

GENERAL ON-SITE PROCEDURES

The Thurston County Public Health & Social Services Department (Health Department) expects the following items to be documented in files/records kept by the Certified Monitoring Specialist (CMS) for each project site. Be certain that you have obtained copies of the Health Department records (including approved design, record drawing, Operational Certificate, and permit information) prior to visiting the site.

The list below is intended as a general guideline; it does not address the minimum or maximum amount of information that may be generated. The work performed on site should in all cases be consistent with the requirements set forth in the Operational Certificate, or as needed for routine investigations of user complaints. Sewage system failures (such as surfacing sewage, groundwater intrusion, back-ups into the home) shall be reported to the Health Department as soon as possible.

Certified Monitoring Specialists shall have working knowledge of the Washington State Department of Health's "Recommended Standards and Guidance for Operation & Maintenance" requirements for each type of treatment and disposal device or component serviced or monitored.

1. START IN THE HOUSE

A. User complaints

This can include slow drainage or back-up of the plumbing, odors, instances of pump alarms or pump failures.

B. Water use/meter readings

Read meter if applicable, interview owner on water use habits in the home and outside the home (irrigation).

2. PROCEED TO THE PRIMARY TREATMENT UNIT

A. Septic tanks, grease traps, pump chambers

1) Evaluate septic tank and pump chamber for:

- a. Sludge and scum accumulations; pump as necessary.
- b. Clogging, damage, and proper placement of inlet, outlet and center wall baffles.
- c. Clogging, damage, and proper placement of outlet baffle screen. Clean the screen each time it is inspected or as needed to avoid clogging.
- d. Signs of leaking in tanks and risers. Repair or replace if necessary.
- e. Risers and lids at or above grade and having lids that are secure from unauthorized entry.
- f. Properly functioning floats. Movement should not be restricted; floats should be positioned correctly and provide positive instrumentation signals. Adjust and repair as necessary.
- g. Measure pump run time per cycle and drawdown. Compare with time recorded in record drawing.
- h. Test alarms for proper functioning (high and low liquid level).

B. Siphon tank

Check condition of screen as applicable, clean as needed; read dose counter where applicable, record findings; verify proper operation by witnessing one dose cycle; document any solids accumulations in the siphon tank and recommend pumping as needed; document each pumpout and obtain pumper's report of condition of tank; check for groundwater intrusion where possible; clean bell and snifter tube (if present) as needed.

3. PROCEED TO THE SECONDARY TREATMENT UNIT WHERE APPLICABLE

There are a number of secondary treatment devices currently utilized for residential applications. Mechanical treatment devices are becoming increasingly prevalent in commercial applications. Secondary treatment devices precede the disposal component and generally serve to reduce the prevalence of certain contaminants present in sewage (usually BOD5, total suspended solids (TSS), oil and grease (O&G)). Different treatment devices have different applications, depending on the nature of the wastewater being produced. Secondary treatment devices include sandfilters, aerobic treatment units, and other mechanical treatment devices. The goal of a secondary treatment device is to reduce the “strength” of the wastewater, or to provide an enhanced level of treatment due to minimal setbacks from the system to sensitive environments.

A. Intermittent Sandfilter (excluding sand-lined drainfield trench systems)

Intermittent sandfilters are commonly employed for single family residential use. They may be situated above or below existing grade. The minimum operational and maintenance (O&M) requirements for lined pit intermittent sandfilters are listed at <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#I>.

1) Minimum Maintenance Description and Service Items

- a. Type of use.
- b. Age of system.
- c. Specifications of all electrical and mechanical components installed (occasionally components other than those specified on the plans are used).
- d. Nuisance factors, such as odors or user complaints.
- e. Septic tank — Inspect yearly for structural integrity, proper baffling, screen, groundwater intrusion, and proper sizing. Inspect and clean effluent baffle screen and also pump tank as needed.
- f. Pump chamber — Clean the effluent screen (spraying with a hose is a common cleaning method), inspect and clean the pump switches and floats yearly. Pump the accumulated sludge from the bottom of the chambers whenever the septic tank is pumped, or more often if necessary.
- g. Pumpwell — Inspect for infiltration, structural problems and improper liquid level. Check for pump or siphon malfunctions, including problems related to dosing volume, break-down, pressurization, clogging, burnout, or cycling. Pump the accumulated sludge from the bottom of the pumpwell whenever the septic tank is pumped, or whenever necessary.
- h. Check monitoring ports for ponding. Conditions in the monitoring ports must be observed and recorded by the service provider during all operation and maintenance activities for the intermittent sand filter and other system components. For reduced-sized drainfields, these observations must be reported to the local health jurisdiction responsible for permitting the system.
- i. Inspect and test yearly for malfunction of electrical equipment such as timers, counters, control boxes, pump switches, floats, alarm system, junction box, or other electrical components, and repair as needed. System checks should include improper setting or failure, of electrical, mechanical, or manual switches.
- j. Mechanical malfunctions (other than those affecting sewage pumps) including problems with valves, or other mechanical or plumbing components.
- k. Material fatigue, failure, corrosion problems, or use of improper materials, as related to construction or structural design.

- l. Neglect or improper use, such as loading beyond the design rate, poor maintenance, or excessive weed growth.
- m. Installation problems, such as improper location or failure to follow design.
- n. Overflow or backup problems where sewage is involved.
- o. Specific chemical/biological indicators, such as BOD, TSS, fecal coliforms, etc. Sampling and testing may be required by the local health officer on a case-by-case basis, depending on the nature of the problem, availability of laboratories, or other factors.
- p. Information on the safe disposal of discarded filter media.

B. Recirculating Gravel Filter

This device is generally employed to reduce BOD5, often for commercial establishments. The minimum O&M requirements and influent parameters for recirculating gravel filter systems are listed at <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#R>. Confirm special monitoring requirements with the Health Department.

1) Minimum Maintenance Description and Service Items

- a. Type of use.
- b. Age of system.
- c. Specifications of all electrical and mechanical components installed (occasionally components other than those specified on the plans are used).
- d. Nuisance factors, such as odors or user complaints.
- e. Septic tank — Inspect yearly for structural integrity, proper baffling, screen, groundwater intrusion, and proper sizing. Inspect and clean effluent baffle screen and also pump tank as needed.
- f. Dosing and Recirculating/Mixing Tanks — Clean the effluent screen (spraying with a hose is a common cleaning method), inspect and clean the pump switches and floats yearly. Pump the accumulated sludge from the bottom of the chambers whenever the septic tank is pumped, or more often if necessary.
- g. Pumpwell — Inspect for infiltration, structural problems and improper sizing. Check for pump or siphon malfunctions, including problems related to dosing volume, breakdown, pressurization, clogging, burnout, or cycling. Pump the accumulated sludge from the bottom of the pumpwell whenever the septic tank is pumped, or whenever necessary.
- h. Check monitoring ports for ponding. Conditions in the observation ports must be observed and recorded by the service provider during all operation and maintenance activities for the recirculating gravel filter and other system components. For reduced- sized drainfields, these observations must be reported to the local health jurisdiction responsible for permitting the system.
- i. Inspect and test yearly for malfunction of electrical equipment such as timers, counters, control boxes, pump switches, floats, alarm system or other electrical components, and repair as needed. System checks should include improper setting or failure, of electrical, mechanical, or manual switches.
- j. Mechanical malfunctions (other than those affecting sewage pumps) including problems with valves, or other mechanical or plumbing components.
- k. Malfunction of electrical equipment (other than pump switches) such as timers, counters, control boxes, or other electrical components.
- l. Material fatigue, failure, corrosion problems, or use of improper materials, as related to construction or structural design.

- m. Neglect or improper use, such as loading beyond the design rate, poor maintenance, or excessive weed growth.
- n. Installation problems, such as improper location or failure to follow design.
- o. Overflow or backup problems where sewage is involved.
- p. Recirculating Gravel Filter/exposed-surface filter bed — Weed and remove debris from the bed surface, quarterly.
- q. Specific chemical/biological indicators, such as BOD, TSS, fecal or total coliforms, etc. Sampling and testing may be required by the local health officer on a case-by-case basis, depending on the nature of the problem, availability of laboratories, or other factors.
- r. Information on the safe disposal of discarded filter media.

C. Stratified Sandfilter

Operational requirements and maintenance provisions shall be in accordance with Washington State Department of Health Recommended Standards and Guidance for Stratified Sand Filter Systems, <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#S>.

D. Sand-lined Drainfield Trench Sandfilter (same as for pressurized drainfields)

E. Aerobic Treatment Units, Packed Bed Filters, and Upflow Media Filters (Proprietary Treatment Products (PTP) – see <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#P>)

1) General

- a. The owner of the residence or facility served by the PTP is responsible for assuring proper operation and providing timely maintenance of the PTP and all other components of the on-site wastewater treatment and dispersal system.
- b. The authorized representative for the PTP must instruct, or assure that instruction regarding proper operation of the PTP is provided to, the owner of the residence or facility.
- c. The on-site wastewater system designer must instruct, or assure that instruction is provided to, the owner of the residence or facility regarding proper operation of the entire on-site wastewater system. This instruction should emphasize operating and maintaining the entire on-site wastewater system within the parameter ranges for which it is designed.
- d. Conditions in the soil dispersal component must be observed and recorded by the service provider during all operation and maintenance activities for the PTP and other system components. These observations must be reported to the local health jurisdiction responsible for permitting the system in a manner that is consistent with the local permit and operation and maintenance requirements.
- e. If observations reveal a soil dispersal component failure (defined by WAC 246-272-01001), or history of long-term, continuous and increasing effluent ponding within this component, which if left unresolved will result in failure, the owner of the system must take appropriate action, according to the direction and satisfaction of the local health jurisdiction to alleviate the situation. Any repair or modification activity must be reported as part of the monitoring activity for the site. Appropriate actions may include:
 - 1. Repairing or modifying the soil dispersal component. (Local permits must be obtained before construction begins according to local health jurisdiction requirements for repairs.)

2. Pertaining to reduced-size soil dispersal components, enlarging the area to initial design size required by WAC 246-272. (Local permits must be obtained before construction begins according to local health jurisdiction requirements.)
3. Modifying the wastewater strength and/or quantity from the structure served.

2) Service Contract

A Service Contract for on-going service and maintenance of the entire wastewater system is required. The service and maintenance requirements may be modified by the local health jurisdiction, but as a minimum, continued service and maintenance must be addressed for the life of the system by an operation and maintenance plan.

F. Disinfection Units (see <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm>)

- 1) The owner of the residence or facility served by the disinfection equipment is responsible for assuring proper operation and providing timely maintenance of the disinfection equipment and all other components of the on-site wastewater treatment and disposal system.
- 2) The on-site wastewater system designer must instruct, or assure that instruction is provided to, the owner of the residence or facility regarding proper operation of the entire on-site wastewater system, including the disinfection equipment. This instruction should emphasize operating and maintaining the entire on-site wastewater system within the parameter ranges for which it is designed.
- 3) A Service Contract for on-going service and maintenance of the entire wastewater system is required. The service and maintenance requirements may be modified by the local health jurisdiction, but as a minimum, continued service and maintenance must be addressed for the life of the system by an operation plan.

4. PROCEED TO THE DISPOSAL UNIT

The CMS shall be obligated to inform the owner of any observed land use event occurring in the vicinity of the drainfield that may have a detrimental impact on its function. This includes the future use of the approved replacement area as well. This obligation is in keeping with the role of the CMS, having expertise in the field of on-site sewage system technology, as advisor to the owner. As a CMS, knowledge of local regulatory provisions and familiarity with best management practices is critical for long-term beneficial use of on-site sewage systems.

Inspection ports may be added to existing drainfields if believed beneficial to on-going performance monitoring.

A. Standard gravity flow drainfield

- 1) Evaluate drainfield area for:
 - a. Indication of surfacing effluent.
 - b. Appropriate vegetation.
 - c. Absence of heavy traffic.
 - d. Inappropriate building.
 - e. Impervious materials or surfaces.
 - f. Abnormal settling or erosion.
 - g. Evaluate monitoring ports for evidence of ponding. Check depth of ponding.
- 2) Distribution devices
 - a. Evaluate D-box for:

1. Uneven settling of D-box
2. Levelness of inverts of outlets of D-box
3. Uniformity of outlet flow of D-box
4. Depth of effluent in the D-box
5. Solids accumulations in the D-box
6. Evaluate distributing valve for proper rotation of the valve through the clear sections of outlet pipe.

B. Pressurized drainfield (see <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm>)

- 1) Confirm any special monitoring requirements with the Health Department.
- 2) Walk over drainfield area; note apparent saturated conditions or surfacing effluent in the drainfield or areas downslope.
- 3) Evaluate laterals for:
 - a. Residual pressure at the distal ends. Confirm that it is the same as those recorded on the recorded drawing (record drawing). If not the same, laterals and orifices need to be cleaned.
 - b. Equal flows in each lateral.
 - c. Need for cleaning. Clean laterals and orifices as necessary.
 - d. Check monitoring ports, if installed, record depth of ponding or none.
- 4) If the drainfield is an interlaced system, verify approved cycle of drainfield alternation with the Health Department, and adjust the alternator “jandy” valve at the appropriate intervals. Assure “jandy” valve is properly adjusted (only one system “on” at a time) initially.
- 5) Include other site specific information as needed to generate a summary statement of system function at the time of inspection.
- 6) Note potentially detrimental land use in the drainfield area and replacement area, if applicable.

C. Mound System (see <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#M>)

- 1) O&M Activities / Schedules — Routine and preventative maintenance aspects are:
 - a. Scum and sludge levels in the septic tank or other pretreatment devices, as well as the pump or siphon chamber, should be inspected routinely and pumped when necessary. On average, septic tanks should be pumped every 3 to 5 years.
 - b. Periodic inspections of system performance are required. Liquid levels in the standpipes should be checked and examinations made for any seepage around the toe of the mound.
 - c. A good water conservation plan within the house or establishment will help assure that the mound system will not be hydraulically overloaded.
 - d. Avoid traffic in the initial and replacement mound areas, in particular the area downslope from the mound and replacement mound. No vehicular or livestock traffic should be permitted. With lawn care equipment, such as riding lawn mowers or tractor, be careful not to travel on the mound, or the downslope area, when the soil is saturated, as during the wet wintertime. Winter traffic on the mound should be avoided to minimize frost penetration in colder climate areas and to minimize compaction in other areas.
- 2) Confirm any special monitoring requirements with the Health Department.
 - a. Check monitoring ports; record depth of ponding or none in each port.

- b. Walk the perimeter of the mound toe; note any ponding or water accumulation seen around the toe or in areas up or downslope or evidence of “blow-outs” on the mound side or end slopes.
- c. Walk the mound bed; note apparent saturated conditions or surfacing effluent.
- d. Verify adequate cover soil and appropriate vegetation on mound. (Trees and large shrubs are NOT appropriate vegetation types for mounds. The mound should not be grown “wild” with blackberries or any other vegetation with inquisitive rooting habit or that precludes access to the mound for inspection. Filter sand generally should not be visible at the surface of the mound.)
- e. Note potentially detrimental land use in the area of the mound and replacement area, if applicable.

D. Glendon® Biofilters (see <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#G>) and the Glendon website at www.glendon.com for more information)

- 1) The system owner is responsible to assure that routine operation and maintenance of the Glendon® BioFilter is provided in compliance with the manufacturer’s recommendations, but in all cases at least two times per year. Where the system is required to meet Treatment Standard 1 or 2 or Treatment Level A or B, the local health jurisdiction may require additional O&M service.
- 2) Monitoring and maintenance events and activities are described in the Glendon® BioFilter Technologies Installation Manual, along with recommended service frequencies.
- 3) The authorized representative for Glendon® BioFilter Technologies must instruct, or assure that instruction is provided to, the owner of the residence or facility regarding proper operation of the entire on-site wastewater system. This instruction should emphasize operating and maintaining the entire on-site sewage system within the parameter ranges for which it is designed.
- 4) Conditions in and around the Glendon® BioFilter must be observed and recorded by the Glendon licensed service provider during all operation and maintenance activities. Those observations must be reported to the local health jurisdiction in a manner that is consistent with the operation and maintenance requirements of the local jurisdiction.
- 5) If observations reveal a failure (defined by WAC 246-272-01001) in the BioFilter or the surrounding soil absorption system, the owner of the system must take appropriate action, according to the direction and satisfaction of the local health jurisdiction to alleviate the situation. Any repair or modification activity must be reported as part of the monitoring activity for the site. Appropriate actions may include:
 - a. Repairing or replacing the Glendon® BioFilter. (Local permits must be obtained before construction begins according to local health jurisdiction requirements for repairs.)
 - b. Pertaining to reduced size absorption areas, enlarging the absorption area to initial design size required by WAC 246-272. (Local permits must be obtained before construction begins according to local health jurisdiction requirements.)
 - c. Modifying the wastewater strength and/or quantity from the structure served.

E. Subsurface Drip System (see <http://www.doh.wa.gov/ehp/ts/WW/pubs-ww-all-bytitle.htm#S>)

- 1) Specific Maintenance Tasks — Recommended maintenance tasks depend on the manufacturer and specific components of the system. The manufacturer should be consulted and maintenance performed in accordance with manufacturer’s

recommendations. Outlined below are suggested tasks specific to the subsurface drip components and may be required with more frequency where automated flushing is not provided:

- a. Inspect and service filters in accordance with manufacturer's recommendations.
- b. Open field flush valves for each sector, manually turn on the pump and flush the system for approximately 5 minutes.
- c. Close the field flush valve and check system pressure (compare to baseline data collected during initial start-up and testing). If pressure or flow rates are not the same as baseline data the dripline may require additional maintenance such as flushing with mild chlorine or acid solution. (Always consult with dripline manufacturer before performing this task.)
- d. Check vacuum breakers (air vacuum relief valves) and check for proper operation.
- e. Be sure to reset controller to "automatic" mode.
- f. Inspect and clean, as needed, field and filter flush valves.
- g. Check dripfield for ponding or soggy conditions. (Note: If this condition is observed, please report any problems to the local health officer. The Department of Health is seeking drip system performance data to assess these standards.)

2) Frequency/Schedule

- a. The service provider must perform an initial inspection and system check within 30 days of installation and start-up of the system.
- b. Service frequency must be in accordance with manufacturer's recommendations. If the service provider also provides service on a pretreatment component such as an aerobic treatment unit, the frequency of service visits can be the same as service scheduled for that unit. Generally, where secondary pretreatment is provided at least two service visits per year are recommended. For systems with minimum pretreatment, service frequency must be in accordance with manufacturer's recommendations but at least 4 equally spaced (quarterly) inspections/service visits per year are recommended.

5. OTHER SOURCES OF INFORMATION FOR MONITORING SPECIALISTS:

- A. The Washington On-Site Sewage Association (WOSSA) — A statewide organization providing training for individuals and firms in all aspects of on-site sewage. For additional information see www.wossa.org or contact the WOSSA Office at 253-770-6594.
- B. The Consortium of Institutes for Decentralized Wastewater Treatment — A nationwide group of universities and industry professionals providing training and education to interested groups and individuals. Contact them at www.onsiteconsortium.org.
- C. Consult proprietary treatment product manufacturers' individual websites for product O&M information.