.
- 4) If the system is experimental, the system owner will provide a waiver of liability absolving the Department and the Health Districts of any liability arising from operation or malfunction of the system.

Design. The following procedures relating to design are either required by the Rules or may be required as permit conditions, as appropriate, in order to ensure the protection of public health and the environment.

- 1) All materials will be durable, corrosion resistant and designed for their intended use.
- 2) All electrical connections completed on site shall comply with the National Fire Protection Association (NFPA) Standard NFPA70, National Electrical Code, as required by the Division of Building Safety, Electrical Bureau.
- 3) Design for each specific application should be provided by a Professional Engineer licensed in the State of Idaho and specializing in environmental or sanitary engineering.
- 4) The system's aerobic treatment section will be preceded by a primary clarifier. The primary clarifier may be either a separate septic tank, a volume integral with the system's package or a combination of internal clarifier volume coupled with an external tank. The primary clarifier shall provide the minimum tank capacity for residential facilities as specified in Rule (IDAPA 58.01.03.007.07.a), or for non-residential facilities a minimum of two (2) days hydraulic residence time (HRT) as stipulated in Rule (IDAPA 58.01.03.007.07.b). Timed dosing from the clarifier to the aerobic treatment unit is preferred, and highly recommended, in order to maintain a constant source of nutrients for the system's aerobic microbes.
- 5) Manufactured and "packaged" mechanical treatment devices will be required to prove that the specified equipment model:
  - a) Has successfully completed National Sanitary Foundation (NSF) standard 40 testing, or
  - b) Has successfully completed an EPA sanctioned Environmental Technology Verification (ETV) test, or
  - c) Was designed by an Idaho registered professional engineer specializing in sanitary or environmental engineering.

## EXTENDED TREATMENT PACKAGE SYSTEMS

Construction. The following procedures relating to construction are either required by the Rules or may be required as permit conditions, as appropriate, in order to ensure the protection of public health and the environment.

### 1) Installation

- a) The system shall be installed by an appropriately qualified installer. Idaho Rule defines System (IDAPA 58.01.03.003.35) as “Beginning at the point of entry physically connected piping, treatment devices, receptacles, structures, or areas of land designed, used or dedicated to convey, store, stabilize, neutralize, treat, or dispose of blackwaste or wastewater.” Consequently, the system includes the drainfield.
  - b) A licensed Complex System Installer shall be required to install extended treatment package systems (IDAPA 58.01.03.006.01.b).
  - c) A Public Works Contractor may install an ETPS if they are under the direct supervision of an Idaho Registered Professional Engineer.
  - d) Licensed Plumbers and Electricians will be required to install specific devices and components for proper system operation. If the device requires any on-site fabrication or component assembly a Public Works Contractor should be used.
- 2) The design or certifying engineer should provide a written statement, within 90 days of completion of installation that the system has been installed and is operating in accordance with design and/or the manufacturer’s recommendations.

\*\*If a Health District has questions regarding application of this guidance document to a proposed system, the Health District should contact the DEQ.

# EXTENDED TREATMENT PACKAGE SYSTEMS

## Individual System Sampling Flow Chart

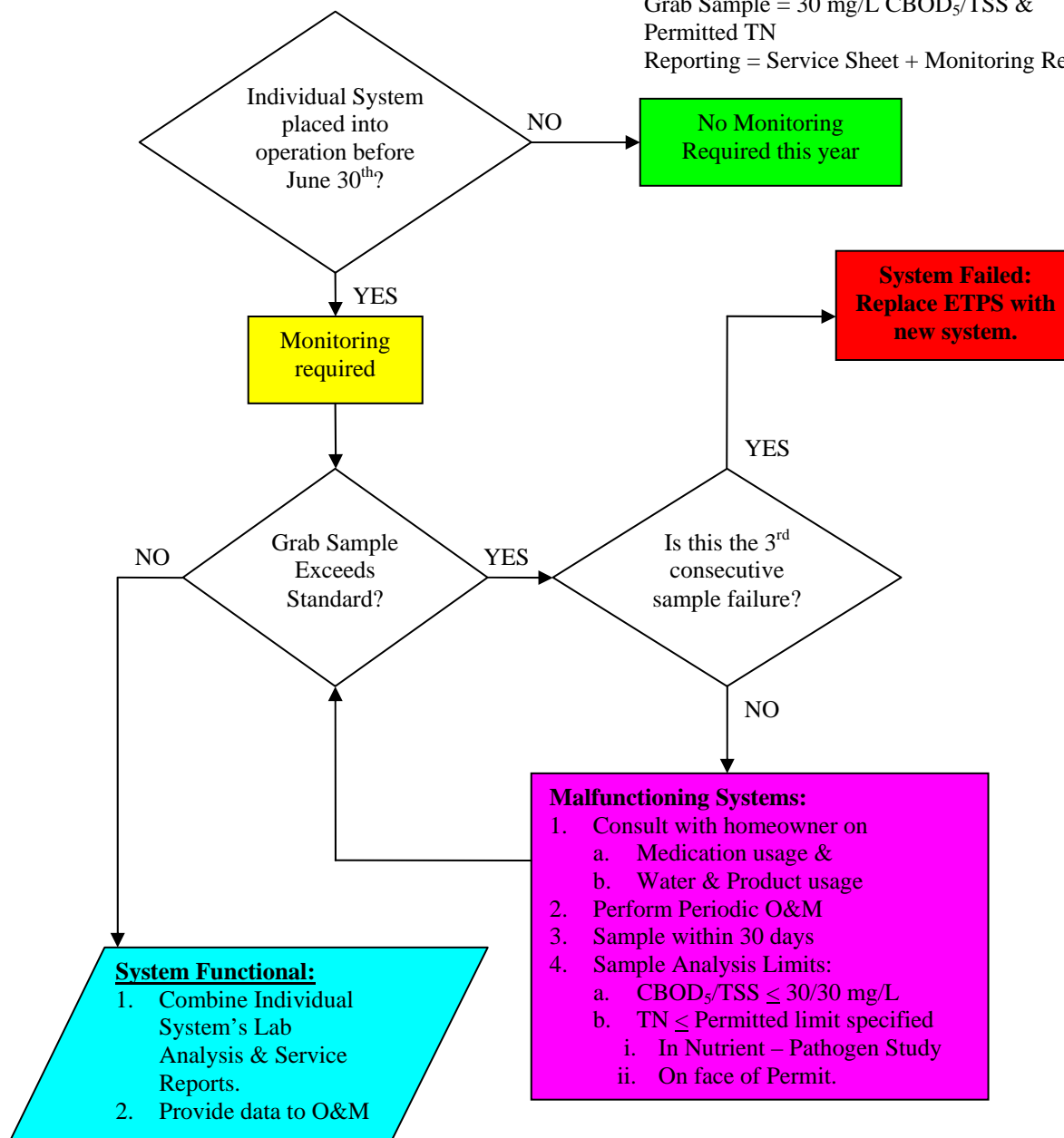
### Legend:

Monitoring = Sampling + Analysis

Grab Sample = 30 mg/L CBOD<sub>5</sub>/TSS &

Permitted TN

Reporting = Service Sheet + Monitoring Results



# EXTENDED TREATMENT PACKAGE SYSTEMS

## O&M Entity Reporting Flow Chart

### Legend:

Monitoring = Sampling + Analysis

Grab Sample = 30 mg/L CBOD<sub>5</sub>/TSS &

Permitted TN

Reporting = Service Sheet + Monitoring Results

