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STATE OF WASHINGTON
DEPARTMENT OF HEALTH

1500 West 4th Avenue, Suite 305 • Spokane, Washington 99204
FAX (509) 456-2997

August 30, 1994

ATTN: Mr. J.E. Rasmussen
U.S. Department of Energy
Environmental Assurance, Permits & Policy
Richland Field Office
M.S. A5-15
Richland, WA 99352

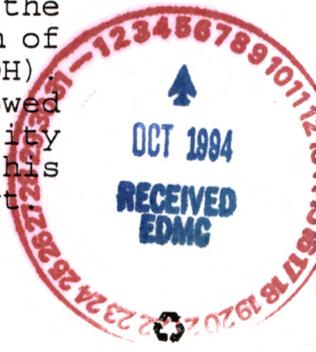
RE: Project W-026 "Waste Receiving and Processing Facility Module 1"
On-Site Sewage Disposal System

Dear Mr. Rasmussen:

The engineering report, plans, and specifications for the above referenced project received in this office July 18, 1994 have been reviewed. The following comments need to be addressed:

1. Referring to the engineering report:
 - a. Section 1.B refers to absorption beds for this system. Please refer to the attached letter that Mr. George Schlender sent dated 11/18/93. The letter indicated that the system must be designed with pressurized drainfields and additionally comply with all other elements of design per the 1987 guidelines for larger on-site systems. A number of design elements in this submittal do not meet the large on-site system design guidelines. The first element being that beds are not allowed in Type 3 soils. The system shall be designed with drainfields. However, you may request a waiver of this requirement if you wish to. The waiver must be accompanied with ample technical justification. The department will review the waiver with the justification and make a determination on whether to allow the installation of beds for this application.
 - b. The third paragraph in Section 1.B indicates that water collected by the floor trench in the truck loading bay will be treated in a sand interceptor with the potential of diversion into the septic tank. Please note that this waste is considered industrial waste (regardless of the level of treatment) which falls under the jurisdiction of Department of Ecology not the Department of Health (DOH). No sewage flow from the floor trench shall be allowed into the proposed on-site sewage system for this facility under the jurisdiction of DOH. Please make this correction on the plans and in the engineering report.

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Mr. J.E. Rasmussen
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2. Referring to the design calculations in the engineering report:
 - a. Referring to Sheet 3 of 3 of the general computation sheets:
 1. The use of absorption beds is indicated. See comment 1.a. above. Additionally, per the large on-site system guidelines three 50% areas will be required. Only two 50% areas are operational at one time. The three areas are rotated every 6 months with one of the 50% areas always in a resting mode. When using siphons, two alternating siphons are required. Each siphon doses one 50% area. The transport lines from the dosing tank are manifolded together for manual rotation of the fields. I've enclosed a copy of a valve configuration for your reference. This scenario has been designed on a number of systems on the Hanford reservation.
 - b. Referring to Sheet 6 of 13 of the general computation sheets:
 1. A spacing of 6 feet between the sidewalls of the beds is indicated. Please note for future reference (and if a waiver for the use of beds is allowed) minimum spacing between sidewalls of beds shall be 15 feet per the large on-site system guidelines.
 2. The dosing chamber and/or siphons may need to be modified to provide the smaller required dose based on dosing only one 50% area at a time.
 - c. Referring to Sheet 7 of 13 of the general computation sheets:
 1. The elevation section of the transport line indicates the use of two 90 degree bends. I would caution the installation of these 90 degree bends with siphons due to the potential for air lock at these locations. I would recommend a more gradual transition.

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- d. Referring to Sheet 8 of 13 of the general computation sheets:
1. Please note that per a phone conversation referenced I indicated that I would recommend at least a 15% safety factor added to the friction loss. I always recommend at least a 15% safety factor added to the total head requirement not just the loss in the pipe. This is especially critical when using siphons. You have very little safety factor in this design. In the event you have a field change or have made any errors, the siphons may not work properly without enough elevation drop. Please note that you will also have some losses in the siphon pipe itself. Please re-evaluate the elevation of the siphon(s) or the drainfield elevation to insure adequate elevation drop is maintained.
- e. Referring to Sheet 9 of 13 of the general computation sheets:
1. The opening in the pump chamber needs to be centered over the siphon(s) for ease of access to the siphon(s) for maintenance, removal, etc.
- f. Referring to Sheet 10 of 13 of the general computation sheets:
1. See note 2.e.1 above.
- g. Referring to Sheet 1 of 1 "Clarification of Design Basis":
1. In verifying the void volume ratio of the distribution system that drains between doses it appears that with the dose volume the void volume ratio is barely met. Actually, I believe the void volume slightly exceeds the actual dose. You may want to select a 1.5" lateral in lieu of 2". It appears that a 66' long lateral would still fall within acceptable lengths per the tables in the pressure distribution guidelines. Please verify.

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3. Referring to the "Preventive Maintenance Procedures"; please note that an Operation and Maintenance Manual will be required as a provision of the approval of this system. The manual will need to be a separate bound document stamped by a licensed engineer. Some of the preventive maintenance procedures as outlined in this engineering report may be included in this manual.
4. Referring to Specification 02740:
 - a. Section 2.02.C.; Specification 02730 was referenced as a pipe material specification however, this specification was not included for my review. Please forward.
 - b. Section 2.02.C.1.; ASTM Standard D 2729 was referenced as the standard for the perforated pipe. Please note that the perforated laterals in the distribution network are under pressure. The pipe specified must meet pressure pipe specifications. Additionally, please specify the class of pipe (i.e., PVC Sch 40, Cl 160, Cl 200, etc.)
 - c. Please provide a gravity sewer pipe, fittings, cleanouts, etc. specification.
 - d. Section 2.02.D.; please specify that this is washed drainrock in lieu of crushed stone.
 - e. Section 2.02.E. "Filter Mat"; please note that per the large system guidelines filter fabric shall be spunbound synthetic construction fabric. Untreated building paper, straw and newspaper are not acceptable.
 - f. Section 2.02 "Materials":
 1. Pre-cast concrete septic tanks if used shall be on a list of approved tanks by Benton-Franklin Health District or shall be approved by this department. Fiberglass or tanks made of materials other than concrete shall be approved by the department prior to installation.
 2. An effluent filter is required on the outlet of the septic tank. Attached are manufacturer data sheets for two commonly used filters, Zable and Orenco for your information. Other filters may be acceptable upon review by the department.

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g. Section 3.02 "Erection, Installation & Application":

1. The installation shall be made by a contractor certified as an installer by Benton-Franklin Health District.
2. I could not find provisions in the specifications for testing any portions of the system. Please note the following minimum testing requirements:
 - a. A final inspection shall be completed with DOH present. The final inspection will include but not be limited to verifying pressure distribution of the drainfield(s). The inspection will be completed with the laterals exposed. The laterals are turned so that the orifices are pointed up. The dosing chamber is filled with water and the siphon(s) are activated. Verification is made that the squirt heights are uniform and that distribution of the network falls within the acceptable tolerances outlined in the pressure distribution guidelines. Following acceptance by DOH the laterals are turned to their final position and approval for cover is given.
 - b. All tanks shall be leak tested following installation and shall be watertight.
 - c. Provisions shall be made for inspecting and testing the gravity sewer lines.
3. Please make it clear in the specifications that the orifices need to be drilled clean and free of burrs and/or obstructions.

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5. Referring to the Plans (General):
 - a. Monitor ports shall be installed in the drainfield area(s). At least one monitor port shall be installed in each corner of the drainfield area(s). Please include a detail of the monitor port. I've enclosed a copy of the large on-site system design guidelines and an applicable detail is included in the document for your reference.
 - b. Dose counters are required. When using alternating siphons, remote dose counters are necessary. I've enclosed a manufacturer data sheet of an Orenco model "Siphon Sitter II" which would be acceptable.
 - c. Test holes shall be shown on the layout plan.
6. Referring to Plan Sheet H-2-131742:
 - a. Please note the comment above regarding connection of the line from the truck loading bay. Please remove this connection from the plan.
 - b. The drainage ditch installed around the perimeter of the drainfield area must maintain the minimum horizontal setbacks per WAC 246-272. Upgradient ditches must be located at least 10 feet from the edge of the drainfield.
7. Referring to Plan Sheet H-2-131743:
 - a. Section C; see note 6.b. above regarding the drainage ditch setback.
8. Referring to Plan Sheet H-2-131746:
 - a. "Septic Tank Section";
 1. The compartmental wall shall be equipped with a sanitary tee in lieu of the pass thru. The bottom of the tee shall extend into the liquid depth a distance equal to approximately 40% of the liquid depth. A riser extended to grade shall be centered above the compartmental wall.
 2. An effluent filter shall be installed on the outlet of the tank.
 3. A direct vent is shown on the septic tank. Please note that any time septic tanks are directly vented the potential exists for the presence of strong odors. The vent should include some type of an activated carbon air filter.

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- b. "Sanitary Tee Profile"; refer to the comment above regarding the 90 degree bends in the line from the dosing tank to the drainfields.
- c. "Section A and "Siphon Chamber Plan"; the riser on the dosing tank shall be centered above the siphon(s).
- d. "Typical Absorption Bed Trench Section";
 1. See comment above regarding use of untreated bldg. paper and straw for the filter mat. These materials are not acceptable.
 2. See comment above regarding minimum trench separation distances.
 3. At least one orifice shall be drilled in the 12 o'clock position in each lateral (at the end of the lateral) to allow for air release between doses.

Please submit a revised set of plans, specifications, and engineering report with the above comments incorporated for review and approval. Feel free to call if you have any questions.

Sincerely,



Lisa Brown, P.E.
Environmental Engineer
Large On-Site Systems
(509) 456-2754

Enclosures

cc: DOE Nuclear and Mixed Waste Management, Jerry Hensley
~~West Inghouse Hanford, J. Stan Hill~~
United Engineers & Constructors
Benton-Franklin County Health District
State Health

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STATE OF WASHINGTON
DEPARTMENT OF HEALTH

West 924 Sinto Avenue • Spokane, Washington 99201-2595 • FAX (509) 456-2997

November 18, 1993

ATTN: Ms. A. L. Rodriguez
U.S. Department of Energy
Environmental Assurance, Permits & Policy
Richland Field Office
M.S. A5-15
Richland WA 99352

RE: Project W-026, Waste Receiving and Processing Facility
Module 1

Dear Ms. Rodriguez:

I have reviewed the preliminary report for project W-026 and have the following comments:

1. Under Section 1.0 Introduction, second paragraph, the statement "The new gravity-drained subsurface soil absorption system (SSAS)..." is made. The design flow stated in paragraph two of section 1.0 indicates a rate of 2530 gallons per day. DOH will require the design of this system to have pressurized drainfield not gravity as stated in Section 1.0. Additionally, all other elements of the design shall comply with 1987 (or 1993 (in draft form at this time) which ever is more current during design preparation) for Larger On-site Systems.

If you have any questions, please feel free to call.

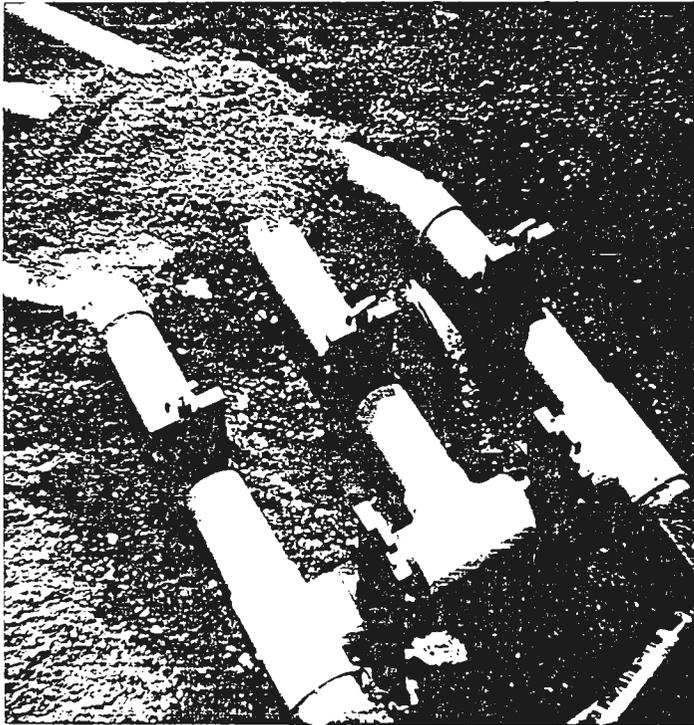
Sincerely,

George B. Schlender, Program Manager
Large On-site, Municipal, Wastewater Reuse
(509) 456-2490

GBS:

cc: Ecology Nuclear and Mixed Waste Management, Jerry Hensley
Westinghouse Hanford, Rick Oldham, Ken Geise
Benton-Franklin County Health District
State Health

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Zabel Industries Inc.

Multi-Purpose Filters

P.O. Box 1484 • New Albany, IN 47150 • (812) 738-1197

APPLICATIONS CHECKLIST

- ✓ Septic tanks
- ✓ Sewage treatment
- ✓ Industrial maintenance
- ✓ Irrigation systems
- ✓ Mining operations
- ✓ Recycled washwater

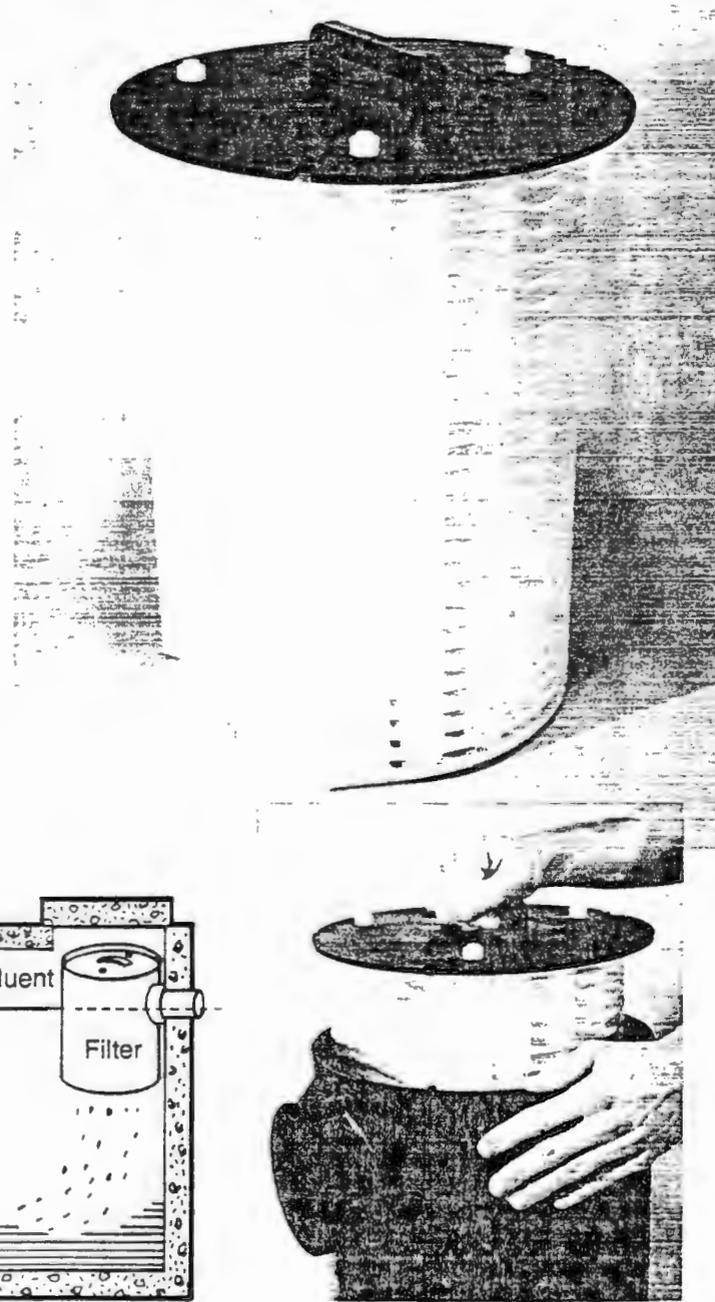
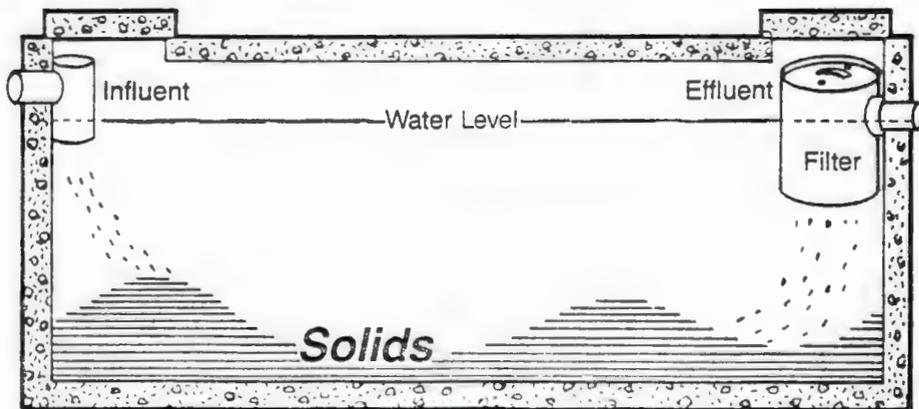
New Improved

Zabel Multi-Purpose Filter

Model #A100

to keep solids in septic tanks and prevent clogged drain fields...

The ZABEL MULTI-PURPOSE FILTER provides an effective means of preventing septic tank solids from clogging drain fields. The Zabel Filter allows a higher level of treatment than can be achieved with regular baffles, weirs, and holding tanks. This Filter keeps harmful field-clogging solids in the septic tank. The illustration below shows how effluent from the septic tank enters the Filter's open bottom. It is then filtered as it passes through the Disc Dams of the unit. Suspended solids which are reduced up to 67% over normal methods, fall back through return holes to the bottom of the tank. The clarified liquid flows out the sidewall effluent opening into the drain field. Whether the application is for new or existing septic systems, the Zabel Filter will extend the useful life of the drain field. This unique Filter is constructed of high-quality noncorrosive materials, seldom requires cleaning, and is very easily installed.



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ORENCO SYSTEMS™

==== *Effluent Filter* ====

the Concept & the Application

The OSI Effluent Filter is a device for improving the quality of the effluent produced by a septic tank by (a) modulating the flow and (b) preventing gross solids from leaving the tank. Constructed entirely of corrosion-proof components, the OSI Effluent Filter is simple to install and is easily removable for seldom-required maintenance. It consists of an intake pipe within a screened vault, connected to the tank's discharge by a flexible hose.*

The concept is simple. Effluent from the relatively clear zone of the septic tank, between the sludge and scum layers, enters the Effluent Filter through its influent holes. As effluent surrounds the 1/8-inch mesh screen, particles larger than 1/8 of an inch are trapped in the annular space between the vault and screen. Once it has been filtered through the screen, effluent passes through the flow-modulating orifice at the base of the intake pipe and exits the tank through the discharge hose.

If inflow should become temporarily excessive (e.g. from a broken flush valve in the home or as a result of leaks), the fluid level in the tank and Effluent Filter will rise and effluent may enter the screened top of the intake pipe then flow out the discharge hose. The Effluent Filter continues to operate, maintaining filtration, as the problem is being corrected. An alarm with a sensor float to attach at the top of the intake pipe is available from OSI to serve as a warning that either the inflow is excessive or the screen is plugged.

While an OSI Effluent Filter seldom needs cleaning any more frequently than a septic tank requires pumping (usually at ten-year intervals in properly designed and operated systems), accidental overloading may occasionally cause premature plugging of the screen. But that should be considered a success, not a failure, since the screen serves to protect the integrity of the collection and treatment facilities. Cleaning a screen is quick and easy and infinitely preferable to dealing with the damage that solids carryover can cause downstream in a system. Furthermore, the screen permits identification of a problem at its source where abuse can be nipped in the bud.

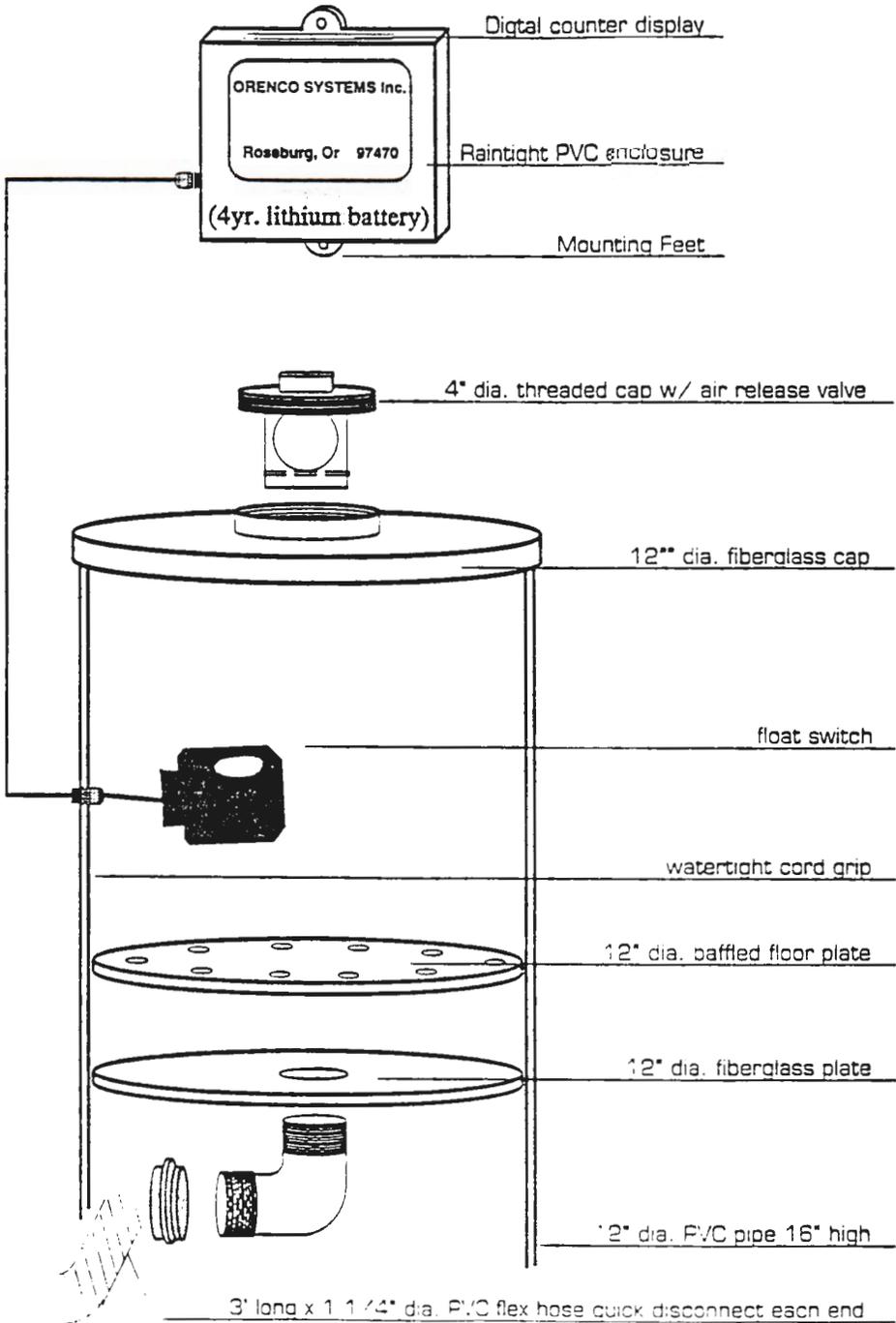
To clean the screen, lift the entire Effluent Filter from the tank. A flap check valve in the bottom of the Filter allows it to drain. Remove the support pipes and slide the screen out of the vault by pulling on the two plastic straps attached to the top of the screen. Hose down the screen and vault so that the debris falls back into the septic tank and does not wash into the unscreened vault. Replace the screen in the Effluent Filter vault, insert the support pipes and slip it back in the tank. That's all there is to it!

*OSI Effluent Filter is covered by U.S. Method of Use Patent No. 4,439,323.

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OS!

Siphon Sitter II



When the drainfield is dosed, the liquid level rises in the cylinder and lifts the float switch, which activates the battery-powered digital counter.



Orenco Systems Incorporated

2826 Colonial Road
Roseburg, Oregon 97470

(503) 673-0165

Fax (503) 673-1126

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Environmental Health

Design Standards for Large On-Site Sewage Systems

With Design Flows of Greater Than
3,500 Gallons Per Day

December 1993
(Reprinted July 1994)

Environmental Health Programs

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Environmental Health

Design Standards for Large On-Site Sewage Systems

With Design Flows of Greater Than
3,500 Gallons Per Day

December 1993
(Reprinted July 1994)

For more information or
additional copies of this report contact:

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Building 2, Thurston Airdustrial Center
PO Box 47826
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Bruce Miyahara
Secretary of Health

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Design Standards For Large On-Site Systems

Section 1

Introduction

The technical design and procedural requirements for obtaining approval of large on-site sewage systems (handling more than 3,500 gallons of domestic sewage per day) are noted in Chapter 246-272 WAC. Additional or more stringent requirements may be noted in the regulations, ordinances, and policies of appropriate local jurisdictions. These design standards were developed to amend and revise the state of Washington's Department of Ecology (Ecology) and Department of Health (DOH) Design Guidelines for Larger On-site Sewage Systems (December 1979 and 1987). The requirements of the Design Standards are adopted by reference in DOH Chapter 246-272 WAC.

Review Agencies

- A. The Department of Ecology (Ecology) is responsible for reviewing and approving the following on-site systems:
 - 1. Domestic or Industrial wastewater under Chapter 173-240 WAC.
 - 2. Sewage systems using a mechanical treatment system or lagoons with ultimate design flows above 3,500 gallons/day.
 - 3. Any system utilizing subsurface disposal which has received a federal or state construction grant administered by Ecology.
- B. The Department of Health (DOH) is responsible for reviewing and approving domestic on-site systems utilizing subsurface soil disposal with ultimate design flows through any common point between 3,500 and 14,500 gallons/day excluding those types of systems for which Ecology is responsible.

DOH Plan Review Fees

The minimum fee for required review and approval activities of large on-site systems is established under Chapter 246-272 WAC. Fees shall be billed to project proponents through invoice when all review and approval activities are completed.

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Intra-Agency Coordination

The review and approval agency will notify the appropriate local health department/district LHD of a proposed large on-site system. If requested, a copy of the engineering report and plans and specifications will be sent to the LHD. The LHD will make comments to the appropriate review agency. More restrictive requirements in local regulations as noted by LHD's shall prevail.

LOSS Operating Permits

In accordance with Chapter 246-272 WAC all Large On-site Sewage Systems (LOSS) approved by DOH or LHD shall obtain a LOSS Operating Permit. New large systems approved by DOH shall be issued a permit after the department receives the required construction report, as-built plans and the operation and maintenance manual. Annual reports as outlined in Section 4, shall be submitted to DOH to retain compliance with LOSS Operating Permit conditions.

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Section 2

Re-Design

A. Pre-design Document

1. Prior to the preparation of an engineering report and plans and specifications, a pre-design document should be submitted by the project proponent. This should be followed by a pre-design meeting. The primary focus of this procedure is to determine the conceptual feasibility of the project, identify the reviewing agency, and note any special requirements. The pre-design document does not have to be prepared by a qualified engineer and final design details are not needed.
2. The following information should be included in the pre-design document:
 - a. Name, phone, and address of applicant(s)
 - b. Name, phone, and address of designer, engineer, etc., (if known)
 - c. Name, phone, and address of any other contact person, legal owners, site address, tax parcel number
 - d. Narrative: The narrative should be a brief explanation of the project or concept. It should indicate the nature of the project, type of facilities to be served, and other relevant information (such as phased development, time frames, etc.)
 - e. Physical description of site: The document should provide the legal description of the site. It should address site conditions, soils and any limiting features. Soil information may be limited to SCS reports or independent soils investigations. Test pits are optional at this point (must be provided for the engineering report). An estimated loading rate, if known, should be assigned. A map should also be provided, noting as much of the site information as is available. This does not need to be a detailed, surveyed, topographic map, but should be adequate in scale and exactness to reveal the basic information.
 - f. Water Supply: A statement of intent regarding the water supply is necessary.

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- g. Disposal concept: This should address the total anticipated wastewater flows, desired design features, any planned phased development, unique conditions or other relative information. The proposed management entity for providing on-going operation and maintenance should be indicated.
- h. Treatment concept: This should address how the sewage is to be treated and adequately disposed of without adverse effects on the environment.

B. Pre-design Meeting

Using the information presented in the pre-design document, a pre-design meeting should be held between the applicant and the appropriate review and approval agencies. The result of the pre-design meeting will be a clear understanding of review agency requirements, fees, and special design considerations. Experience has shown that a pre-design meeting can save a proposed project time and money.

Engineering Reports

A. General Information

1. All new or expanding on-site systems shall have an engineering report prepared by a qualified professional engineer, (P.E.). The report shall outline the scope of the proposed construction and include an analysis of the disposal area's capability to adequately treat and dispose of the proposed sewage quantities from the project. The report should also contain those items noted in "Large on-site systems" and "Developments, subdivisions, and minimum land area requirements" under Chapter 246-272 WAC and in Section 5 of this Design Standards.
2. Three (3) copies of the final report, stamped and signed by a P.E., shall be submitted to the appropriate review agency for approval. If desired, a draft report, may be submitted first for comment. The report, whether draft or final, must be complete when it is submitted, containing all the required information.
3. The engineering report may be submitted concurrently with the plans and specifications.

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4. Review agency staff shall make site inspections to determine whether they concur with the submitted site and soil analysis. Concurrent site inspections by the proponent's soils expert and the review agency may be scheduled to assist in completing the report and determining appropriate loading rates.

F Report Contents

All engineering reports shall contain, but not be limited to, the following:

1. General Information
 - a. Owner's name, address, and phone number
 - b. Engineer's name, address, and phone number
 - c. Project description, site address, tax parcel number
 - d. Project location
 - e. Description of any existing system including design criteria
 - f. Source of domestic water
 - g. Activity or land use of area - present and anticipated
2. Maps
 - a. A detailed area map - This should show the entire proposed development, adjacent areas, and all acreage under development.
 - b. A development plan - This should be a map of the area to scale.
It should include the total development, not just the disposal area. This map should show the following:
 - (1) The area designated for both the primary and reserve drainfields, as well as other treatment and disposal system components.
 - (2) Any surface waters or wells within 1,000 feet of the disposal area.

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- (3) Structures, roads, and parking areas adjacent to the proposed disposal area.
 - (4) Any on-site stormwater systems, retention basins, or drainage areas for the projects.
 - (5) Contour lines should be drawn on ten feet intervals. Contours for slopes more than 10 percent should be verified by field measurements.
 - (6) All water lines and sewer lines within 1,000 feet.
 - (7) Location of 10-year, 25-year and 100-year flood boundaries, if applicable. Location of scouring channel of stream or river.
 - (8) Drainage basins and drainage patterns throughout the development site.
 - (9) Any classified wetland within a 1000 feet of the drainfield area.
3. Geology - This should be a discussion of the geology and its relationship to the existing ground water and soil conditions.
 4. Ground water
 - a. Depth to ground water
 - b. If an unconfined aquifer exists that is usable for potable purposes, then water quality information on the aquifer should be obtained, if not already available.
 - c. Direction of flow in the aquifer, if known.
 - d. Locations, capacities, and well logs, if available, for all wells and springs within 1,000 feet. (Copies of well logs may be available at the appropriate regional office of the Department of Ecology.)
 - e. If the location of the drainfield is within an area of special concern as outlined with Chapter 246-272 WAC, a statement of compliance with any special design or site requirements.

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5. Soils

- a. The soils should be analyzed by a qualified P.E. or soil scientist (American Registry of Certified Professionals in Agronomy - Crops and Soils) as well as review agency personnel. Joint inspection of soil logs should be performed when possible.
- b. Pits need to be dug to develop soil logs.
 - (1) The desired number will vary depending on the uniformity of soils on the site. At a minimum there shall be one pit in the center of each drainfield system (each 50%).
 - (2) Pits should be dug in both the proposed primary and reserve drainfield areas.
 - (3) The pits should follow a grid pattern over the proposed areas.
 - (4) Pits should be dug below final drainfield elevation and to a depth of at least six feet or to groundwater (preferably 10 feet). They should be dug by a backhoe. The excavation shall be prepared as noted in "Soil and Site Evaluation" in Chapter 246-272 WAC.
 - (5) At a minimum, samples of soil shall be collected for a particle size analysis (sieve and hydrometer analysis) from soil logs located in each drainfield area. The samples should be representative of the soils at the level of the anticipated bottom of the trenches/bed.
 - (6) The standard methods to be used for performing these analyses shall conform to ASTM C 136, Method for Sieve Analysis of Fine and Coarse Aggregates, ASTM E 11, Specification for Wire-Cloth Sieves for Testing Purposes, ASTM C 117, Methods for Materials Finer than .0075 mm (No. 200) Sieve in Mineral Aggregates by Washing, and ASTM D 422, Method for Particle Size Analysis of Soils.
- c. Soil logs should be developed for each pit describing the soils in accordance with the terminology and procedures noted in Chapter 3 and Appendix A of Design Manual: On-site Wastewater Treatment and Disposal Systems, U.S. EPA (Reference 7).

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6. Location

- a. The maximum slope on which drainfield construction is allowed shall be 30 percent (17).
- b. There shall be a minimum vertical separation of three feet between the bottom of all portions of the trench or bed and any restrictive layer or water table. The use of alternative systems such as mounds may not be used to achieve the required separation.
- c. Setbacks shall be as noted in Chapter 246-272 WAC.

7. Design Criteria

- a. The engineering report shall provide the basis which will be utilized in developing the final plans and specifications. The facility should be designed in accordance with the Design Standards and Chapter 246-272 WAC. Justification for any deviation from the Design Standards shall also be included in the engineering report. Most of the detail will be in the plans and specifications, but some criteria are necessary in the engineering report. Other design references such as References 1, 2, 7, 8 and 10 should be considered.
- b. The criteria should include, but not be limited to:
 - (1) Hydraulic loading rate - The loading rate is dependent upon the most restrictive soil texture noted within 3' below the proposed bottom of the trench or bed. Section 5, Table 2 notes the maximum loading rates in gallons per day per square foot that must be used for sizing the system. These rates shall apply to bottom area only. The loading rates mentioned on Section 5 Table 2 are suitable for effluent with BOD5 of 230 mg/liter or less, Suspended Solids ratio of 150 mg/l or less and Total Oil and Grease (G&O) of < 50 mg/l which is similar to the maximum range of domestic sewage. If the facility has BOD5, TSS or G&O of greater strength effluent than domestic sewage, then the effluent should be: 1) pre-treated to reduce the BOD5; 2) the loading rate may be reduced so that the BOD5 loading per unit area per unit time remains constant. This option is only available to BOD5 of < 500 mg/l and on a case by case basis by the review agency. (Example: A loading rate for a BOD5 of 460 mg/L in medium sand would be .5 GPD/SQ-FT.)

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- (2) All pre-treatment methods shall meet the appropriate State technical Review Committee (TRC) guidelines for high strength waste or be listed as an approved proprietary device on the DOH list.
8. Type 1A soils and areas of special concern - As defined by Chapter 246-272 WAC. Designs shall at minimum meet the land area and other requirements outlined in Chapter 246-272 WAC and any more stringent local regulation.
 - a. If the trench/bed will be installed in Type 1A soils(see page 22, Table 2), a minimum of two feet of coarse sand (See Fill Specifications, Section 5, page 25) shall be placed below the absorption field lateral and 6 to 12 inches to the sides of the trench as per the DOH "guidelines for Sand Filters" (Reference 11). The size of the system shall be determined by using the loading rate for a coarse sand found in Section 5 "Design Criteria".
9. Input Balance - It is generally required for areas with high rainfall and shallow and/or slowly permeable soils but may be required at any time by the review agency. The measurements should be made for the most limiting time of the year. (Greatest Net Precipitation) The intent of the input balance is a determination of the capacity of the soil in the drainfield area to accept and transmit all the effluent and to remain in unsaturated condition. As a minimum, the input balance shall include:
 - a. Estimation of all inputs (effluent, inflow, precipitation and infiltration)
 - b. Estimation of all outputs (evapotranspiration, horizontal and vertical conductivity, gradient)
 - c. The output shall be greater than the input.
10. A nitrate balance may be required in areas where the quantities, qualities, and direction of ground water flow are known.
11. Minimum Land Area
 - a. As per Chapter 246-272 WAC.
 - b. If the disposal field is located in a different area with variable soil conditions, the minimum land area shall be based on the predominant soil texture in the drainfield area.

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- c. A reduction in flows due to the use of reduced water flow devices may not be used in reducing the minimum land area outlined in Chapter 246-272 WAC.
12. Compliance with Other Local and State Regulations.
- a. SEPA Compliance - This shall show that the total project, not just the on-site system, has received approval under SEPA. Approval may be shown by:
 - (1) a signed declaration of nonsignificance from the local agency with jurisdiction; or
 - (2) a letter from the agency with jurisdiction stating that the final EIS is acceptable, or
 - (3) a letter from the local agency with jurisdiction stating the total development is exempt from SEPA.
 - b. If all or part of a project is in a shorelines area, a statement that the total project is in conformance with shoreline master plans, coastal zone management plans, and flood control zone requirements shall be included in the engineering report.
 - c. The project shall comply with any local zoning, platting, and building requirements as they relate to sewer utilities.
13. Schedule for Phase Development
14. Operation and Maintenance Consideration - Discuss the options available for management of the system. Explain the preferred option.

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Section 3

Plans and Specifications

A. Submittal/Review

1. The person proposing the system shall have complete plans and specifications prepared, stamped and signed by a P.E.. The plans and specifications shall be in conformance with the approved engineering report, if not submitted concurrently.
2. Three (3) copies of the final plans and specifications should be submit for approval to the appropriate review agency. If desired, a draft set of plans and specifications may be submitted first for comment. The plans specifications, whether draft or final, should be complete when it submitted, containing all the detail and information required.

B. Plans

1. Design criteria and calculations should be submitted with plans.
2. A schematic flow diagram should be provided.
3. The location, dimensions, and elevations of all treatment and pumping units should be given.
4. Plans should cover (both plan and profile views, where applicable).
 - a. sewer lines - sizes, materials, etc.
 - b. pump stations - capacity, materials, etc.
 - c. septic tanks - size, materials, baffling, liquid volume, scum and sludge volumes
 - d. drainfield - detail on width, depth and length, pipe sizes and materials, configuration, etc. This should be to a scale of 1:50 or better (1 = 50 feet or less) with contours in the drainfield area to be on two foot intervals.
 - e. alarm systems
 - f. flow metering

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5. Plans should include the proposed provisions for inspection of the work during construction by the design engineer. This shall include pre-testing of the pressure distribution network which will be conducted or witnessed by the design engineer. DOH shall also witness the testing of the distribution network. A minimum of five working days notice shall be given to DOH to schedule inspection. A check list of recommended inspections is included in Appendix 2.

C Specifications

1. Objective - The objective is to supplement the plans by describing the intended project in sufficient detail for construction by a builder.
2. Contents - Specifications shall be in conformance with nationally recognized standards, including but not limited to APWA, Ten States Standards and Criteria for Sewage Works, Washington State, Department of Ecology, Washington State Department of Transportation (WSDOT). The specifications should include, but not be limited to, all construction information which is not shown on the drawings and is necessary to inform the builder in detail of the design requirements as to:
 - a. the quality of materials;
 - b. workmanship and fabrication of the project;
 - c. the type, size, strength, operating characteristics, and rating of equipment;
 - d. allowable leakage of joints, including machinery, valves, piping, and jointing of pipe;
 - e. electrical apparatus, wiring;
 - f. the meters;
 - g. operating tools;
 - h. construction materials;
 - i. special filter materials such as gravel;
 - j. miscellaneous appurtenances;

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- k. Instructions for testing materials and equipment as necessary to meet design standards;
- l. and operating tests for the completed works and component units.

Construction Inspections

- A. The installation shall be made by a contractor certified as an installer by the Local Health Department having jurisdiction over the area in which the project is located.
- B. The appropriate review agency must be notified for inspections as agreed upon prior to completion of system segments.
- C. Inspections during construction must be conducted by the design engineer or authorized representative as per the approved inspection schedule included the plans. Special inspections shall be made by the design engineer or an authorized representative during system construction for the following type of work:
 - (1) Poured in place septic tanks/pump chambers or other special containment vessels.
 - (2) Alternative system or shallow drainfield installation
 - (3) Placement of select fill material or final elevation of fill or special excavation requirements.
- D. Any substantial deviations from the approved engineering report or plans and specifications must be submitted to the review agency for approval prior making the change.
- E. A detailed construction plan is advised. It may be required in areas of limited access, tight soils, high rainfall, or for any difficult construction area.
- F. Within 60 days following the completion of and prior to the use of any part of the project for which approval has been obtained, a construction report is to submitted to the approval agency by the P.E. who submitted the plans specifications.

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- (1) Systems approved by DOH require an engineer's construction report and shall be submitted to DOH on a form provided by the department along with "as built" drawings if changes from the approved plans and specifications occurred during construction, as per Chapter 246-272 WAC.

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Section 4

Operation and Maintenance Manuals

- A. Introduction - The type and size of a larger on-site system dictate what operation and maintenance (O&M) activities are necessary. This is a general outline of items to be considered for inclusion in an O&M manual. A draft manual may be submitted along with the plans and specifications for a specific project. The final O&M manual shall be stamped, signed and dated by a F.E. and shall be submitted with the "as-built" drawings and the construction report.
- B. The manual should include, but not be limited to, schedules and/or procedures for the following items:
1. Response to emergencies. Emergency procedures should include provisions for:
 - a. Notifying the users, the approval agency and the LHD of the emergency.
 - b. Determining the cause of any failure or malfunction. The findings should be submitted in written form to the review and approval agency.
 - c. Making repairs, replacements, or modifications of design as required to restore functioning of system.
 2. Periodic inspection of facilities to ascertain efficiency of operation and general condition of equipment - checklists.
 3. Periodic pumping of septic tanks, pump or siphon chambers or other storage tanks by licensed septic tank pumpers or periodic pumping/maintenance of other pretreatment mechanisms by appropriate qualified personnel. Copies of any pumping contracts should be included.
 4. Periodic maintenance of pumps, motors, and switches.
 5. Replacement or repair of worn or damaged equipment.
 6. Monitoring of water usage/wastewater generation.
 7. Dosing/resting cycles for the drainfields.
 8. Determining water levels - in trenches and/or ground water.

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9. Monitoring of groundwater or adjacent surface water quality, if deemed necessary.
 10. Other appropriate helpful activities depending on type of system.
 12. Sample forms for all O&M activities.
- C. Records should be kept of all inspections, monitoring, work done, conditions found, etc. The records should be available for inspection by the approval agency any time. Annually, summary reports of the system maintenance and operation shall be sent to DOH in accordance with the requirements for a LOSS Operating Permit in Chapter 246-272 WAC.
 - D. If O&M is by a municipality or other public entity operating many systems, a general manual with additional requirements for specific systems may be appropriate.
 - E. A sample operation and maintenance manual is included within Appendix 1 of this document. It should be noted that all operation and maintenance manuals are system specific and the example should only be used as a guide for the minimum required information.

Management Entity

- A. For systems approved by DOH management shall be provided by an entity approved by the department as follows:
 1. For single family and/or multi-family subdivisions where the parcels/lots are individually owned - A public entity (municipal corporation) shall serve as either the primary management entity or as the third party trust, if management is performed by a private entity.
 2. For all other uses, including single ownership, commercial, etc. - A public entity or a private entity via an appropriate contract or agreement shall provide management.
 3. Additional agreements may be required by DOH to ensure proper management and oversight of any entity approved for a large on-site system

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Section 5

Design Flow Data

- A. The flows in Tables 1-A and 1-B should be used. The reference section may be of assistance concerning flows from sources not noted in tables. If it is felt that peak flows are greater than those given in the table or references, the peak flows should be used. This may occur when infiltration is not considered or when readings are long term averages e.g. monthly or weekly averages.
- B. Deviations from the above flows may be considered for non-residential development. Justification from such deviations may include flows measurements from similar comparable facilities, developments, or uses. A minimum of three similar establishments or developments shall be used to compare design flows. Average flow data shall take into account peaking factors.

Note: Those LHD jurisdictions that will coordinate reviews with DOH may require design flows of 150 GPD/bedroom. For those LHD jurisdictions, please adjust Table I-A accordingly.

Table 1-A

*Design Flows for Single or Multi-family
Dwellings and Mobile Home Parks
(Based on 120 gallons/bedroom/day) (Reference 8)*

<u>Bedrooms Per Dwelling Unit</u>	<u>Individuals Per Dwelling Unit (Estimated)</u>	<u>Flow per Dwelling Unit (gal/day) *</u>
1	2	200*
2	3	240
3	3.5	360
4	4.5	480

* Minimum design flow per unit.

Note: Subdivisions and new mobil home parks shall use 360 gpd/lot or space as minimum design flow.

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Table 1-B.

*Design Flows for Facilities Other than Residential Development
(Reference 8)*

<u>Discharge Facility</u>	<u>Design Units</u>	<u>Flow** (gpd)</u>	<u>Flow Duration (hr)</u>
Schools with showers and cafeteria	per person	16	8
Schools without showers and with cafeteria	per person	12.6	8
Schools without showers and without cafeteria	per person	10	8
Boarding schools	per person	75	16
Motels at 65 gal/person (rooms only)	per room	130	24
Restaurants*	per seat	50	16
Interstate or through highway restaurants*	per seat	180	16
Interstate rest areas	per person	5	24
Service stations	per vehicle served	10	16
Factories(showers)	per person per 8-hr shift	25	Operating Period "
Factories(no showers)	per person per 8-hr shift	15	
Shopping centers*	per 1,000 sq ft of ultimate floor space	200-300	12
Hospitals*	per bed	300	24
Nursing homes*	per bed	200	24
Homes for the aged*	per bed	100	24
Doctor's office in medical center*	per 1,000 ft	500	12
Laundromats	per machine	500	16
Community colleges	per student and faculty	15	12
Swimming pools	per swimmer	10	12
Theaters, drive-in type	per car	5	4
Theaters, auditorium type	per seat	5	12
Churches (no kitchen)	per seat	3	4
Churches (with kitchens)	per seat	5	4
Day Care Centers	per person	20	12
Picnic areas	per person	5	12
Campgrounds, with limited comfort stations	per camp site	50	24
No laundry, no wet sewer hookup			
Campgrounds/RV parks, with flush toilets	per camp site	75	24
showers,laundry, no wet sewer hookup			
Campgrounds/RV Parks, with flush toilets, showers, with or without laundry facilities and wet sewer hookup	per camp site	100	24
Campgrounds/RV Parks with wet sewer hookup only, no comfort station	per camp site	50	24
Trailer Dump Stations*	per dump	20	24

* Indicates potential high waste strengths facilities requiring pre-treatment

** Includes normal infiltration

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Disposal Field Design Standards

- A. Pressure distribution is required. The system shall be designed to comply with the "Guidelines for the Use of Pressure Distribution Systems" (Reference 4).
- B. All portions of the bottom and side-walls of the gravel-filled disposal trench/bed shall be located in original undisturbed soil, the only exception is when using fill material in type 1A soils. Fill may be used as cover over the top of the trench/bed (6-24"). The maximum depth from final grade to the bottom of the trench or bed shall be 36 inches. Soil loading rates shall be as indicated in Table 2, page 21 Maximum Loading Rates for Various Soils for Domestic Sewage.
- C. The required drainfield area shall be split into two 50 percent drainfields. A third 50 percent shall be constructed initially in order to provide for alternation (long term resting) and repair capability. Alternation shall be performed as per the "Guidelines for Alternating and Dosing Systems" (Reference 5). See Figure 1. As noted in Figure 1, a reserve area equal to an additional 50 percent where conditions are suitable for drainfield installation is required. Where facilities have automatic resting cycles built into the application, (for example, campgrounds), this requirement for three 50 percent drainfields and alternation may not be necessary. A 100 percent reserve area meeting all location requirements shall be required where the third 50 percent field requirement is waived.
- D. Absorption beds (trenches greater than 3' wide) are only allowed in soils with a texture of Type 1A, 1B, 2A or 2B soils for larger systems. Absorption beds shall be designed to be long and narrow to reduce unit area loading. Maximum absorption bed width shall be 10 feet. Dimensions and spacing between beds shall be determined by evaluating the hydraulic conductivity of the soil and the ability of the absorption bed to remain in unsaturated condition and to transmit the liquid satisfactorily into the environment. Minimum spacing shall be 20' from the edge of one absorption bed to the next absorption bed to facilitate proper aerobic conditions. Absorption beds may not be allowed in certain critical ground water areas. Please contact the approving agency as to the appropriateness of designing these systems in your area.
- E. Barrier material covering the gravel trench or bed shall be as follows: The geotextile shall be non-woven, and meet or exceed the following "Minimum Average Roll Values." The fabric shall be free of any chemical treatment or coating which reduces permeability and shall be inert to chemicals commonly found in soil.

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Property	Test Procedure	Unit	Minimum Value
Grab Strength	ASTM D4632	Lbs	60
Puncture Tear	ASTM D4833	Lbs	18
Trapezoid Tear	ASTM D4533	Lbs	25
Apparent Opening Size (AOS)	ASTM D4751	U.S. Std Sieve	(1)
Flow Rate	ASTM D4491	Gal/ft ² /min	100

1. Soil with 50% or less particles by weight passing US No. 200 sieve, AOS less than 0.6 mm (greater than #30 US Std. sieve). Soil with more than 50% particles by weight passing US No. 200 sieve, AOS less than 0.297 mm (greater than #50 US Std. sieve)

F. Monitoring ports are required and shall be located at a minimum at the center and ends of each 50% absorption bed. Monitoring ports shall be installed at a minimum at each corner of a 50% drainfield (See Figure 1)

G. Where trenches are used, the minimum separation between trenches shall be 4.5' of undisturbed soil. In those cases where trenches are installed in sand and gravel soils or on slopes, additional space between trenches may be required.

H. The bottoms of all trenches or absorption beds shall be constructed level. The installer or design engineer shall assure proper construction practices are used (i.e. lasers, construction levels or transits) to complete trenches or beds in conformance with approved plans and specifications. If select fill is used for a Type 1A soil condition, then the trench or bed excavation and final fill elevation shall be level and as per DOH "sand Filter Guidelines" (Reference 11).

H. Waivers - Deviation from the Design Standards requires a waiver as per Chapter 246-272 WAC. Procedures to apply for a waiver can be obtained from the review agency.

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Loading Rates

*Table 2.
Maximum Loading Rates for Various Soils
for Domestic Sewage (Reference Chapter 246-272 WAC)*

<u>Soil Type</u>	<u>Soil Textural Classification</u>	<u>Loading Rate gal/day/ft²</u>
1A	Very gravelly ¹ Coarse Sands or Coarser All extremely gravelly soils ²	Unsuitable
1B	Very gravelly medium sand, very gravelly fine sand, very gravelly very fine sand very gravelly loamy sands	varies according to non-gravel soil type
2A	Coarse sands(including ASTM C-33)	1.2
2B	Medium Sands	1.0
3	Fine Sands, Loamy coarse sands loamy medium sands	.8
4	Very fine sands, loamy fine sands loamy very fine sands, sandy loams, loam	.6
5	Porous, Well Developed Structure in silt and silt loams	0.45
6	Other silt loams, silty clay loams clay loams	Unsuitable

¹ Very gravelly = >35% and <60% gravel and coarse fragments by volume.

² Extremely gravelly = >60% gravel and coarse fragments by volume.

Soil type 1A may be suitable if design of the absorption area meets the TRC guideline for sand filters (Reference 11), also see "engineering report", subheading #8, Type 1A soils.

Septic Tanks

A. Pre-cast

1. Pre-cast tanks shall be approved by DOH and meet the "Design and Construction Standards for On-site Wastewater System Tanks" (Reference 9).
2. Tanks in series are acceptable provided the first tank in the series

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2. Tanks in series are acceptable provided the first tank in the series contains no less than one day of detention time. Waivers to this requirement may be issued on a case by case basis by the review agency.

B. Poured in Place

1. Shall be designed by a licensed engineer for all structural loads and water table conditions.
2. The liquid level of two compartment tanks shall be designed at 1.5 times the daily maximum design flow. The compartmentation shall be 2/3 (first compartment, 1/3 (second compartment).
3. All compartments shall have gas tight sealed access to finished grade. Minimum opening size for access shall be 18-inches and preferably 24-inches.
4. Shall meet the 1993 Washington State Department of Health "Design and Construction Standards for On-site Wastewater System Tanks"(note: until this document is finalized, please use standard engineering practice outlined in reference 2 and 10 or pre-cast tanks approved by the county health jurisdiction within the county the sewage system is installed. All other tanks shall be submitted with engineering documents and approved on a case by case installation.)

C. General Requirements

1. Maximum credited liquid depth shall be 6 feet and preferably 5 feet.
2. A minimum of 20 percent scum storage shall exist above the design liquid level.
3. Sanitary tees shall be used for inlet and outlet devices between compartments. PVC shall be used in lieu of cast iron.
4. The inlet and outlet sanitary tees of both compartments should extend below the liquid level a distance approximately equal to 40 percent of the liquid depth.

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Pump Stations

- A. Pumps/electrical panels shall be sewage effluent rated and meet state electrical code requirements for installation and testing. Certification from the Washington State Department of Labor and Industries may be required.
- B. Each pump shall have an elapse time meter, dose counter to record pump running time. Elapse time meter and dose counter shall be located in the pump panel.
- C. Quick disconnect couplers or equivalent quick disconnect system shall required for all sewage pumps.
- D. Suitable non-corrosive screening or effluent filters shall be provided prior to the pump chamber for effluent pumps discharging to drainfield areas. Effluent screening acceptable to appropriate to TRC guidelines and the review agency shall be installed on the outlet of all septic tanks.
- E. All pump chambers shall have access to finish grade for inspection and maintenance.
- F. All pump chambers shall meet the requirements outlined in "Design Standards for On-site Wastewater System Tanks" (Reference 9). Until this document is finalized, requirements contained in generally accepted design practice for wastewater pump stations (References 2 and 10) shall be used.

Siphons

- A. Siphon chambers shall meet the DOH "Design and Construction Standards for On-site Wastewater System Tanks" (Reference 9). (Note: until this document is finalized, please follow requirements outlined in "F" above.)
- B. All siphon chambers shall have manhole or approved access over each siphon to finish grade.
- C. Each siphon shall have a dose counter or other approved device to measure flow and proper dose frequency.

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Collection Systems/Piping

A. Gravity Sewers

Design and construction shall comply with the latest revision of "Criteria Sewage Works Design", Washington State, Department of Ecology.

B. Gravity Effluent Sewers

1. If the project is located within the Comprehensive Sewer Planning Area, design shall comply with "Gravity Sewers" item number 1 above.
2. If outside a Comprehensive Sewer Planning Area, sewer sizing will be evaluated on a case by case basis using the most current technology available. It is recommended the effluent sewers be designed and sized as gravity sewers to facilitate future central sewer hook-up.

Monitoring Ports

- A. Shall be a minimum of four-inches in diameter and be located at representative points in the absorption area (see figure 1).
- B. Design and construction of monitoring ports shall conform to Figure 2.
- C. The intent of monitoring ports is to measure any anticipated liquid at critical depths within the trench or bed. A sufficient number of ports must be located in disposal fields to adequately assess operating conditions.

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Fill Material

Fill Material Specifications

1.	<u>Sieve Size/#</u>	<u>Effective Particle Size</u>	<u>% Passing</u>
	3/8"	9.50 mm	100
	4	4.75 mm	95-100
	8	2.36 mm	80-100
	16	1.18 mm	50-85
	30	0.60 mm	25-60
	50	0.30 mm	10-30
	100	0.15 mm	2-10
	200	0.075 mm	≤ 3%

Source: ASTM C-33, Specifications for Fine Aggregate

2. The sand shall have not more than 45% passing any one sieve and retained on next consecutive sieve of those shown above.
3. The FINENESS MODULES shall not be less than 2.3 nor more than 3.1. The Fineness Modules is defined as the SUM of the cumulative percentages retained in the sieve analysis, DIVIDED by 100, for the sieve sizes shown above.
4. The limit for material that can pass the no. 200 sieve shall not be more than 3%.

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Section 6

References

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2. Great Lakes Upper Mississippi River Board of State Sanitary Engineers. Recommended Standards for Sewage Works.
3. Siegrist, Robert L.; Anderson, D.L.; Converse, J.C. "On-site Treatment and Disposal of Restaurant Wastewater." Small Scale Waste Management Project. University of Washington. April, 1984.
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7. U.S. Environmental Protection Agency. Design Manual: On-site Wastewater Treatment and Disposal Systems. EPA-625/1-80-012, October 1980.
8. Washington State Department of Ecology. Criteria for Sewage Works Design. DOE 78-5, February, 1978, Revised March, 1980.
9. Washington State Department Health, Design and Construction Standards for On-site Wastewater System Tanks, (Draft, final standards to be published at a later date) December 1993.
10. Washington State Department of Transportation. 1991 Standards Specifications for Road, Bridge and Municipal Construction.
11. Technical Review Committee, Washington State Department of Health, Guidelines for Sand Filters. August 2, 1989 (Revised September 1993)
12. F. Mahuta, W.C. Boyle, Gas Transport in the Unsaturated Zone of Soil Absorptions Systems, December 1991, Proceedings of the 6th National Symposium on Individual and Small Community Sewage Systems.

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Environmental Health

Chapter 246-272 WAC On-Site Sewage Systems

Rules and Regulations of
the State Board of Health

Adopted March 9, 1994
Effective January 1, 1995



Washington State Department of

Health

Environmental Health Programs

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Environmental Health

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Adopted March 9, 1994
Effective January 1, 1995



For more information of
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Bruce Miyahara
Secretary of Health

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Chapter 246-272 WAC

On-Site Sewage System Regulations

246-272-00101 Purpose, Objectives, and Authority.

- (1) The purpose of this chapter is to protect the public health by minimizing:
 - (a) The potential for public exposure to sewage from on-site sewage systems; and
 - (b) Adverse effects to public health that discharges from on-site sewage systems may have on ground and surface waters.
- (2) This chapter regulates the location, design, installation, operation, maintenance, and monitoring of on-site sewage systems to:
 - (a) Achieve long-term sewage treatment and effluent disposal; and
 - (b) Limit the discharge of contaminants to waters of the state.
- (3) This chapter is adopted by the State Board of Health in accordance with the authority granted in RCW 43.20.050 to establish minimum requirements for the department of health, and local boards of health whether or not they choose to adopt local regulations.

246-272-00501 Administration.

- (1) The local health officers and the department shall administer this chapter under the authority and requirements of chapters 70.05, 70.08, 70.46, and 43.70 RCW. Under chapter 70.05.060(7) RCW, fees may be charged for this administration.

246-272-01001 Definitions.

"Additive" means a commercial product added to an on-site sewage system intended to affect performance or aesthetics of an on-site sewage system.

"Alternative system" means an on-site sewage system other than a conventional gravity system or conventional pressure distribution system. Properly operated and maintained alternative systems provide equivalent or enhanced treatment performance as compared to conventional gravity systems.

"Approved" means a written statement of acceptability, in terms of the requirements in this chapter, issued by the local health officer or the department.

"Approved list" means "List of Approved Systems and Products", developed annually and maintained by the department and containing the following:

- (a) List of proprietary devices approved by the department;
- (b) List of specific systems meeting Treatment Standard 1 and Treatment Standard 2;
- (c) List of experimental systems approved by the department;
- (d) List of septic tanks, pump chambers, and holding tanks approved by the department.

"Area of Special Concern" means an area of definite boundaries delineated through public process, where a local health officer, or the department in consultation with the health officer, determines additional requirements for on-site sewage systems may be necessary to reduce potential failures, or minimize negative impact of on-site systems upon public health.

"Cesspool" means a pit receiving untreated sewage and allowing the liquid to seep into the surrounding soil or rock.

"Conforming system" means any on-site sewage system, except an experimental system, meeting any of the following criteria:

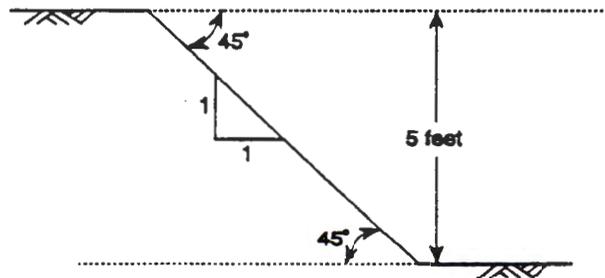
- (a) Systems in full compliance with new construction requirements under this chapter; or
- (b) Systems approved, installed and operating in accordance with requirements of previous editions of this chapter; or
- (c) Systems or repairs permitted through departmental concurrence by the waiver process which assure public health protection by higher treatment performance or other methods.

"Conventional gravity system" means an on-site sewage system consisting of a septic tank and a subsurface soil absorption system with gravity distribution of the effluent.

"Conventional pressure distribution system" means an on-site sewage system consisting of a septic tank and a subsurface soil absorption system with pressure distribution of the effluent. Design, operation and maintenance, and performance monitoring are described by "Guidelines for Pressure Distribution Systems" by the Washington state department of health.

"Covenant" means a recorded agreement stating certain activities and/or practices are required or prohibited.

"Cuts and/or banks" means any naturally occurring or 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 as follows:



"Designer" means a person who matches site and soil characteristics with appropriate on-site sewage technology.

"Development" means the creation of a residence, structure, facility, mobile home park, subdivision, planned unit development, site, area, or any activity resulting in the production of sewage.

"Department" means the Washington state department of health.

"Disposal component" means a subsurface absorption system (SSAS) or other soil absorption system receiving septic tank or other pretreatment device effluent and transmitting it into original, undisturbed soil.

"Effluent" means liquid discharged from a septic tank or other on-site sewage system component.

"Engineer" means a person who is licensed and in good standing under chapter 18.43 RCW.

"Expansion" means a change in a residence, facility, site, or use that:

- (a) Causes an on-site sewage system to exceed its existing treatment or disposal capability, for example, when a residence is increased from two to three bedrooms or a change in use from an office to a restaurant; or
- (b) Reduces the treatment or disposal capability of the existing on-site sewage system or the reserve area, for example, when a building is placed over a reserve area.

"Experimental system" means any alternative system:

- (a) Without design guidelines developed by the department; or
- (b) A proprietary device or method which has not yet been evaluated and approved by the department.

"Failure" means a condition of an on-site sewage system that threatens the public health 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 septic tank, pump chamber, holding tank, or collection system;
- (d) Cesspools or seepage pits where evidence of ground water or surface water quality degradation exists; or
- (e) Inadequately treated effluent contaminating ground water or surface water.
- (f) Noncompliance with standards stipulated on the permit.

"Ground water" means a subsurface water occupying the zone of saturated soil, permanently, seasonally, or as the result of the tides. Indications of ground water may include:

- (a) Water seeping into or standing in an open excavation from the soil surrounding the excavation.
- (b) Spots or blotches of different color or shades of color interspersed with a dominant color in soil, commonly referred to as mottling. Mottling is a historic indication for the presence of groundwater caused by intermittent periods of saturation and drying, and may be indicative of poor aeration and impeded drainage. Also see "Water table".

"Holding tank sewage system" means an on-site sewage system which incorporates a holding tank, the services of a sewage pumper/hauler, and the off-site treatment and disposal for the sewage generated.

"Industrial wastewater" means the water or liquid carried waste from an industrial process. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feedlots, poultry houses, or dairies. The term includes contaminated storm water and leachate from solid waste facilities.

"Installer" means a qualified person approved by a local health officer to install or repair on-site sewage systems or components.

"Large On-site Sewage System (LOSS)" means any on-site sewage system with design flows, at any common point, greater than 3,500 gallons per day.

"Local health officer" means the health officer of the city, county, or city-county health department or district within the state of Washington, or a representative authorized by and under the direct supervision of the local health officer, as defined in chapter 70.05 RCW.

"May" means discretionary, permissive, or allowed.

"On-site sewage system (OSS)" means an integrated arrangement of components for a residence, building, industrial establishment or other places not connected to a public sewer system which:

- (a) Convey, store, treat, and/or provide subsurface soil treatment and disposal on the property where it originates, upon adjacent or nearby property; and
- (b) Includes piping, treatment devices, other accessories, and soil underlying the disposal component of the initial and reserve areas.

"Ordinary high-water mark" means the mark on lakes, streams, and tidal waters, found by examining the beds and banks and ascertaining where the presence and action of waters 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.

"Person" means any individual, corporation, company, association, society, firm, partnership, joint stock company, or any governmental agency, or the authorized agents of any such entities.

"Planned unit development" means a development characterized by a unified site design, clustered residential units and/or commercial units, and areas of common open space.

"Pressure distribution" means a system of small diameter pipes equally distributing effluent throughout a trench or bed, as described in the "Guidelines for Pressure Distribution Systems" by the department. Also see "conventional pressure distribution."

"Proprietary device or method" means a device or method classified as an alternative system, or a component thereof, held under a patent, trademark or copyright.

"Public sewer system" means a sewerage system:

- (a) Owned or operated by a city, town, municipal corporation, county, or other approved ownership consisting of a collection system and necessary trunks, pumping facilities and a means of final treatment and disposal; and
- (b) Approved by or under permit from the department of ecology, the department of health and/or a local health officer.

"Pumper" Means a person approved by the local health officer to remove and transport wastewater or septage from on-site sewage systems.

"Repair" means restoration, by reconstruction or relocation, or replacement of a failed on-site sewage system.

"Reserve area" means an area of land approved for the installation of a conforming system and dedicated for replacement of the OSS upon its failure.

"Residential sewage" means sewage having the constituency and strength typical of wastewater from domestic households.

"Restrictive layer" means a stratum impeding the vertical movement of water, air, and growth of plant roots, such as hardpan, clay pan, fragipan, caliche, some compacted soils, bedrock and unstructured clay soils.

"Seepage pit" means an excavation more than three feet deep where the sidewall of the excavation is designed to dispose of septic tank effluent. Seepage pits may also be called "dry wells".

"Septage" means the mixture of solid wastes, scum, sludge, and liquids pumped from within septic tanks, pump chambers, holding tanks, and other OSS components.

"Septic tank" means a watertight pretreatment receptacle receiving the discharge of sewage from a building sewer or sewers, designed and constructed to permit separation of settleable and floating solids from the liquid, detention and anaerobic digestion of the organic matter, prior to discharge of the liquid.

"Sewage" means any urine, feces, and the water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments or other places. For the purposes of these regulations, "sewage" is generally synonymous with domestic wastewater. Also see "residential sewage."

"Shall" means mandatory.

"Soil log" means a detailed description of soil characteristics providing information on the soil's capacity to act as an acceptable treatment and disposal medium for sewage.

"Soil type" means a numerical classification of fine earth particles and coarse fragments as described in 246-272-11001(2)(e).

"Subdivision" means a division of land or creation of lots or parcels, described under chapter 58.17 RCW, now or as hereafter amended, including both long and short subdivisions, planned unit developments, and mobile home parks.

"SSAS" or "subsurface soil absorption system" means a system of trenches three feet or less in width, or beds between three and ten feet in width, containing distribution pipe within a layer of clean gravel designed and installed in original, undisturbed soil for the purpose of receiving effluent and transmitting it into the soil.

"Surface water" means any body of water, whether fresh or marine, flowing or contained in natural or artificial unlined depressions for significant periods of the year, including natural and artificial lakes, ponds, springs, rivers, streams, swamps, marshes, and tidal waters.

"Table VI Repair" means a repair or replacement of an existing on-site sewage system which, because of site limitations, must utilize treatment standards shown in Table VI in lieu of compliance with new construction requirements for vertical separation and/or horizontal set back from surface waters or drinking water wells or springs.

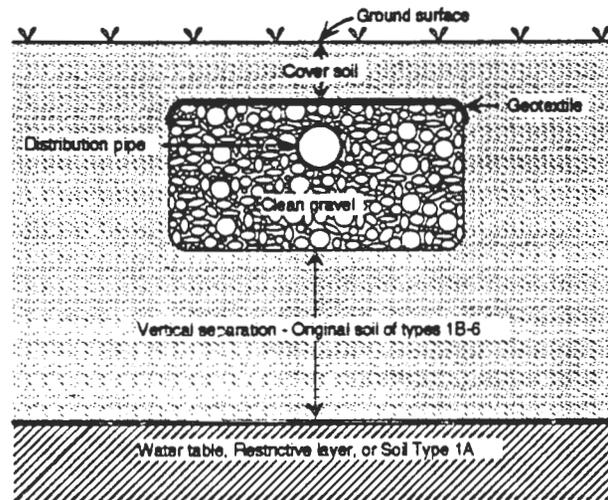
"Treatment standard 1" means a thirty-day average of less than 10 milligrams per liter of biochemical oxygen demand (5 day BOD₅), 10 milligrams per liter of total suspended solids (TSS), and a thirty-day geometric mean of less than 200 fecal coliform per 100 milliliters.

"Treatment standard 2" means a thirty-day average of less than 10 milligrams per liter of biochemical oxygen demand (5 day BOD₅), 10 milligrams per liter of total suspended solids (TSS), and a thirty-day geometric mean of less than 800 fecal coliform per 100 milliliters.

"Unit volume of sewage" means:

- (a) A single family residence;
- (b) A mobile home site in a mobile home park; or
- (c) 450 gallons of sewage per day where the proposed development is not single family residences or a mobile home park.

"Vertical separation" means the depth of unsaturated, original, undisturbed soil of Soil Types 1B-6 between the bottom of a disposal component and the highest seasonal water table, a restrictive layer, or Soil Type 1A, as illustrated below by the profile drawing of a subsurface soil absorption system:



"Water table" means the upper surface of the ground water, whether permanent or seasonal. Also see "ground water."

"Wave barrier" means a bulkhead of adequate height and construction protecting the immediate area of on-site sewage system components from wave action.

246-272-02001 Local Regulation.

- (1) Local boards of health may adopt and enforce local rules and regulations governing on-site sewage systems when the local regulations are:
 - (a) Consistent with, and as stringent as, this chapter; and
 - (b) Approved by the department prior to the effective date of local regulations.
- (2) A local board of health may apply for departmental approval of local regulations at any time by initiating the following procedure:
 - (a) The local board shall submit the proposed local regulations to the department.
 - (b) Within 90 days of receipt, the department shall:
 - (i) Approve the regulation; or
 - (ii) Signify automatic tacit agreement with the local regulations and permitting local implementation by failing to act; or
 - (iii) Deny approval of the regulations. If the department determines local regulations are not consistent with this chapter, the department shall provide specific reasons for denial.
- (3) Upon receipt of departmental approval or after 90 days without notification, whichever comes first, the local board may implement adopted regulations. The local board shall provide a copy of the adopted local regulations to the department.
- (4) If the department denies approval of local regulations, the local board of health may:
 - (a) Resubmit revised regulations for departmental consideration; or
 - (b) Submit a written request for a review of the departmental denial within 120 days from the date the local board of health receives the written reasons for the denial.
- (5) Upon receipt of written request for review of the departmental denial, the department shall:
 - (a) Acknowledge the receipt of the request in writing; and
 - (b) Form a mutually acceptable advisory panel consisting of:

- (i) One departmental employee;
 - (ii) One employee from a local health jurisdiction other than that which requested the review; and
 - (iii) One member of the technical review committee described in WAC 246-272-23501.
- (6) If good faith efforts to reach agreement are unsuccessful, the local board of health may appeal the denial to the Washington State Board of Health for resolution.
- (7) Nothing in this chapter shall prohibit the adoption and enforcement of more stringent regulations by local health departments where such regulations are needed to protect the public health.

246-272-03001 Applicability.

- (1) The local health officer and the department:
- (a) Shall apply this chapter to OSS treating wastewater and disposing of effluent from residential sewage sources;
 - (b) May apply this chapter to OSS for sources other than residential sewage, excluding industrial wastewater, if pretreatment, siting, design, installation, and operation and maintenance measures provide treatment and effluent disposal equal to that required of residential sewage.
- (2) Preliminary plats specifying general methods of sewage treatment, disposal, system designs and locations approved prior to the effective date of these regulations shall be acted upon in accordance with regulations in force at the time of preliminary plat approval for a maximum period of five years from the date of approval or for an additional year beyond the effective date of these regulations, whichever assures the most lenient expiration date.
- (3) A valid sewage system design approval, or installation permit issued prior to the effective date of these regulations:
- (a) Shall be acted upon in accordance with regulations in force at the time of issuance;
 - (b) Shall have a maximum validity period of five years from the date of issuance or remain valid for an additional year beyond the effective date of these regulations, whichever assures the most lenient expiration date; and

- (c) May be modified to include additional requirements if the health officer determines that a serious threat to public health exists.
- (4) The Washington state department of ecology has authority and approval over:
 - (a) Domestic or industrial wastewater under chapter 173-240 WAC; and
 - (b) Sewage systems using mechanical treatment, or lagoons, with ultimate design flows above 3,500 gallons per day.
- (5) The Washington state department of health has authority and approval over:
 - (a) Systems with design flows through any common point between 3,500 to 14,500 gallons per day; and
 - (b) Any Large On-site Sewage System "LOSS" for which jurisdiction has been transferred to the department of health under conditions of memorandum of agreement with the department of ecology.
- (6) The local health officer has authority and approval over:
 - (a) Systems with design flows through any common point up to 3,500 gallons per day;
 - (b) Any Large On-site Sewage System "LOSS" for which jurisdiction has been transferred to a local health jurisdiction from the department by contract.
- (7) Where this chapter conflicts with chapters 90.48 RCW, Water Pollution Control, the requirements under those statutes apply.

246-272-04001 Alternative Systems and Proprietary Devices.

- (1) The department:
 - (a) May approve guidelines for alternative systems if they are based upon:
 - (i) Sufficient theory and/or applied research to warrant guideline development; and
 - (ii) Sufficient accumulation of performance data to prove treatment standards are met; and
 - (iii) Review and recommendations by the Technical Review Committee established under WAC 246-272-23501.

- (b) May maintain lists of approved methods, proprietary devices, guidelines, and alternative systems.
 - (c) May charge fees to cover the cost of administering an alternative system program.
- (2) The local health officer or department shall only permit installation of alternative systems for which there are alternative system guidelines, or a proprietary device if it appears on the list of approved systems or devices maintained by the department under subsections (1)(a) and (1)(b) of this section.
- (3) The local health officer:
- (a) May require performance monitoring or sampling of any alternative system.
 - (b) May charge fees to cover the costs for monitoring system performance.
 - (c) Shall submit copies of evaluation reports to the department when alternative system performance is evaluated.
 - (d) Shall notify the department of alternative system approvals and failures.
- (4) Persons desiring product inclusion on the approved list, or intending to alter an approved device or method, shall submit to the department:
- (a) Documentation, data, plans, or other information requested, in an acceptable format for technical evaluation to certify that the product meets all the criteria in the appropriate guidelines.
 - (b) Required fees.
- (5) Persons desiring continued retention on the list of approved systems and products shall submit to the department:
- (a) An acceptable annual report which includes any changes in the product and certifies that the device meets appropriate guidelines; and
 - (b) Required fees.

246-272-05001 Experimental Systems.

- (1) Persons proposing a system for inclusion on the departmental approved list of experimental systems shall submit to the department for review and approval, a written proposal which includes:
 - (a) Description of existing theory and/or applied research supporting the application;
 - (b) Proposed testing protocol;
 - (c) Proposed operation, maintenance, and monitoring detail and schedules;
 - (d) Maximum number of installations;
 - (e) Proposed locations and uses, if multiple locations are proposed;
 - (f) Proposed reporting detail and frequency;
 - (g) Proposed schedule for the experimental program;
 - (h) Name(s) of the person(s) financially responsible for the experimental program, including:
 - (i) Routine operation and maintenance;
 - (ii) Monitoring; and
 - (iii) Repair and/or replacement of the system.
 - (i) Verification that the proposal is consistent with the intent of this chapter, requirements of this section, and the departmental application process.
- (2) The local health officer:
 - (a) May permit a limited number of specific experimental systems if:
 - (i) The specific system is included on the department's approved list of experimental systems under subsection (5)(b) of this section;
 - (ii) The site will accommodate the installation of a conforming system in the event of failure of the experimental system;
 - (iii) Local agreements to provide for monitoring, sampling, testing, reporting, maintenance, repairs, and the replacement of the system in accordance with the protocol approved by the

department under subsection (1) of this section are completed and signed.

- (b) May charge fees to cover the cost of evaluating or monitoring the experimental system.
- (3) After the experimental system proposal is approved, the person noted as responsible for an experimental system program on the departmental approved list shall:
- (a) Follow the experimental system protocol, procedures, and other related written agreements approved by the department and the local health officer;
 - (b) Monitor the experimental system and submit records as required to meet department's approval or the local health officer's permit; and
 - (c) Annually renew each state experimental system permit.
- (4) A person desiring to install an experimental system shall:
- (a) Obtain a permit from the local health officer;
 - (b) Submit a written promise to the health officer agreeing to abandon the experimental system and install a conforming system if:
 - (i) The system fails;
 - (ii) The performance of the experimental system is unsatisfactory; or
 - (iii) The applicant fails to adequately monitor the experimental system and submit records as required in the department's approval or the local health officer's permit;
 - (iv) The system components do not function as indicated by submitted documents;
 - (v) Performance does not meet the anticipated objectives of the experiment; or
 - (vi) The state experimental system permit is not renewed annually.
 - (c) Provide financial guarantees, acceptable to the health officer, and a copy of the recorded covenant required under (b) of this subsection to the local health officer; and
 - (d) Obtain through the local health officer an annually renewable state experimental system permit.

- (5) The department:
- (a) Shall obtain recommendations from the technical review committee prior to issuing approval of a proposal;
 - (b) Shall maintain a list of experimental systems that have been approved by the department, which also indicates each system's current status, application, use, and restrictions;
 - (c) Shall monitor the performance of the experimental system, including evaluation of any failures;
 - (d) Shall annually renew the state experimental system permit when:
 - (i) The requirements under subsections (3)(a) and (3)(b) of this section are satisfied; and
 - (ii) The performance of the system is satisfactory; and
 - (e) Shall no longer apply the requirements of this section when the requirements of WAC 246-272-04001 are satisfied.
- (6) The department and the local health officer shall not permit an experimental LOSS.

246-272-07001 Connection to Public Sewer System.

- (1) When adequate public sewer services are available within two hundred feet of the residence or facility, the local health officer, upon the failure of an existing on-site sewage system may:
- (a) Require hook-up to a public sewer system; or
 - (b) Permit the repair or replacement of the on-site sewage system only if a conforming system can be designed and installed.
- (2) Except as noted in subsection (1) of this section, the owner of a failure shall abandon the OSS under WAC 246-272-18501 and connect the residence or other facility to a public sewer system when:
- (a) The distance between the residence or other facility and an adequate public sewer is two hundred feet or less as measured along the usual or most feasible route of access; and
 - (b) The sewer utility allows the sewer connection.

- (3) The owner of a residence or other facility served by a Table VI repair as defined in WAC 246-272-01001 of this chapter shall abandon the OSS according to the requirements specified in WAC 246-272-18501, and connect the residence or other facility to a public sewer system when:
 - (a) Connection is deemed necessary to protect public health by the local health officer;
 - (b) An adequate public sewer becomes available within two hundred feet of the residence or other facility as measured along the usual or most economically feasible route of access; and
 - (c) The sewer utility allows the sewer connection.
- (4) Local boards of health may require a new development to connect to a public sewer system to protect public health.

246-272-08001 Large On-site Sewage Systems (LOSS).

- (1) Persons proposing a new LOSS for which the department has jurisdiction by WAC or memorandum of agreement with the department of ecology shall meet the requirements specified in "Design Standards for Large On-site Sewage Systems," 1993, Washington state department of health (Available upon written request to the department).
- (2) Persons shall submit the documents and fees specified under subsections (a) through (f) of this subsection and obtain approval from the department before installing a LOSS to serve any facility:
 - (a) A preliminary report, stamped and signed by an engineer, including:
 - (i) A discussion of the proposed project, including the schedule of construction;
 - (ii) A discussion of compliance with other state and local zoning, platting, health, and building regulations as they relate to sewage treatment and disposal;
 - (iii) An analysis of the site's capacity to treat and dispose of the proposed quantity and quality of sewage;
 - (iv) An analysis of the factors identified in WAC 246-272-20501(2)(d)(ii)(A); and
 - (v) A soil and site evaluation as specified in WAC 246-272-11001 signed by the evaluator;

- (vi) A management plan describing the:
 - (A) Management entity consisting of one of the following:
 - (I) For residential subdivisions where the lots are individually owned, a public entity serves as the primary management entity, or as the third party trust for a private management entity; or
 - (II) For other uses, including single ownership, a public entity or a private entity via an appropriate contract or agreement provides management;
 - (B) Duties of the management entity, including specific tasks and frequency of operation and maintenance;
 - (C) Controls to ensure the continuity and permanency of proper operation and maintenance;
 - (D) Methods and frequency of monitoring, record keeping, and reporting to the department;
 - (E) Rights and responsibilities of management; and
 - (F) Rights and responsibilities of persons purchasing connections to the LOSS.
- (b) Complete plans and specifications of the LOSS:
 - (i) Showing a conventional pressure distribution system with three feet of vertical separation;
 - (ii) Meeting all other design criteria within "Design Standards for Large On-site Sewage Systems", 1993, Department of Health. (available upon written request to the department); and
 - (iii) Stamped and signed by an engineer;
- (c) A schedule of inspections to confirm the installation conforms to the plans and specifications;
- (d) A draft operation and maintenance manual, describing the LOSS and outlining routine maintenance procedures for proper operation of the system;
- (e) Required fees; and
- (f) Other information as required by the department.

- (3) Persons desiring to repair, modify or expand a facility served, or to be served by a LOSS shall submit all documents and fees specified under subsections (2)(a) through (2)(f) of this section, unless the department waives submission of some elements as unnecessary, and obtain approval from the department.
- (4) The department:
 - (a) Shall not change the terms of a project's construction approval during a two year validity period. However additional terms to protect public health may be included before granting one year approval permit extensions;
 - (a) Shall conduct a pre-site inspection; and
 - (b) May allow the applicant to renew approval under the initial terms for successive one-year periods if:
 - (i) The LOSS is incomplete two years after the department's approval;
 - (ii) The applicant requests renewal in writing; and
 - (iii) The applicant submits required fees.
- (5) A qualified installer shall install the LOSS.
- (6) The applicant or applicant's agent:
 - (a) Shall comply with all conditions set forth in the department's construction approval;
 - (b) May request extensions to the construction approval permit; and
 - (c) Shall comply with any additional conditions upon construction approval extensions set forth by the department, and pay required fees for renewing the approval.
- (7) Before a new LOSS is used:
 - (a) An engineer shall stamp, sign, and submit a LOSS construction report to the department within sixty days following the completion of construction of the LOSS including:
 - (i) A completed form stating the LOSS was constructed in accordance with the department's approved plans and specifications; and

- (ii) An "as built" or "record" drawing;
- (b) The department shall conduct a final inspection; and
- (c) The owner shall:
 - (i) Submit an operation and maintenance manual developed by an engineer for the installed LOSS to the department for review and approval; and
 - (ii) Obtain a LOSS operating permit from the department by:
 - (A) Completing and submitting forms to the department; and
 - (B) Paying required fees.
- (8) The owner of a LOSS that has been approved by the department or local health officer or constructed after July 1, 1984, shall:
 - (a) Obtain a LOSS operating permit from the department; and
 - (b) Annually renew it.
- (9) The owner shall annually renew the LOSS operating permit by:
 - (a) Continued retention of an approved management entity to operate and maintain the LOSS;
 - (b) Submitting a report to the department demonstrating the LOSS is operated, maintained, and monitored in accordance with this chapter and the approved operation and maintenance manual; and
 - (c) Submitting required fees.
- (10) The department:
 - (a) Shall issue a LOSS operating permit to owners of LOSS meeting the requirements of subsections (1) through (7) of this section;
 - (b) Shall annually renew the LOSS operating permit when the owner has complied with the requirements under subsection (9) of this section;
 - (c) May revoke the LOSS operating permit when the:
 - (i) Approved management entity ceases to operate and maintain the LOSS;
 - (ii) Owner does not meet other conditions of the LOSS operating permit; or

- (iii) LOSS fails;
 - (d) Shall monitor the performance of LOSS; and
 - (e) Shall apply the requirements under WAC 246-272-16501 to failing LOSS.
- (11) The department may request the assistance of the local health officer to review the site or the design or to inspect the construction of a LOSS.
- (12) A local health officer and the department may enter into a contract under which:
- (a) The local health officer will assume the department's responsibilities in subsections (2), (4), (6), (7)(a), (7)(b) and (7)(c)(i) of this section to regulate LOSS; and
 - (b) The local health officer may charge fees to a LOSS applicant or owner for services provided if the authorization for such fees is set forth in local regulations adopted under this chapter.

246-272-09001 Permits For OSS Under 3500 Gallons per Day.

- (1) Prior to beginning the construction process, a person proposing the installation, repair, modification, connection to, or expansion of an OSS, shall develop and submit the following to the local health officer and obtain approval:
- (a) General information including:
 - (i) Name and address of the property owner and the applicant at the head of each page of submission;
 - (ii) Parcel number and address, if available, of the site;
 - (iii) Source of drinking water supply;
 - (iv) Identification if the property is within the boundaries of a recognized sewer utility;
 - (v) Size of the parcel;
 - (vi) Type of permit for which application is being made, for example, new installation, repair, expansion, alteration, or operational;

- (vii) Source of sewage, for example, residential, restaurant, or other type of business;
 - (viii) Location of utilities;
 - (ix) Name of the site evaluator;
 - (x) Name of the designer;
 - (xi) Date of application; and
 - (xii) Signature of applicant.
- (b) The soil and site evaluation as specified under WAC 246-272-11001(2).
- (c) A complete, detailed, and dimensional site plan including:
- (i) Designated areas for the proposed initial system and the reserve area;
 - (ii) The location of all soil logs and other soil tests for the OSS;
 - (iii) General topography and/or slope of the site;
 - (iv) Site drainage characteristics;
 - (v) The location of existing and proposed encumbrances affecting system placement, including legal access documents if any component of the OSS is not on the lot where the sewage is generated; and
 - (vi) An arrow indicating north.
- (d) A detailed system design meeting the requirements under WAC 246-272-11501 including:
- (i) A dimensional drawing showing the location of components of the proposed OSS, and the system designed for the reserve area if reserve site characteristics differ significantly from the initial area;
 - (ii) Vertical cross-section drawings showing:
 - (A) The depth of the disposal component, the vertical separation, and depth of soil cover; and
 - (B) Other OSS components constructed at the site.

- (iii) Calculations and assumptions supporting the proposed design, including:
 - (A) Soil type;
 - (B) Hydraulic loading rate in the disposal component; and
 - (C) System's maximum daily flow capacity.
- (e) Such additional information as deemed necessary by the local health officer.
- (2) The local health officer may develop the required information specified in subsection (1) of this section if authorization for such actions is included in local regulations.
- (3) The local health officer shall:
 - (a) Issue a permit when the information submitted under subsection (1) of this section meets the requirements contained in this chapter and in local regulations;
 - (b) Identify the permit as a new installation, repair, expansion, modification, or operational permit;
 - (c) Specify the expiration date on the permit;
 - (d) Include a reminder on the permit application of the applicant's right of appeal; and
 - (e) State the period of validity and the date and conditions of renewal when requiring operational permits to be obtained and retained;
- (4) The local health officer may revoke or deny a permit for due cause. Examples include, but are not limited to:
 - (a) Development or continued use of an OSS that threatens the public health;
 - (b) Misrepresentation or concealment of material fact in information submitted to the local health officer; or
 - (c) Failure to meet conditions of the permit or the regulations.

will be determined locally.

- (5) Before the local health officer issues a permit for the installation of an OSS to serve more than one development, the applicant shall show:
 - (a) An approved public entity owning or managing the OSS in perpetuity;
or
 - (b) An arrangement with a management entity acceptable to the local health officer, recorded in covenant, lasting until the on-site system is no longer needed, and containing, but not limited to:
 - (i) A legal easement allowing access for construction, operation and maintenance, and repair of the OSS; and
 - (ii) Identification of an adequate financing mechanism to assure the funding of operation, maintenance, and repair of the OSS.
- (6) The local health officer shall not delegate the authority to issue permits.
- (7) The local health officer may stipulate additional requirements for a particular permit if necessary for public health protection.

- (1) Persons shall design and install OSS to meet the minimum horizontal separations shown in Table I, Minimum Horizontal Separations:

TABLE I
Minimum Horizontal Separations

Items Requiring Setback	From edge of disposal component and reserve area	From septic tank, holding tank, containment vessel, pump chamber, and distribution box	From building sewer, collection, and non-perforated distribution line ¹
Non-public well or suction line	100 ft.	50 ft.	50 ft.
Public drinking water well	100 ft.	100 ft.	100 ft.
Public drinking water spring ³	200 ft.	200 ft.	100 ft.
Spring or surface water used as drinking water source ^{2,3}	100 ft.	50 ft.	50 ft.
Pressurized water supply line ⁴	10 ft.	10 ft.	10 ft.
Properly decommissioned well ⁴	10 ft.	N/A	N/A
Surface water ³ Marine water Fresh water	100 ft. 100 ft.	50 ft. 50 ft.	10 ft. 10 ft.
Building foundation	10 ft. ⁴	5 ft. ⁴	2 ft.
Property or easement line ⁴	5 ft.	5 ft.	N/A
Interceptor / curtain drains/ drainage ditches Down-gradient ⁷ Up-gradient ⁷	30 ft. 10 ft.	5 ft. N/A	N/A N/A
Down-gradient cuts or banks with at least 5 ft. of original, undisturbed soil above a restrictive layer due to a structural or textural change	25 ft.	N/A	N/A
Down-gradient cuts or banks with less than 5 ft. of original, undisturbed, soil above a restrictive layer due to a structural or textural change	50 ft.	N/A	N/A

¹ "Building sewer" as defined by the most current edition of the Uniform Plumbing Code. "Non-perforated distribution" includes pressure sewer transport lines.

² If surface water is used as a public drinking water supply, the designer shall locate the OSS outside of the required sanitary control area.

³ Measured from the ordinary high-water mark.

⁴ The local health officer may approve a sewer transport line within 10 feet of a water supply line if the sewer line is constructed in accordance with section 2.4 of the department of ecology's "Criteria For Sewage Works Design," revised October 1985, or equivalent.

⁵ Before any component can be placed within 100 feet of a well, the designer shall submit a "decommissioned water well report" provided by a licensed well driller, which verifies that appropriate decommissioning procedures noted in chapter 173-160 WAC were followed. Once the well is properly decommissioned, it no longer provides a potential conduit to groundwater, but septic tanks, pump chambers, containment vessels or distribution boxes should not be placed directly over the site.

⁶ The local health officer may allow a reduced horizontal separation to not less than two feet where the property line, easement line, or building foundation is up-gradient.

⁷ The item is down-gradient when liquid will flow toward it upon encountering a water table or a restrictive layer. The item is up-gradient when liquid will flow away from it upon encountering a water table or restrictive layer.

- (2) Where any condition indicates a greater potential for contamination or pollution, the local health officer or the department may increase the minimum horizontal separations. Examples of such conditions include excessively permeable soils, unconfined aquifers, shallow or saturated soils, dug wells, and improperly abandoned wells.
- (3) The horizontal separation between an OSS disposal component and an individual water well, spring, or surface water can be reduced to a minimum of 75 feet, by the local health officer, and be described as a "conforming" system upon signed approval by the health officer if the applicant demonstrates:
 - (a) Adequate protective site specific conditions, such as physical settings with low hydro-geologic susceptibility from contaminant infiltration. Examples of such conditions include evidence of confining layers and or aquatards separating potable water from the OSS treatment zone, excessive depth to groundwater, down-gradient contaminant source, or outside the zone of influence; or
 - (b) Design and proper operation of an OSS system assuring enhanced treatment performance beyond that accomplished by meeting the vertical separation and effluent distribution requirements described in WAC 246-272- 11501(2)(f) Table IV; or
 - (c) Evidence of protective conditions involving both 3(a) and (b) of this section.
- (4) Persons shall design and/or install disposal components only where:
 - (a) The slope is less than forty-five percent (twenty-four degrees);
 - (b) The area is not subject to:
 - (i) Encroachment by buildings or construction such as placement of swimming pools, power poles and underground utilities;
 - (ii) Cover by impervious material;
 - (iii) Vehicular traffic; or
 - (iv) Other activities adversely affecting the soil or the performance of the OSS.
 - (c) Sufficient reserve area for replacement exists to treat and dispose 100% of the design flow;

- (d) The land is stable; and
 - (e) Surface drainage is directed away from the site.
- (5) A local health officer may allow expansion of an existing on-site sewage system adjacent to a marine shoreline that does not meet the minimum horizontal separation between the disposal component and the ordinary high water mark required by WAC 246-272-09501 Table I, provided that:
- (a) The system meets all requirements of WAC 246-272-11501;
 - (b) The system complies with all other requirements of WAC 246-272-09501 and WAC 246-272-17501;
 - (c) Horizontal separation between the disposal component and the ordinary high water mark is 50 feet or greater; and
 - (d) Vertical separation is 3 feet or greater with a conventional gravity drainfield, or 2 feet or greater with a conventional pressure distribution drainfield.

246-272-11001 Soil and Site Evaluation.

- (1) The local health officer or department shall permit only engineers, qualified designers and soil scientists to perform soil and site evaluations.
- (2) The person evaluating the soil and site shall:
 - (a) Record:
 - (i) A sufficient number of soil logs to evaluate conditions within:
 - (A) The initial disposal component; and
 - (B) The reserve area.
 - (ii) The ground water conditions, the date of the observation, and the probable maximum height;
 - (iii) The topography of the site;
 - (iv) The drainage characteristics of the site;
 - (v) The existence of structurally deficient soils subject to major wind or water erosion events such as slide zones and dunes;
 - (vi) The existence of designated flood plains; and

- (vii) The location of existing encumbrances affecting system placement, such as:
 - (A) Wells and suction lines;
 - (B) Water sources and supply lines;
 - (C) Surface water;
 - (D) Abandoned wells;
 - (E) Outcrops of bedrock and restrictive layers;
 - (F) Buildings;
 - (G) Property lines and lines of easement;
 - (H) Interceptors such as footing drains, curtain drains and drainage ditches;
 - (I) Cuts, banks, and fills;
 - (J) Driveways and parking areas;
 - (K) Existing OSS; and
 - (L) Underground utilities.

- (b) Use the soil and site evaluation procedures and terminology in accordance with chapter 3 and Appendix A of the "Design Manual: On-site Wastewater Treatment and Disposal Systems", United States Environmental Protection Agency, EPA-625/1-80-012, October, 1980, except where modified by, or in conflict, with this chapter (available upon written request to the department);

- (c) Use the soil names and particle size limits of the United States Department of Agriculture Soil Conservation Service classification system;

- (d) Determine texture, structure, compaction and other soil characteristics that affect the treatment and water movement potential of the soil by using normal field and/or laboratory procedures such as particle size analysis; and

- (e) Classify the soil as in Table II, Soil Textural Classification:

TABLE II
Soil Textural Classification

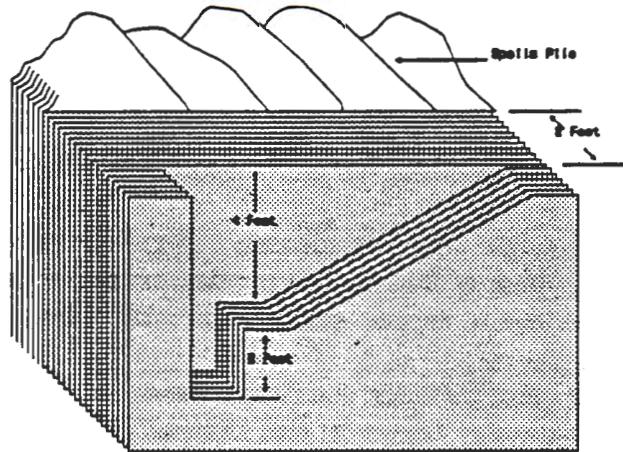
Soil Type	Soil Textural Classifications
1A	Very gravelly ¹ coarse sands or coarser. All extremely gravelly ² soils.
1B	Very gravelly medium sand, very gravelly fine sand, very gravelly very fine sand, very gravelly loamy sands.
2A	Coarse sands (also includes ASTM C-33 sand).
2B	Medium sands.
3	Fine sands, loamy coarse sands, loamy medium sands.
4	Very fine sands, loamy fine sands, loamy very fine sands, sandy loams, loams.
5	Silt loams, that are porous and have well developed structure.
6	Other silt loams, sandy clay loams, clay loams, silty clay loams.
Unsuitable for treatment or disposal	Sandy clay, clay, silty clay, and strongly cemented or firm soils.

¹ Very Gravelly = >35% and <60% gravel and coarse fragments, by volume.

² Extremely Gravelly = >60% gravel and coarse fragments, by volume.

- (3) The owner of the property or his agent shall:
- (a) Prepare the soil log excavation to:
 - (i) Allow examination of the soil profile in its original position by:
 - (A) Excavating pits of sufficient dimensions to enable observation of soil characteristics by visual and tactile means to a depth three feet deeper than the anticipated bottom of the disposal component; or
 - (B) Stopping at a shallower depth if a water table or restrictive layer is encountered; and
 - (ii) Allow determination of the soil's texture, structure, color, bulk density or compaction, water absorption capabilities or permeability, and elevation of the highest seasonal water table; and

- (b) Assume responsibility for constructing and maintaining the soil log excavation in a manner to reduce potential for physical injury by:
- (i) Placing excavated soil no closer than 2 feet of the excavation;
 - (ii) Providing a ladder, earth ramp or steps for safe egress to a depth of 4 feet, then scoop out a portion from the floor to gain the additional 2 foot depth necessary to observe the 6 feet of soil face, however the scooped portion is not to be entered (*Requirements (i), and (ii) of this section are illustrated below*);
 - (iii) Provide a physical warning barrier around the excavation's perimeter; and
 - (iv) Fill the excavation upon completion of the soil log.



(4) The local health officer:

- (a) Shall render a decision on the height of the water table within 12 months of receiving the application under precipitation conditions typical for the region;
- (b) May require water table measurements to be recorded during months of probable high-water table conditions, if insufficient information is available to determine the highest seasonal water table;
- (c) May require any other soil and site information affecting location, design, or installation; and
- (d) May reduce the required number of soil logs for OSS serving a single family residence if adequate soils information has previously been developed.

246-272-11501 Design.

- (1) The local health officer shall require that on-site sewage systems be designed only by engineers or qualified designers, except:
 - (a) Where at the discretion of the local health officer a resident owner of the single family residence is allowed to design a system for that residence; or
 - (b) The local health officer performs the soil and site evaluation and develops the design.
- (2) The local health officer and the department shall require the following design criteria:
 - (a) All the sewage from the building served is directed to the OSS;
 - (b) Drainage from the surface, footing drains, roof drains, and other non-sewage drains is prevented from entering the OSS and the area where the OSS is located;
 - (c) The OSS is designed to treat and dispose of the following flows:
 - (i) For single family residences, 120 gallons per bedroom per day, with a minimum of 240 gallons per day, unless technical justification is provided to support calculations using a lower design flow;
 - (ii) For other facilities, the design flows noted in "Design Manual: On-site Wastewater Treatment and Disposal Systems", United States Environmental Protection Agency, EPA-625/1-80-012, October, 1980 (available upon written request to the department). If the type of facility is not listed in the EPA design manual, design flows from one of the following documents are used:
 - (A) "Design Standards for Large On-site Sewage Systems," 1993, Washington state department of health (available upon request to the department); or
 - (B) "Criteria for Sewage Works Design", revised October 1985, Washington state department of ecology (available upon written request to the department of ecology).

(d) Septic tanks:

- (i) Are included on the approved list under subsection (5)(d) of this section;
- (ii) Have the following minimum liquid capacities:

(A) For a single family residence use Table III, Required Minimum Liquid Volumes of Septic Tanks:

TABLE III
Required Minimum Liquid Volumes Of Septic Tanks

Number of Bedrooms	Required minimum liquid tank volume in gallons
≤ 3	900
4	1000
Each additional bedroom	250

(B) For facilities handling residential sewage, other than one single family residence, 1.5 times the daily design flow with a minimum of 1000 gallons;

- (iii) Have clean-out and inspection accesses within 12 inches of finished grade; and
- (iv) Are designed with protection against floatation and ground water intrusion in high ground water areas;

(e) Pump chambers:

- (i) Are included on the approved list under subsection (5)(d) of this section;
- (ii) Have clean-out and inspection accesses at or above finished grade; and
- (iii) Are designed with protection against floatation, ground water intrusion, and surface water inflow in high ground water areas;

- (f) Methods for effluent distribution shall correlate to Soil Types 1A through Soil Type 6 as described by TABLE IV of this section, except where local regulations approved by the department under WAC 246-272-02001 are more stringent:

TABLE IV
Methods Of Effluent Distribution For Soil Types And Depths

Soil Type	Vertical Separation			
	< 1 foot	≥ 1 foot to < 2 feet	≥ 2 feet to < 3 feet	≥ 3 feet
1A	Not allowed	Pressure Distribution (see note) ^{1 & 2}	Pressure Distribution (see note) ¹	Pressure Distribution (see note) ¹
2A	Not allowed	Pressure Distribution (see note) ^{1 & 2}	Pressure Distribution	Pressure Distribution
1B - 6	Not allowed	Pressure Distribution (see note) ^{1 & 2}	Pressure Distribution	Gravity Distribution

¹ System meeting Treatment Standard 2 required.

² Mound systems installed where the original, undisturbed, unsaturated soil depth is between 12 and 18 inches, require pretreatment by an intermittent sand filter.

- (g) SSAS beds are only designed in Soil Types 2A, 2B, or 3, with a width not exceeding 10 feet;
- (h) Designs for conventional gravity systems in Soil Type 1A are not permitted due to the inadequate treatment performance capability of coarse grained soils. However, an exception may be permitted by the local health officer if the site meets all of the following criteria:
- (i) System serves a single family residence;
 - (ii) The lot size is greater than 2.5 acres;
 - (iii) Annual precipitation in the region is less than 25 inches per year as described by "Washington Climate" published jointly by the Cooperative Extension Service, College of Agriculture, and Washington State University (available for inspection at Washington state libraries);
 - (iv) The system is located outside all areas of special concern defined by WAC 246-272-21501(1);

- (v) The system is located outside the 12 county Puget Sound Water Quality Authority region; and
- (vi) The geologic conditions beneath the disposal component must satisfy the minimum unsaturated depth requirements to groundwater identified by interpreting a readable, representative well log. The method for determination is described by "Design Guideline for Conventional Gravity Systems In Soil Type 1A", (Available upon written request to the department).
- (i) Individual SSAS laterals greater than one hundred feet in length are to use pressure distribution;
- (j) OSS having daily design flows between 1000 and 3,500 gallons of sewage per day:
 - (i) Are located only in Soil Types 1 - 5;
 - (ii) Are located on slopes of less than thirty percent, or 17 degrees; and
 - (iii) Have pressure distribution;

(k) Conventional gravity systems and conventional pressure distribution system have:

(i) The calculation of absorption area based upon the design flows in subsection (2)(c) of this section and loading rates equal to or less than those in Table V, Maximum Hydraulic Loading Rate for Residential Sewage, and applied only to the bottom of the trench of the excavation.

TABLE V
Maximum Hydraulic Loading Rate
For Residential Sewage¹

Soil Type	Soil Textural Classification Description	Loading Rate gal./sq. ft./day
1A	Very gravelly ² coarse sands or coarser, extremely gravelly ³ soils.	Varies according to system selected to meet Treatment Standard 2 ⁴
1B	Very gravelly medium sands, very gravelly fine sands, very gravelly very fine sands, very gravelly loamy sands.	Varies according to soil type of the non-gravel portion ⁵
2A	Coarse sands (includes the ASTM C-33 sand).	1.2
2B	Medium sands.	1.0
3	Fine sands, loamy coarse sands, loamy medium sands.	0.8
4	Very fine sands, loamy fine sands, loamy very fine sands, sandy loams, loams.	0.6
5	Silt loams that are porous and have well developed structure.	0.45
6	Other silt loams, sandy clay loams, clay loams, silty clay loams.	0.2

¹ Compacted soils, cemented soils, and/or poor soil structure may require a reduction of the loading rate or make the soil unsuitable for conventional OSS systems.

² Very Gravelly = >35% and <60% gravel and coarse fragments, by volume.

³ Extremely Gravelly = >60% gravel and coarse fragments, by volume.

⁴ Due to the highly permeable nature of type 1A soil, only alternative systems which meet or exceed Treatment Standard 2 can be installed. However, a conventional gravity system may be used if it meets all criteria listed under WAC 11501(2)(h). The loading rate for these systems is provided in the appropriate guideline.

⁵ The maximum loading rate listed for the soil described as the non-gravel portion is to be used for calculating the absorption surface area required. The value is to be determined from this table.

- (ii) The bottom of a SSAS shall not be deeper than three feet below the finished grade, except under special conditions approved by the local health officer. The depth of such system shall not exceed ten feet from the finished grade;
 - (iii) The sidewall below the invert of the distribution pipe is located in original, undisturbed soil;
 - (iv) Clean gravel, covered with a geotextile; and
 - (v) A cover of between six and twenty-four inches of mineral soil containing no greater than 10% organic content over the gravel to preclude accumulation of water over the drainfield.
- (l) For other features, conventional gravity systems shall conform with the "Design Manual: On-site Wastewater Treatment and Disposal Systems," United States Environmental Protection Agency, EPA-625/1-80-012, October, 1980 (available upon written request to the department) except where modified by, or in conflict with this section or local regulations.
- (3) When proposing the use of OSS for non-residential sewage, the designer shall provide to the local health officer:
- (a) Information to show the sewage is not industrial wastewater;
 - (b) Information to establish the sewage's strength and identify chemicals found in the sewage that are not found in residential sewage; and
 - (c) A design providing treatment equal to that required of residential sewage.
- (4) The local health officer or department:
- (a) Shall approve only OSS designs meeting the requirements of this chapter;
 - (b) Shall only permit the use of septic tanks, pump chambers, and holding tanks on the approved list under subsection (5)(d) of this section;
 - (c) Shall not approve designs for:
 - (i) Cesspools;
 - (ii) Seepage pits, except as allowed for repairs under WAC 246-272-16501(3); or
 - (iii) Conventional gravity systems or conventional pressure distribution systems in Soil Type 1A, except when an applicant meets all criteria established by WAC 246-272-11501(2)(h).

- (d) May approve a design for the reserve area different than the design approved for the initial OSS, if both designs meet the requirements of this chapter for new construction; and
 - (e) May allow the hydraulic loading rate calculated for the infiltration surface area in a disposal component to include six inches of the SSAS sidewall height for determining design flow where total recharge by annual precipitation and irrigation is less than twelve inches per year.
- (5) The department shall:
- (a) Develop and maintain design and construction standards for septic tanks, pump chambers, and holding tanks.
 - (b) Review septic tanks, pump chambers, and holding tanks, approving those satisfying the design and construction standards developed by the department.
 - (c) Require an annual report from the manufacturers or distributors of all products on the approved list under subsection (5)(d) of this section which assures that the product still meets the standards defined in this section, before relisting the product.
 - (d) Maintain a list of approved septic tanks, pump chambers, holding tanks that meet design and construction standards.
 - (e) Make periodic checks of products approved under this subsection.
- (6) Persons desiring to manufacture or distribute septic tanks, pump chambers, holding tanks for use in an OSS shall:
- (a) Certify the product meets standards for subsection (5)(a) of this section and submit the required documentation to the department for approval when:
 - (i) The manufacturer or distributor needs initial departmental review and listing to allow permitting by the local health officer or department;
 - (ii) The department amends the applicable criteria or standards; or
 - (iii) The manufacturer or distributor alters the product;
 - (b) Submit an annual report acceptable to the department to retain departmental approval; and
 - (c) Pay required fees to the department.

246-272-12501 Holding Tank Sewage Systems.

- (1) Persons shall not install or use holding tank sewage systems for residential development or expansion of residences, whether seasonal or year-round, except as set forth under subsection (2) of this section.
- (2) The local health officer may approve installation of holding tank sewage systems only:
 - (a) For permanent uses limited to controlled, part-time, commercial usage situations, such as, recreational vehicle parks and trailer dump stations.
 - (b) For interim uses limited to handling of emergency situations.
 - (c) For repairs as permitted under WAC 246-272-16501(1)(c)(i).
- (3) A person proposing to use a holding tank sewage system shall:
 - (a) Follow established design criteria established by the department;
 - (b) Submit a management program to the local health officer assuring ongoing operation and maintenance before the local health officer issues the installation permit; and
 - (c) Use a holding tank on the current approved list under WAC 246-272-11501(5)(d);

246-272-13501 Installation.

- (1) The local health officer and the department shall require approved installers to construct OSS, except as noted under subsection (2) of this section.
- (2) The local health officer may allow the resident owner of a single family residence to install the OSS for that single family residence when:
 - (a) The OSS is either located on the same lot as the residence or situated on adjoining property controlled by the owner and legally listed as an encumbrance.
- (3) The installer described by either (1) or (2) of this section shall:
 - (a) Follow the approved design;
 - (b) Have the approved design in possession during installation;
 - (c) Only install septic tanks, pump chambers, and holding tanks approved by the department;

- (d) Be on the site at all times during the excavation and construction of the OSS;
- (e) Install the OSS to be watertight, except for the disposal component;
- (f) Cover the installation only after the local health officer has given approval to cover; and
- (g) Back fill and grade the site to prevent surface water from accumulating over any component of the OSS;

246-272-14501 Inspection.

- (1) The local health officer shall:
 - (a) Visit the OSS site during the site evaluation, construction, or final construction inspection;
 - (b) Either inspect the OSS before cover or allow the designer of the OSS to perform the inspection before cover if:
 - (i) The designer is qualified; and
 - (ii) The designer is not also named as installer of the system; and
 - (iii) A qualified installer installed the OSS.
 - (c) Keep the "as-built" or "record" drawings on file.
- (2) The person responsible for the final construction inspection shall:
 - (a) Assure the OSS meets the approved design; and
 - (b) Direct the person responsible for final cover of the system to place a permanent marker at finished grade where needed to identify the location of the septic tank's first manhole.
- (3) The designer or installer, as directed by the local health officer, upon completion of the OSS shall develop and submit a complete and detailed, "as-built" or "record drawing" to both the health officer and the OSS owner that include:
 - (a) For new OSS, measurements to existing site features enabling the first tank manhole to be easily located, and a dimensioned reserve area; and
 - (b) For repaired or altered OSS, the new, repaired, or altered components with their relationship to the existing system.

246-272-15501 Operation and Maintenance.

- (1) The OSS owner is responsible for properly operating and maintaining the OSS, and shall:
 - (a) Determine the level of solids and scum in the septic tank once every three years;
 - (b) Employ an approved pumper to remove the septage from the tank when the level of solids and scum indicates that removal is necessary;
 - (c) Protect the OSS area and the reserve area from:
 - (i) Cover by structures or impervious material;
 - (ii) Surface drainage;
 - (iii) Soil compaction, for example by vehicular traffic or livestock; and
 - (iv) Damage by soil removal and grade alteration;
 - (d) Keep the flow of sewage to the OSS at or below the approved design both in quantity and waste strength;
 - (e) Operate and maintain alternative systems as directed by the local health officer; and
 - (f) Direct drains, such as footing or roof drains away from the area where the OSS is located.

- (2) The local health officer shall:
 - (a) Provide operation and maintenance information to the OSS owner upon approval of any installation, repair, or alteration of an OSS; and
 - (b) Develop and implement plans to:
 - (i) Monitor all OSS performance within areas of special concern;
 - (ii) Initiate periodic monitoring of each OSS no later than January 1, 2000, to assure that each OSS owner properly maintains and operates the OSS in accordance with this section and in accordance with other applicable operation and maintenance requirements.
 - (iii) Disseminate relevant operation and maintenance information to OSS owners through effective means routinely and upon request; and
 - (iv) Assist in distributing educational materials to OSS owners.

- (3) Persons shall not:
 - (a) Use or introduce strong bases, acids or chlorinated organic solvents into an OSS for the purpose of system cleaning.
 - (b) Use a sewage system additive unless it is specifically approved by the department; or
 - (c) Use an OSS to dispose of waste components atypical of residential wastewater.
- (4) The local health officer shall require annual inspections of OSS serving food service establishments and may require pumping as needed.
- (5) The local health officer may require the owner of the OSS to:
 - (a) Use one or more of the following management methods or another method consistent with the following management methods for proper operation and maintenance:
 - (i) Obtain and comply with the conditions of a renewable or operational permit;
 - (ii) Employ a public entity eligible under Washington state statutes to, directly or indirectly, manage the OSS; or
 - (iii) Employ a private management entity, guaranteed by a public entity eligible under Washington state statutes or sufficient financial resources, to manage the OSS;
 - (b) Evaluate any effects the OSS may have on ground water or surface water; and/or
 - (c) Dedicate easements for inspections, maintenance, and potential future expansion of the OSS.
- (6) Persons may obtain a handbook with material outlining management methods to achieve proper operation, maintenance, and monitoring of OSS from the department one year after the effective date of this chapter.
- (7) The local health officer may require installation of observation ports in each individual lateral or bed which extend from the bottom of the gravel to the finished grade for monitoring OSS performance.

246-272-16501 Repair of Failures.

- (1) When an OSS failure occurs, the OSS owner shall:
 - (a) Repair or replace the OSS with a conforming system or a Table VI repair either on the:
 - (i) Property served; or
 - (ii) Nearby or adjacent property if easements are obtained; or
 - (b) Connect the residence or facility to a:
 - (i) Publicly owned LOSS; or
 - (ii) Privately owned LOSS where it is deemed economically feasible; or
 - (iii) Public sewer; or
 - (c) Perform one of the following when requirements in subsections (1)(a) or (1)(b) of this section are not feasible:
 - (i) Use a holding tank; or
 - (ii) Obtain a National Pollution Discharge Elimination System or state discharge permit from the Washington state department of ecology issued to a public entity or jointly to a public entity and the system owner only when the local health officer determines:
 - (A) An OSS is not feasible; and
 - (B) The only realistic method of final disposal of treated effluent is discharge to the surface of the land or into surface water; or
 - (iii) Abandon the property.
- (2) Prior to replacing or repairing the effluent disposal component, the OSS owner shall develop and submit information required under WAC 246-272-09001(1).
- (3) The local health officer shall permit a Table VI repair only when:
 - (a) Installation of a conforming system is not possible; and
 - (b) Connection to either an approved LOSS or a public sewer is not feasible.

- (4) The person responsible for the design shall locate and design repairs to:
- (a) Meet the requirements of Table VI if the effluent treatment and disposal component to be repaired or replaced is closer to any surface water, well, or spring that is not used as a public water source as prescribed by the minimum separation required in Table 1 of WAC 246-272-09501(1);

TABLE VI
Requirements for Repair or Replacement of Disposal Components
Not Meeting Vertical and Horizontal Separations ^{1,2}

Vertical Separation in feet	Horizontal Separation in Feet ³		
	< 25	25 - 50	> 50 - ≤100
<1	Treatment Standard 1	Treatment Standard 1	Treatment Standard 2 ⁴
1-2	Treatment Standard 1	Treatment Standard 2 ⁴	Pressure Distribution
>2	Treatment Standard 2 ⁴	Pressure Distribution	Pressure Distribution

¹ The treatment standards refer to effluent quality before discharge to unsaturated, subsurface soil.

² The local health officer may permit ASTM C-33 sand to be used as fill to prevent direct discharge of treated effluent to ground water, surface water, or upon the surface of the ground.

³ The horizontal separation indicated is the distance between the disposal component and the surface water, well, or spring. If the disposal component is up-gradient of a surface water, well, or spring to be used as a potable water source, the next higher standard level of treatment shall apply unless treatment standard 1 is already being met.

⁴ Mound systems are not allowed to meet treatment standard 2.

- (b) Protect drinking water sources;
- (c) Prevent the direct discharge of sewage to ground water, surface water, or upon the surface of the ground;
- (d) Meet the horizontal separations under WAC 246-272-09501(1) to public drinking water sources;
- (e) Meet other requirements of this chapter to the maximum extent permitted by the site;
- (f) Maximize the:
- (i) Vertical separation;
 - (ii) Distance from a well, spring, or suction line; and
 - (iii) Distance to surface water;

- (5) The local health officer shall identify Table VI repair permits for the purpose of tracking future performance.
- (6) An OSS owner receiving a Table VI repair permit from the local health officer shall:
 - (a) Immediately report any failure to the local health officer;
 - (b) Monitor the performance of the OSS according to the "Interim Guidelines for the Application of Treatment Standards 1 & 2, using Alternative On-site Sewage Treatment/Disposal Systems" amended August 4,1992, (available upon written request to the department of health) and report the results to the local health officer at a minimum frequency of:
 - (i) Quarterly when Treatment Standard 1 is required; and
 - (ii) Annually when Treatment Standard 2 is required;
 - (c) Comply with all local and state requirements stipulated on the permit.

246-272-17501 Expansions.

The local health officer or department shall require an on-site sewage system and a reserve area in full compliance with the new system construction standards specified in this chapter for an expansion of a residence or other facility.

246-272-18501 Abandonment.

- (1) Persons permanently removing a septic tank, seepage pit, cesspool, or other sewage container from service shall:
 - (a) Have the septage removed by an approved pumper;
 - (b) Remove or destroy the lid; and
 - (c) Fill the void with soil.

246-272-19501 Septage Management.

- (1) An individual shall be approved by the local health officer as a qualified pumper before removing septage from an OSS.
- (2) Persons removing septage from an OSS shall:
 - (a) Transport septage or sewage only in vehicles clearly identified with the name of the business and approved by the local health officer;
 - (b) Record and report septage removal to the local health officer.
 - (c) Dispose of septage, or apply septage biosolids to land only in a manner consistent with applicable laws.

246-272-20501 Developments, Subdivisions, and Minimum land area requirements.

- (1) A person proposing the development shall obtain approval from the local health officer prior to any development where the use of OSS is proposed.
- (2) The local health officer shall require the following prior to approving any development:
 - (a) Site evaluations as required under WAC 246-272-11001, excluding subsections (3)(a)(i) and (4)(d);
 - (b) Where a subdivision with individual wells is proposed:
 - (i) Configuration of each lot to allow a 100-foot radius water supply protection zone to fit within the lot lines; or
 - (ii) Establishment of a 100-foot protection zone around each existing and proposed well site;
 - (c) Where preliminary approval of a subdivision is requested, provision of at least one soil log per proposed lot, unless the local health officer determines existing soils information allows fewer soil logs;

(d) Determination of the minimum lot size or minimum land area required for the development using Method I and/or Method II:

(i) **METHOD I.** Table VII, Single Family Residence Minimum Lot Size or Minimum Land Area Required Per Unit Volume of Sewage, shows the minimum lot size required per single family residence. For developments other than single family residences, the minimum land areas shown are required for each unit volume of sewage.

TABLE VII
Minimum Land Area Requirement
Single Family Residence or Unit Volume of Sewage

Type of Water Supply	Soil Type (defined by section 11001 of this chapter)					
	1A, 1B	2A, 2B	3	4	5	6
Public	0.5 acre ¹	12,500 sq. ft.	15,000 sq. ft.	18,000 sq. ft.	20,000 sq. ft.	22,000 sq. ft.
	2.5 acre ²					
Individual, on each lot	1.0 acre ¹	1 acre	1 acre	1 acre	2 acres	2 acres
	2.5 acres ²					

¹ Due to the highly permeable nature of Soil Type 1A, only alternative systems which meet or exceed Treatment Standard 2 can be installed.

² A conventional gravity system in Soil Type 1A is only allowed if it is in compliance with all conditions listed under WAC 246-272-11501(2)(h). One of these limiting conditions is a 2.5 acre minimum lot size.

(ii) **METHOD II.** A minimum land area proposal using Method II is acceptable only when the applicant:

(A) Justifies the proposal through a written analysis of the:

- (I) Soil type and depth;
- (II) Area drainage, and/or lot drainage;
- (III) Public health impact on ground and surface water quality;
- (IV) Setbacks from property lines, water supplies, etc;
- (V) Source of domestic water;
- (VI) Topography, geology, and ground cover;
- (VII) Climatic conditions;
- (VIII) Availability of public sewers;
- (IX) Activity or land use, present, and anticipated;
- (X) Growth patterns;
- (XI) Reserve areas for additional subsurface treatment and disposal;

- (XII) Anticipated sewage volume;
 - (XIII) Compliance with current planning and zoning requirements;
 - (XIV) Possible use of alternative systems or designs;
 - (XV) Existing encumbrances, such as listed in WAC 246-272-09001(1)(c)(v) and WAC 246-272-11001(2)(a)(vii); and
 - (XVI) Any other information required by the local health officer.
- (B) Shows development with public water supplies having:
 - (I) At least 12,500 square feet lot sizes per single family residence;
 - (II) No more than 3.5 unit volumes of sewage per day per acre for developments other than single family residences; and
 - (C) Shows development with individual water supplies having at least one acre per unit volume of sewage; and
 - (D) Shows land area under surface water is not included in the minimum land area calculation; and
- (e) Regardless of which method is used for determining required minimum lot sizes or minimum land area, submittal to the health officer of information consisting of field data, plans, and reports supporting a conclusion the land area provided is sufficient to:
- (i) Install conforming OSS;
 - (ii) Assure preservation of reserve areas for proposed and existing OSS;
 - (iii) Properly treat and dispose of the sewage; and
 - (iv) Minimize public health effects from the accumulation of contaminants in surface and ground water.
- (3) The local health officer shall require lot areas of 12,500 square feet or larger except when a person proposes:
- (a) OSS within the boundaries of a recognized sewer utility having a finalized assessment roll; or
 - (b) A planned unit development with:
 - (i) A signed, notarized, and recorded deed covenant restricting any development of lots or parcels above the approved density with the

density meeting the minimum land area requirements of subsection (2)(d) of this section;

- (ii) A public entity responsible for operation and maintenance of the OSS, or a single individual owning the OSS;
- (iii) Management requirements under WAC 246-272-08001 when installing a LOSS; and
- (iv) Extinguishment of the deed covenant and higher density development allowed only when the development connects to public sewers.

(4) The local health officer may:

- (a) Allow inclusion of the area to the centerline of a road or street right-of-way in a Method II determination under subsection WAC 246-272-20501(2)(d)(ii) to be included in the minimum land area calculation if:
 - (i) The dedicated road or street right-of-ways are along the perimeter of the development;
 - (ii) The road or street right-of-ways are dedicated as part of the proposed development; and
 - (iii) Lots are at least 12,500 square feet in size.
- (b) Require detailed plot plans and OSS designs prior to final approval of subdivision proposals;
- (c) Require larger land areas or lot sizes to achieve public health protection;
- (d) Prohibit development on individual lots within the boundaries of an approved subdivision if the proposed OSS design does not protect public health by meeting requirements of these regulations; and
- (e) Permit the installation of an OSS, where the minimum land area requirements or lot sizes cannot be met, only when all of the following criteria are met:
 - (i) The lot is registered as a legal lot of record created prior to the effective date of this chapter;
 - (ii) The lot is outside an area of special concern where minimum land area has been listed as a design parameter necessary for public health protection; and
 - (iii) The proposed system meets all requirements of these regulations other than minimum land area.

246-272-21501 Areas of Special Concern.

- (1) The local health officer may investigate and take appropriate action to minimize public health risk in formally designated areas such as:
 - (a) Shellfish protection districts or shellfish growing areas;
 - (b) Sole Source Aquifers designated by the U.S. Environmental Protection Agency;
 - (c) Areas with a critical recharging effect on aquifers used for potable water as designated under Washington Growth Management Act, chapter 36.70A.170 RCW;
 - (d) Designated public water supply wellhead protection areas.
 - (e) Up-gradient areas directly influencing water recreation facilities designated for swimming in natural waters with artificial boundaries within the waters as described by the Water Recreation Facilities Act, chapter 70.90 RCW;
 - (f) Areas designated by the department of ecology as special protection areas under chapter 173-200-090 WAC, Water Quality Standards for Ground Waters of the State of Washington;
 - (g) Wetland areas under production of crops for human consumption;
 - (h) Frequently flooded areas delineated by the Federal Emergency Management Agency; and
 - (i) Areas identified and delineated by the local board of health in consultation with the department to address public health threat from on-site systems.

- (2) The permit issuing authority may impose more stringent requirements on new development and corrective measures to protect public health upon existing developments in areas of special concern, including:
 - (a) Additional location, design, and/or performance standards for OSS;
 - (b) Larger land areas for new development;
 - (c) Prohibition of development;
 - (d) Additional operation, maintenance, and monitoring of OSS performance;
 - (e) Requirements to upgrade existing OSS;
 - (f) Requirements to abandon existing OSS; and
 - (g) Monitoring of ground water or surface water quality.

- (3) Within areas of special concern, to reduce risk of system failures, a person approved or designated by the local health officer shall:
 - (a) Inspect every OSS at least once every three years;
 - (b) Submit the following written information to both the local health officer and the property owner within 30 days following the inspection:
 - (i) Location of the tank;
 - (ii) Structural condition of the tank, including baffles;
 - (iii) Depth of solids in tank;
 - (iv) Problems detected with any part of the system;
 - (v) Maintenance needed;
 - (vi) Maintenance provided at time of inspection; and
 - (vii) Other information as required by the local health officer.
 - (c) Immediately report failures to the local health officer.

246-272-22501 Certification of Designers, Installers, Pumpers, Inspectors, and Maintenance Personnel.

- (1) Guidelines defining qualifications for designers, installers, pumpers, inspectors and maintenance personnel shall be established by the department. The guidelines shall include, but not be limited to education, experience, testing, and certification.

246-272-23501 Technical Review Committee.

- (1) The department shall:
 - (a) Maintain a committee consisting of a maximum of nine individuals with technical or scientific knowledge applicable to OSS whose purpose is to provide technical advice to the department; and
 - (b) Select members for the technical review committee from:
 - (i) Local health departments;

- (ii) Engineering firms;
 - (iii) The department of ecology;
 - (iv) Land sales, development and building industries;
 - (v) Public sewer utilities;
 - (vi) On-site sewage system design and installation firms;
 - (vii) Environmental organizations;
 - (viii) University/college academic communities;
 - (ix) On-site sewage system or related product manufacturers; and
 - (x) Other interested organizations or groups.
- (c) Convene meetings as needed.

246-272-24001 State Advisory Committee.

- (1) The department shall:
- (a) Maintain an on-site sewage advisory committee to:
 - (i) Make recommendations concerning departmental policy and regulations;
 - (ii) Review program services; and
 - (iii) Provide input to the department regarding the on-site sewage program;
 - (b) Select members from agencies, professions, organizations having knowledge and interest in OSS, and groups which are affected by the regulations; and
 - (c) Convene meetings as needed.

246-272-25001 Waiver of State Regulations.

- (1) For individual, site-by-site waiver requests, if concurrence is granted by the department, the local health officer may grant a waiver from specific requirements in this chapter for OSS under 3500 gallons per day only after the following procedure has been completed:
 - (a) The applicant submits a waiver application to the local health officer, including justification describing how the requested waiver is consistent with purpose and objectives to meet the public health intent of this chapter;
 - (b) When the local health officer determines that the waiver is consistent with the standards in and the intent of this chapter, the applicant forwards the completed waiver form, pertinent and supportive material, with required departmental fee to the department;
 - (c) Upon receipt of the waiver application, the department shall respond to the applicant within seven working days as to the status of departmental review. This notification is to include information regarding issues or concerns the department has identified and the expected date for completion of the review.
 - (d) Upon review, the department returns the waiver application to the local health officer and a copy to the applicant, indicating that the department either concurs with the waiver as requested, or conditionally concurs with the request, or states reasons for denying the request.
- (2) The department may grant a waiver from specific requirements in this chapter for a LOSS if a person submits a completed departmental waiver application and required fee to the department, including justification showing the requested waiver is consistent with the LOSS standards in this chapter, and is consistent with the purpose and objectives of this chapter to assure public health protection.
- (3) If an applicant desires to modify and resubmit a previously denied waiver request, the process described above in subsection (1) for OSS under 3500 gallons per day, or subsection (2) above for a LOSS shall be followed again.
- (4) For general, multiple-site waivers to respond to regional conditions or issues, if approval is granted by the state board of health, the local health officer may, under the conditions and requirements of an intergovernmental agreement with the department, grant waivers from specific requirements in this chapter for OSS under 3500 gallons per day only after the following requirements have been met:
 - (a) The local health officer shall submit to the department for review, a proposal for an intergovernmental agreement (IGA) between the local board of health and the department that provides:
 - (i) Justification for the waiver request based on sound technical and scientific information and data;

- (ii) Written concurrence by the department of ecology that the standards of Chapter 173-201 WAC, Water Quality Standards for Surface Waters and Chapter 173-200 WAC, Water Quality Standards for Ground Water will be met;
 - (iii) An appropriate local public review of the proposed IGA, including opportunity for review and comment by adjacent county governments, state agencies, affected parties, and others; and
 - (iv) Appropriate technical, administrative, and regulatory requirements to assure public health protection, and limitations, conditions, revocation clauses, and other items as required by the department or the state board of health.
- (b) The department shall, within 90 days of receipt of a completed proposal:
- (i) Determine if the proposed IGA, with its supporting documentation, adequately addresses technical criteria and standards, and regulatory control to assure public health protection at least equal to that provided by this chapter; and
 - (ii) Submit to the state board of health a report with departmental recommendations regarding the waiver request and the proposed IGA.
- (c) The department may establish fees or other mechanisms of cost recovery, to cover the costs of departmental review, development, and on-going oversight of proposed intergovernmental agreements, and any departmental activity as provided and agreed upon in intergovernmental agreements, as described in this section.

246-272-26001 Enforcement.

- (1) The department or the local health officer:
 - (a) Shall enforce the rules of chapter 246-272 WAC; or
 - (b) May refer cases within their jurisdiction to the local prosecutor's office or office of the attorney general, as appropriate.
- (2) When a person violates the provisions under this chapter, the department, local health officer, local prosecutor's office, or office of the attorney general may initiate enforcement or disciplinary actions, or any other legal proceeding authorized by law, including but not limited to any one or a combination of the following:
 - (a) Informal administrative conferences, convened at the request of the department or owner, to explore facts and resolve problems;

- 2 9 3
- (b) Orders directed to the owner and/or operator of the OSS and/or person causing or responsible for the violation of the rules of chapter 246-272 WAC;
 - (c) Denial, suspension, modification, or revocation of permits, approvals, or certification; and
 - (d) Civil or criminal action.
- (3) Orders authorized under this section include the following:
- (a) Orders requiring corrective measures necessary to effect compliance with chapter 246-272 WAC which may include a compliance schedule; and
 - (b) Orders to stop work and/or refrain from using any OSS or portion of the OSS or improvements to the OSS until all permits, certifications, and approvals required by rule or statute are obtained.
- (4) Enforcement orders issued under this section shall:
- (a) Be in writing;
 - (b) Name the person or persons to whom the order is directed;
 - (c) Briefly describe each action or inaction constituting a violation of the rules of chapter 246-272 WAC, or applicable local code;
 - (d) Specify any required corrective action, if applicable;
 - (e) Specify the effective date of the order, with time or times of compliance;
 - (f) Provide notice of the consequences of failure to comply or repeated violation, as appropriate. Such notices may include a statement that continued or repeated violation may subject the violator to:
 - (i) Denial, suspension, or revocation of a permit approval, or certification; and/or
 - (ii) Referral to the office of the county prosecutor or attorney general.
 - (iii) Other appropriate remedies.
 - (g) Provide the name, business address, and phone number of an appropriate staff person who may be contacted regarding an order.
 - (h) Comply with chapter 43.70 RCW and chapter 34.05 RCW if issued by the department.

- (5) Enforcement orders shall be personally served in the manner of service of a summons in a civil action or in a manner showing proof of receipt.
- (6) The department shall have cause to deny the application or reapplication for an operational permit or to revoke, suspend, or modify a required operational permit of any person who has:
 - (a) Failed or refused to comply with the provisions of chapter 246-272 WAC, or any other statutory provision or rule regulating the operation of an OSS; or
 - (b) Obtained or attempted to obtain a permit or any other required certificate or approval by misrepresentation.
- (7) For the purposes of subsection (6) of this section and WAC 246-272-27001, a person is defined to include:
 - (a) Applicant;
 - (b) Re-applicant;
 - (c) Permit holder; or
 - (d) Any individual associated with subsection 7 (a), (b) or (c) or this section including, but not limited to:
 - (i) Board members;
 - (ii) Officers;
 - (iii) Managers;
 - (iv) Partners;
 - (v) Association members;
 - (vi) Agents; and in addition
 - (vii) Third persons acting with the knowledge of such persons.

246-272-27001 Notice of decision -- Adjudicative Proceeding.

- (1) All local boards of health shall:
 - (a) Maintain an administrative appeals process to consider procedural and technical conflicts arising from the administration of local regulations; and
 - (b) Establish rules for conducting hearings requested to contest a local health officer's actions.
- (2) The department shall provide notice of a denial, suspension, modification or revocation of a permit, certification, or approval consistent with chapter 43.70.115 RCW, chapter 34.05 RCW, and chapter 246-10 WAC.
- (3) A person contesting a departmental decision regarding a permit, certificate, approval, or fine may file a written request for an adjudicative proceeding consistent with chapter 246-10 WAC.
- (4) Department actions are governed under the Administrative Procedure Act chapter 34.05 RCW, chapter 43.70.115 RCW, this chapter, and chapter 246-10 WAC.

246-272-28001 Severability.

- (1) If any provision of this chapter or its application to any person or circumstances is held invalid, the remainder of this chapter, or the application of the provision to other persons or circumstances shall not be affected.

WAC 246-272-990 Fees.

- (1) The minimum fee for required review of larger on-site system's engineering reports and plans and specifications shall be four hundred dollars. If review time exceeds eight hours, fifty dollars for each additional hour or part of an hour shall be added to the minimum fee. The fee for pre-site inspections for larger on-site systems shall be one hundred dollars per visit. The fee for final inspections of larger on-site systems shall be one hundred dollars per site visit.
- (2) The minimum fee for required review of proprietary devices shall be two hundred dollars. If review time exceeds four hours, fifty dollars for each additional hour or part of an hour shall be added to the minimum fee.
- (3) The minimum fee for required review of experimental systems shall be four hundred dollars. If review time exceeds eight hours, fifty dollars for each additional hour or part of an hour shall be added to the minimum fee.

Key Word Index

- 12,500 square feet (46), (47)
1A (8), (28), (32-35), (45)
1B (8), (28), (32), (34), (45)
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