Large On-site Sewage Systems

Glossary of Terms

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Washington State Department of HEALTH

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Glossary of Terms

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Acronyms and Definitions

The following acronyms and definitions apply throughout Chapter 246-272B WAC (Large On-site Sewage System Regulations) unless the context clearly requires otherwise:

Accessible	When applied to a fixture, connection, appliance or equipment, means having access thereto, but which first may require the removal of an access panel, door, or similar obstructions. Readily accessible means direct access without the necessity of removing any panel, door, or similar obstruction.
Additive	A commercial product added to an OSS intended to affect performace or aesthetics of an OSS.
Annual Report	A report which must be submitted annually to the department by the owner of a LOSS, demonstrating that the LOSS is being operated and maintained in accordance with the approved operation and maintenance manual. The department provides an example form.
Approved	Written statement of acceptability issued by the department.
As-built drawing(s)	The "record" drawing(s) of a LOSS, as defined below. A copy of the as-built drawing(s) must be included in the final LOSS operation and maintenance manual.
ASTM	American Society for Testing and Materials.
Bank	Any naturally occurring slope greater than one hundred percent (forty-ficve degrees) and extending vertically at least five feet from the toe of the slope to the top of the slope.
Bed	A drainfield component consisting of an excavation with a width greater than three feet up to ten feet.
BOD	Biochemical osygen demand, typically expressed by mg/L.
Building sewer	That part of the horizontal piping of a drainage system extending from the building drain, which hcollectw sewage from all the drainage pipes inside a building, to an OSS. It begins two feet outside the building wall and conveys sewage from the building drain to the remaining portions of the OSS.
CBOD	Carbonaceous biochemical oxygen demand, typically expressed as mg/L. Same as the 5-day biochemical oxygen demand (BOD5) test, except that the NITROGENOUS DEMAND is prevented by addition of a nitrification inhibitor to the sample
Cespool	A pit receiving untreated sewage and allowing the liquid to seep into the surrounding soil or rock.

Construction report	A document form which must be signed and stamped by the design engineer and submitted to the department within 60 days of a project's completion, that certifies the LOSS has been completed in accordance with the approved plans and specifications, or notes any significant changes that were made.
Covenant	A recorded agreement stating certain activities or practices are required or prohibited.
Cover material	Soil placed over a drainfield or dripfield composed predominatly of mineral material with no greater than ten percent organic content. Cover material may contain an organic surface layer for establishing a vegetative landscape to reduce soil erosion.
Cut	Any artificially formed slope greater than one hundred percent (forty-five degrees) and extending vertically at least five feet from the toe of the slope to the top of the slope.
Department	The Washington State Department of Health.
Design engineer	A professional engineer who is licensed in Washington state under chapter 18.43 RCW and is experienced and qualified in the analysis and design of LOSS or sewage treatment system components. If the LOSS or any component of the LOSS is considered a "significant structure" as defined in chapter 18.43 RCW, the design engineer shall be licensed as a structural engineer unless an exception specified in RCW 18.42.040 applies.
Design flow	The maximum volume of sewage a residence, structure, or other facility is estimated to generate in a twenty-four-hour period. It incorporates both an operating capacity and a surge capacity for the LOSS during periodic heavy use events. In the absence of daily flow data to establish a peak flow, 1.42 may be used as a peaking factor and applied to the Operating capacity to establish Design flow.
Development	A combination of residences, structures, and facilities, or similar activity, in or on subdivisions, sites, or areas, where residential strength sewage is produced.
Disinfection	The process of destroying pathogenic microorganisms in sewage through the application of ultraviolet light, chlorination, or ozonation.
Distribution technology	Any arrangement of equipment or materials that distributes LOSS effluent within the drainfield.
Domestic sewage	Urine, feces, and the water carrying human wastes, including kitchen, bath, and laundry wastes from residences, nonresidential buildings such as churches or schools, commercial establishments, or other buildings, excluding industrial wastewater and storm water.
Drain rock	Clean washed gravel or crushed rock ranging in size from three-fourths inch to one-half inches, and containing no more than two percent by weight passing a US No. 8 sieve and no more than one percent by weight passing a US No. 200 sieve.

Drainfield	The treatment and soil dispersal component of a LOSS consisting of trenches or beds containing either a distribution pipe within a layer of drain rock covered with a geotextile or equivelant covering, or an approved gravelless distribution technology, designed and installed in original , undisturbed, unsaturated soil providing at least minimal vertical separation as established in this chapter, with pressure distribution of effluent.
Dripfield	A type of drainfield where effluent is applied directly into the soil through dtiplines.
Dripline	The distribution piping used with a subsurface drip system to discharge effluent into the soild. A dripline consists of small diameter, flexible polyethylene tubing with small in-line emitters.
Drywell	A subterranean pit, chamber, or structure used to collect storm water, effluent, or other liquid and disperse it into the soil.
Effective particle size	The size of the sieve opening where ninety percent by weight of a sample of filter media is retained on the sieve and ten percent passes through the sieve.
Effluent	Liquid discharge from a septic tank or other LOSS treatment component.
Emitter	An orifice that discharges effluent at a slow, controlled rate.
Engineering report	One of the documents required for approval of a new or modified LOSS. The engineering report must be developed and stamped by the design engineer and submitted to the department for review. The engineering report outlines the scope fo the propsed project and addresses the items listed in WAC 246-272B-04000.
Expansion	A change to the LOSS or its influent that causes the LOSS to exceed its existing treatment or dispersal capacity, or a change that reduces the treatment or dispersal capacity of the existing LOSS.
Extremely gravelly	Soil with sixty to ninety percent rock fragments by volume.
Failure	A condition of a LOSS or LOSS component that threatens the public health or environment by inadequately treating sewage or by creating a potential for direct or indirect contact between sewage and the public. Examples of failure include: (a) Sewage on the surface of the ground; (b) Sewage backing up into a structure caused by slow soil absorption of septic tank effluent; (c) Sewage leaking from a sewage tank or collection system; (d) Cesspools or seepage pits where evidence of ground water or surface water quality degradation exists; (e) Inadequately treated effluent contaminating ground water or surface water; or

	(f) Noncompliance with ~~standards~~ requirements stipulated on the permit.
FC	Fecal coliform bacteria, typically expressed in number of colonies/100 ml.
Fecal coliform	Bacteria common to the digestive systems of warm blooded animals that are cultured in standards tests. Counts of these organisms are typically used to indicate potential contamination from sewage or to describe a level of needed disinfection, and are generally expressed as colonies per 100 ml.
Final inspection	An inspection of a nearly-completed LOSS, conducted by the department, before the drainfield is covered. This inspection must include a pressure or "squirt" test of the drainfield laterals so that uniform distribution with adequate residual pressure may be verified.
Gpd	Gallons per day.
Gravelly	Soils with fifteen to thirty-four percent rock fragments by volume.
Greywater	Domestic type flows from bathtubs, showers, bathroom sinks, washing machines, dishwashers, and kitchen or utility sinks. Greywater does not include flow from a toilet or urinal.
Gross land area	The total land area of a proposed development that might include the centerline of adjoining road or street right of ways, if dedicated as part of the development, but does not include land area under surface water.
Groundwater	Water in a saturated zone or stratum beneath the surface of land or below a surface water.
High quality effluent (HQE)	A treatment level higher than Treatment Level B as established in WAC 246-272B-06250.
Holding tank sewage system	A LOSS that incorporates a sewage tank without a discharge outlet, and requires the services of a sewage pumper, and off-site treatment and disposal for the generated sewage.
Hydraulic loading rate	The rate at which effluent is applied to a drainfield or other treatment component usually expressed as gpd/sf.
Hydrogeologist	A professional hydrogeologist who is licensed in Washington state under chapter 18.220 RCW.
Hydrogeology report (HGR)	A detailed report and analysis of the geology of a proposed drainfield site and its relationship to existing groundwater and soil conditions. The hydrogeologic assessment addresses items listed in WAC 246-272B-03300. It may include a mounding analysis and nitrate balance. This assessment may be performed by the design engineer or by a licensed hydrogeologist or firm.
HGR	Hydrogeology report.
HQE	High quality effluent.
Industrial wastewater	The water or liquid carried waste from an industrial process. This waste may result from any process or activity of industry, manufacturer, trade, or business; from the development of any natural resource; or animal operations

	such as feedlots, poultry houses, or dairies. The term includes contaminated storm water and leachate from solid waste facilities.
Infiltrative surface	The horizontal surface area measured in square feet within a drainfield to which effluent is applied and through which effluent moves into original undisturbed soil or other porous treatment media.
Influent	The domestic sewage entering the LOSS.
Installer	A person who installs or repairs an OSS and who meets the requirements in WAC 246-272B-05000.
Large on-site sewage system (LOSS)	An OSS with design flows of three thousand five hundred gdp up to and including one hundred thousand gpd.
Local Health Jurisdiction	The local county or city-county health department or health district.
Local health officer	The legally qualified physician who has been appointed as the health officer for the county or district public health department as defined in RCW 70.05.010, or his or her authorized representative.
LOSS	A large on-site sewage system designed for a daily peak flow of 3,500 to 100,000 gallons per day. A LOSS is an integrated system of components, located on or nearby the property it serves, that conveys, stores, treats, and provides subsurface soil treatment and disposal of domestic sewage. It consists of a collection system, a treatment component or treatment sequence, and a drainfield. It may include a mechanical treatment system. LOSS also refers to a holding tank sewage system or other system that does not have a drainfield. A holding tank that discharges to a sewer is not included in the definition of LOSS. A system into which storm water or industrial wastewater is discharged is not included in the definition of LOSS.
Maintenance	The actions necessary to keep the LOSS and its components functioning to protect public health and the environment.
Management agreement	A signed agreement between the owner of the LOSS and the department for LOSS with single ownership. The owmner must agree to provide competent management of the LOSS, operate from a fixed address, keep adequate records, etc. For projects proposed to serve developments where the lots are owned individually, the agreement is between the owner and a public entity or a private wastewater company regulated by the Washington Utilities and Transportation Commission (WUTC). The public entity or private wastewater company must serve as the primary management entity or as a third partytrust for a private management plan (WAC 246-272B-04100).
Management entity	A publicly or privately owned entity acting as an agent of the owner responsible for the proper and safe long-term management of the LOSS.
Massive structure	Soil that appears as a coherent or solid mass not separated into peds of any kind.

mg/L	Milligrams per liter.
ml	Milliter.
mm	Millimeter.
Moderate structure	Well formed distinct peds evident in undistrurbed soil. When disturbed, soil material parts into a mixture of whole peds, broken peds, and material that is not in peds.
Modification	A change to an existing LOSS that includes, but not limited to, a repair, an expansion, a replacement, treatment or other process improvement, or a management or ownership change.
Monitoring	Routine observation and measurement of LOSS performance to determine if it is functioning as intended and if maintenance is needed. Monitoring also includes maintaining accurate records documenting monitoring activities.
N	Nitrogen, typically expressed in mg/L-N or mg-N/L.
N_{10}	A treatment level based on total nitrogen of 10 mg/L-N.
N_{20}	A treatment level based on total nitrogen of 20 mg/L-N.
NEMA	National Electrical Manufacturer Association.
NRCS	National Resources Conservation Service.
O&G	Oils and grease.
Oils and grease	A component of sewage typically originating from food stuffs or consisting of compounds of alcohol or glycerol with fatty acids, typically expressed in mg/L. Standard laboratory methods for determining O&G are USEPA ZMethod 1664 or Standard Methods 5520.
O&M	Operations and maintenance.
On-site sewage system (OSS)	An integrated system of components, located on or nearby the property it serves, that conveys, stores, treats, and provides subsurface soil treatment and disposal of domestic sewage. It consists of a collection system, a treatment component or treatment sequence, and a drainfield. It may or may not include a mechanical treatment system. An OSS also refers to a holding tank sewage system or other system that does not have a drainfield. A holding tank that discharges to a sewer is not included in the definition of OSS. A system into which strom water or industrial wastewater is discharged is not included in the definition of OSS.
Operator	A person who is responsible for operating the LOSS and ensuring that it consistently and reliably treats sewage according to the terms and conditions of the operating permit, and who meets the requirements in WAC 246-272B-07200.
Operating capacity	The average daily volume of sewage that a LOSS can treat and disperse on a sustained basis.

Operating permit	A legislatively-required permit to operate a LOSS that is issued buy the department to the LOSS owner when the engineering report and plans and specifications are approved. It contains both general and specific requirements, such as effluent monitoring and treatment improvements, which may span several years. The operating permit must be renewed annually. The LOSS operating permit fee, due with the new or renewal application, is specified in WAC 246-272-3000.
Operation and maintenance (O&M) manual	A document that outlines basic system information and maintenance procedures. It must be prepared and stamped by the design engineer and submitted to the department for approval. The final manual must include record drawings of the LOSS and other items required in WAC 246-272B-04200.
Ordinary high-water mark	The mark on lakes, streams, springs, and tidal waters found by examining the beds and banks and ascertaining where the presence and action of water are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland with respect to vegetation, as that condition exists on the effective date of this chapter, or as it may naturally change thereafter. The following definitions apply where the ordinary high-water mark cannot be found: a) The ordinary high-water mark adjoining marine water is the elevation at mean higher high tide; and b) The ordinary high-water mark adjoining freshwater is the line of mean high water.
OSS	On-site sewage system.
Owner	A person responsible for the LOSS and for complying with this chapter.
P	Phosphorus, typically expressed in mg/L-P but sometimes expressed as mg/L-PO4 or $PO4^{3-}$.
Ped	A unit of soil structure such as a block, column, granule, plate, or prism formed by natural processes.
Person	Any individual, corporation, company, association, society, firm, partnership, joint stock company, or any governmental agency, or the authorized agents of these entities.
Platy structure	Soil that contains flat peds that lie horizontally and often overlap. This type of structure impedes the vertical movement of water.
Predesign report	The initial submittal to the department that explains the preliminary design concept for a subdivision or other development, expected Design flow, treatment level, drainfield location, soils logs, and other items specified in WAC 246-272B-03000. It is opart of the site review process and should be submitted before the department's soil and site inspection is scheduled.

Pressure distribution	A system of small diameter pipes equally distributing pumped effluent throughout a drainfield.
Private management entity	A person, for-profit organization, nonprofit organization, or the authorized agents of these entities responsible for the proper and safe long-term management of the LOSS. This definition does not include public entities or wastewater companies regulated by the Washington Utilities and Transportation Commission.
Professional Engineer	A person who is currently licensed as an engineer under the provisions of chapter 18.43 RCW. (http://apps.leg.wa.gov/RCW/default.aspx?cite=18.43)
Proprietary product	Sewage treatment or distribution technology, methods, and materials subject to a patent or trademark.
psi	Pounds per square inch.
Public domain technology	Sewage treatment or distribution technology, method, or material not subject to a patent or trademark.
Public entity	A municipoal corporation such as: a city; town; county; waterm sewer, or water-sewer district; public utility district; port district; or federal, state, or local agency.
Pumper	A person approved by the local health officer to remove and transport sewage or septage from an OSS.
Raw Wastewater	Wastewater before it receives any treatment.
Reclaimed water	Water derived in any part from wastewater with a domestic wastewater component that has been adequately and reliably treated, so that it can be used for beneficial purposes. Reclaimed water is not considered a wastewater.
Record drawing	An accurate graphic and written record of the location and features that are needed to properly monitor, operate, and maintain the LOSS that bears the stamp and signature of a design engineer.
Repair	Recontruction, relocation, or replacement of a LOSS or a LOSS component that has failed or is not functioning as designed.
Reserve area	An area of land approved for the installation of a LOSS and dedicated for replacement of the LOSS in the event of a failure.
Residential strength sewage	Sewage with the constituency and strength of biocvhemical oxygen demand; carbonaceous biochemical oxygen demand; fats, oils, and grease; and suspended solids typical of domestic sewage.
Restrictive layer	A stratum impeding the vertical movement of water, air, and growth of plant roots. Some examples include: hardpan, claypan, fragipan, caliche, some compacted soils, or unstructured clay soils.
Rock fragment	Pieces of rocks or minerals having a diameter greater than two millimeters, such as gravel, cobbles, stones, and boulders.

Sanitary sewer system	All facilities, including approved LOSS, used in the collection, transmission, storage, treatment, or discharge of any waterborne waste, whether domestic in origin or a combination of domestic, commercial, or industrial wastewater. LOSS are only considered sanitary sewer system if they are designed to serve urban densities. Sanitary sewer system is also commonly known as public sewer system.
Seepage pit	An excavation where the sidewall or bottom is designed to dispose of effluent without the use of pipe or other approved method of distribution.
Septage	The mixture of solid wastes, scum, sludge, and liquids pumped from septic tanks, pump chambers, holding tanks, or other OSS components.
Septic tank	A water tight treatment receptacle receiving the discharge of sewage from a building sewer or sewers; designed and contructed to permit separation of settleable and floating solids from the liquid, and detention and anaerobic digestion of the organic matter, prior to discharge of the fluid.
Septic tank effluent (STE)	Liquid waste with characteristics typical of effluent from a properly sized septic tank treating residential strength sewage.
Service Interval	The time period between planned site visits to perform various system monitoring functions such as checking equipment, renewing depleted disinfectant chemical supply, collecting samples. The service intervals may be specified by contracts, operation plans, or local health jurisdiction permits.
Sewage tank	A water tight prefabricated or cast-in-place septic tank, pump tank, holding tank, grease interceptor tank, recirculating filter tank, tank used with a proprietary product, or any tank used in an OSS. This term also includes tanks used in a septic tank effluent pump or vacuum collection or transmission system for an OSS.
Site risk survey	A screening tool used to identify aqnd evaluate potential impacts to public health and the environment from a LOSS. It is prepared by the owner or the design engineer on a form provided by the department. It is submitted after the department makes the determination, based on predesign report and the site and soil inspection evaluation, that the project is feasible. The department may require a HGR in addition to the SRS, if more detailed information is needed to determine public health and environmental impacts.
Soil and site inspection	A site visit made by department staff to confirm information provided in the predesign report submittal. The owner or design engineer and equipment operator must attend. Soil test pits are examined and other site conditions are noted. The inspection fee is found in WAC 246-272-3000.
Soil log	A detailed description of soil characteristics providing information on the soil's capacity to act as an acceptable treatment and dispersal medium for sewage.
Soil scientist	A person certified by the American Society of Agronomy or Soil Scientist of America as a Certified Professional Soil Scientist.

Soil texture	The USDA numerical classification of soil particles two millimeters or less in size and the description of the percent of sand, silt, and clay.
Soil type	One of seven numerical classifications based on USDA classifications of soil, texture, structure and percent of rock fragments as described in Table 1 in WAC 246-272B-03400.
sf	Square feet.
Squirt or pressure test	A field test of a LOSS to demonstrate that distribution to drainfield latgerals is uniform at minimum required residual pressure and that dosed fields are sequencing as intended. The test must be performed before drainfield laterals are covered and witnessed by a representative from DOH. This requirement must be referenced on contruction plans and the design engineer should conduct the test and verify performance prior to calling DOH for the final inspection.
SRS	Site risk survey.
STE	Septic tank effluent.
Strong structure	Peds are distinct in undisturbed soil. They separate cleanly when soil is disturbed, and the soil material separates mainly into whole peds when removed.
Subdivision	A division of land or creation of lots or parcels, described under chapter 58.17 RCW, including both long and short subdivisions, planned unit developments, and mobile home parks. (http://apps.leg.wa.gov/RCW/default.aspx?cite=58.17)
Subsurface drip system	A pressurized wastewater distribution system that can deliver small, precise doses of effluent to soil surrounding the dripline.
Surface water	Any body of water, whether fresh or marine, which either flows or is contained in natural or artificial unlined depressions or drainage course and contains water for forty-eight continuous hours during May through October. Such bodies include, but are not limited to, natural and artificial lakes, ponds, springs, rivers, streams, canals, ditches, swamps, marshes, tidal waters, and wetlands.
Test pit	An excavation used to observe the soild profile in its original condition for purpose of completing a soil log.
Timed dosing	Delivery of discrete volumes of sewage at prescribed time intervals.
Treatment component	A technology or process that reduces targeted constituents in sewage in preparation for dispersal or disposal.
Trench	A drainfield component consisting of an excavation with a width of three feet or less.
TN-Total Nitrogen	Total nitrogen, typically expressed in mg/L. A measure of the complete nitrogen content in wastewater. The forms of nitrogen of greatest interest are

	nitrate (NO3-), nitrite (NO2-), ammonia (NH3), and organic nitrogen; all these forms of nitrogen, as well as nitrogen gas (2), are biochemically interconvertible and are components of the nitrogen cycle; the total nitrogen content of wastewater can be determined by measuring nitrate, nitrite, ammonia, and Kjeldahl nitrogen.
Total Suspended Solids (TSS)	Suspended solids refer to the dispersed particulate matter in a wastewater sample that may be retained by a filter medium. Suspended solids may include both settleable and unsettleable solids of both inorganic and organic origin. This parameter is widely used to monitor the performance of the various stages of wastewater treatment, often used in conjunction with BOD5 to describe wastewater strength. The test consists of filtering a known volume of sample through a weighed filter membrane that is then dried and re-weighed.
Treatment Component	A technology that treats sewage in preparation for further treatment and/or dispersal into the soil environment. Some treatment components, such as sand lined trenches or beds, incorporate a soil dispersal component in lieu of separate treatment and soil dispersal components.
TSS	Total suspended solids, typically expressed in mg/L.
Uniformity coefficient	A numeric quantity calculated by dividing the size of the sieve opening which will pass sixty percent of a sample by the size of the opening which will pass ten percent of the sample on a weight bases. Symbolically this is depicted as $d_{60}/d_{10} = U_c$.
USDA	United States Department of Agriculture.
USEPA	United States Environmental Protection Agency.
Vertical separation	The depth of unsaturated, original, undisturbed soil between the infiltraticve surface of a drainfield component and the highest seasonal water table, a restrictive layer, or soil types 6 or 7. Refer to the profile drawing provided in WAC 246-272B-01100(114).