Wastewater Management Program

List of Approved Systems and Products - *January 2003*

As Established in Chapter 246-272 WAC
On-site Sewage Systems

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Secretary of Health
Mary Selecky

Washington State Department of Health

Office of Environmental Health & Safety

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Approved Systems and Products

Introduction

This document replaces the May 2002 edition of the List of Approved Systems and Products.

Specific conditions for the use of each system technology or product are described in the Recommended Standards and Guidance (RS&G) documents relevant to the proprietary device. The most recently published edition of any RS&G can be obtained from local health offices and from the DOH website at the following Internet address: http://www.doh.wa.gov/ehp/ts/pubs.htm#wastewater.

Dimensional descriptions are included in the tables. This information is provided to facilitate equipment selection and promote proper application of the technology.

We welcome suggestions to improve this document. If you identify an error or have an idea about how to improve the usefulness of this document, feel free to contact staff in the Wastewater Management Program at the Washington State Department of Health, Office of Environmental Health and Safety (360-236-3062).

Overview: Conventional, Alternative, and Proprietary Technologies

A conventional on-site sewage system consists of a septic tank and gravity flow or pressure distribution to a gravel-filled drainfield. Any other on-site sewage treatment and/or disposal system is an "alternative" system. Alternative systems are reviewed with the assistance of the Technical Review Committee (TRC) and approved by the Washington State Department of Health (DOH). Upon approval, standards--performance, application, design, and operation and maintenance--and guidance are developed for implementing the specific technology. When standards or guidance exist for a particular type of alternative system, local health officers may issue permits for use of the alternative technology: these documents present the conditions to be met in the use of these sewage treatment and disposal systems.

A notable sub-category of alternative systems is the proprietary device or method. Proprietary devices or methods are those alternative systems or components thereof that are held under patent, trademark, or copyright. Before a local health officer may issue a permit for a proprietary product, it must be approved by the department. he manufacturer must submit information, specifications and performance data to the department for technical evaluation. Upon review and approval, the department lists the device or product on the List of Proprietary Systems and Products. Proprietary devices, products, or methods must be listed on the current list in order for local health officers to issue permits for their installation and use. If a certain manufacturer or product is not listed, or if a listed manufacturer's specific model number is not included on the list, the product IS NOT APPROVED for use in Washington State and may not be permitted by the local health officer.

For questions about specific products not listed, contact the Department of Health at 360-236-3062.

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Descriptions of Alternative Sewage System

Aerobic Treatment Units (ATU's)

Aerobic treatment units provide aerobic biodegradation or decomposition of wastewater by bringing the wastewater in contact with air. These units come in different configurations and sizes, and incorporate a variety of mechanical (and non-mechanical) methods to enhance aerobic biodegradation of wastewater. Included are air pumps, air injectors, and biological-contact surfaces (such as pipes, fabric, grids, and rotating disks).

Typical Applications: site soil that is poor for sewage treatment. Aerobic treatment units are less reliant upon existing original soil for treatment, but still dependent on the soil for disposal of the treated wastewater. High quality pre-treatment performance may allow reduced installed drainfield size to reduce the size and cost of initial installation.

Alternating and Dosing Systems

Dosing System: a system that employs a dose-rest cycle within a conventional gravity system by means of a dosing tank and a dosing device, such as a pump or siphon. The arrangement allows the dosing tank to fill to a predetermined level at which point the dosing device periodically discharges the volume contents to a drainfield or other approved disposal component.

Alternating Drainfields: similar to dosing systems in that dose-rest cycles are provided. However, the rest cycle is long enough for complete drying and oxidation of the clogging layer. The flow from the pretreatment device is intermittently directed into two or more separate drainfields.

Typical Applications: where continuous gravity flow is not feasible or desirable or where pressure distribution design is not used. Can be applied anywhere conventional drainfield design could be used.

Composting Toilets

Composting toilets are designed to store and compost, by aerobic bacterial digestion, human urine and feces, which are non-water-carried. Toilets may include necessary venting, piping, electrical, and/or mechanical components.

Typical Application: where development area is limited. Separating, treating and disposing of grey-water and blackwater separately can have advantages: composting toilets can reduce total wastewater volume by about 50%, and greywater may be treated and disposed of through conventional or alternative means, depending upon site conditions, soil conditions, and scope of development.

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Gravelless Drainfield Systems

A drainfield system using preformed structures or gravel-substitute to provide void space for passage and storage of effluent, and to provide an interface with the exposed infiltrative surface. These are functions performed by gravel in the conventional drainfield. Three types of systems are approved: , gravelless chamber systems, gravelless pipe systems, and gravel-substitute systems. Site, soil, application, design and installation requirements differ for the three system types.

Typical Application: where cost or availability of gravel is a factor. Gravel is heavy and difficult to move by hand, and in some settings, use of large, heavy equipment for gravel placement is destructive to landscape, plantings, etc. Some gravelless materials / systems lend themselves well to root-level irrigation of shrubs, flowers, and trees.
Other applications would be where there is concern about fine materials entrained with gravel, and where there is a desire to access the infiltrative surface for monitoring and maintenance.

Holding Tank Sewage Systems

A water tight tank designed to hold the entire daily operational waste flow (plus reserve capacity) from an institutional or small commercial facility, together with controls, alarms and pump-out features to facilitate easy and reliable pumping of the sewage from the tank. These tanks are usually constructed of pre-cast concrete but may be fiberglass or polyethylene or poured-in-place concrete.

Typical Applications: generally, these options have limited application except for parks, recreational facilities, and temporary or seasonal facility operation, etc… Holding tanks may be useful in other settings depending on need, site limitations, and desired service intervals.

Incineration Toilets

Self-contained devices that reduce non-water-carried human urine and feces to ash and vapor, including the necessary venting, piping, electrical and/or mechanical components. The process is fueled by gas, fuel oil, or electricity.

Typical Applications: where development area is limited. Separating, treating and disposing of grey-water and blackwater separately can have advantages: incineration toilets can reduce total wastewater volume by about 50%, and greywater may be treated and disposed of through conventional or alternative means, depending upon site conditions, soil conditions, and scope of development.

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Mound Systems

These wastewater treatment systems are characterized by sand media (ASTM C-33) placed upon the ground surface, with effluent being treated before discharge from the sand media into the underlying soil. They share the principal attributes of intermittent sand filters except that the media is not contained within a structure. This technology is generally used at sites with shallow soil conditions over a restrictive layer or elevated groundwater table. Proper operation requires influent to be distributed over the media in controlled, discrete doses. In order to achieve accurate dosing, these systems require either a pump or siphon system with associated pump chambers, electrical components and distribution pipe-work. Current Recommended Standards and Guidance require the use of timed dosing of the effluent and timed resting periods.

Typical Applications: where soil on the site is poor for sewage treatment. Mound systems are less reliant upon existing original soil for treatment, but still dependent on the soil for disposal of the treated wastewater.

Proprietary Packed Bed Filters (PBF)

Packed bed filters, are also known as fixed film media units and trickling filters. These wastewater treatment systems are packed with filter media, such as sand, gravel, peat, plastic foam, or geotextile, for the aerobic biological and physical treatment of wastewater constituents. Aeration is achieved by air diffusing through the open voids in the media with oxygen diffusing into the cell mass attached to the media. Some units use a small fan to assist aeration. PBFs come in different configurations and sizes, but incorporate the following common elements: a container for holding the filter medium, the filtering media, a distribution or dosing system for applying the wastewater to be treated to the filtering media, and an underdrain system for removing the treated wastewater. These units can be either intermittently dosed (single-pass) or recirculating (multipass). As the wastewater trickles downward over the media, the bacteria extract the organic matter and use the dissolved oxygen from the wastewater.

Typical Applications: where the site soil is poor for sewage treatment. These systems are less reliant upon existing original soil for treatment; more for disposal of the treated wastewater. High quality pre-treatment performance may allow reduced installed drainfield size, meeting limited area constraints for some sites.

Sand Filters

Wastewater treatment systems characterized by a relatively large container and means for distributing septic tank effluent atop a layer, or layers, of graded sand (or gravel) where, as the wastewater moves downward, it undergoes biochemical degradation. there are many different designs of sand filter, but they can generally be divided into two types: single-pass filters, and multiple-pass filter. The RS&G's for the sand filter technologies address three single-pass sand filters (intermittent, sand-lined drainfield trench, and stratified) and one multiple-pass filter (recirculating gravel filter system).

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Typical Applications: site soil poor for sewage treatment. These systems are less reliant upon existing original soil for treatment; more for disposal of the treated wastewater. High quality pre-treatment performance may allow reduced installed drainfield size, meeting limited area constraints for some sites.

Subsurface Drip Systems

A subsurface drip system is an efficient pressurized wastewater distribution system that can deliver small, precise doses of effluent directly into the soil utilizing a shallow subsurface disposal/reuse field. Drip distribution piping is small diameter, flexible polyethylene tubing (*dripline*) with small in-line *emitters* (orifices that can discharge effluent at slow, controlled rates, usually specified in gallons per hour). Dripline can be installed by hand or machine trenched or inserted with a vibratory plow or proprietary insertion tool directly into the soil and backfilled without gravel or *geotextile*. Drip systems can be designed to distribute either septic tank effluent or more highly treated effluent. All systems require additional filtration (specified by the dripline manufacturer). Drip systems are always installed in "closed-loop" systems with both supply and return manifolds and control valves to facilitate periodic system flushing. Timed dosing is required to maximize capillary movement of effluent away from emitters into the soil.

Dripline must meet requirements outlined in the Department's recommended standards and guidance publication for Subsurface Drip Systems and must also be listed on the most current edition of the Department's List of Approved Systems and Products before it can be permitted for use with SDS. All other SDS components (filters, control valves, air-vacuum relief valves & controllers) must meet specifications of the dripline manufacturer.

Typical Applications: anywhere pressure distribution is required. Useful on sites with shallow, compacted or fine textured soils, on sites with steep slopes, on wooded or irregularly shaped sites. Reuse applications (landscape irrigation); and as distribution component for sand filters / mounds.

Upflow Media Filters

Upflow media filters involve the biological treatment of septic tank effluent as it flows upward through filter media within a containment vessel. Much of the treatment is through attached growth anaerobic processes. Various sizes and types of media can be used either singly or in combination in succeeding layers. The anaerobic phase can be followed by an aerobic phase to produce a high quality effluent.

Typical Applications: where the soil on the site is poor for sewage treatment. These systems are less reliant on existing original soil for treatment, but still dependent on the native soil for final dispersal of the treated wastewater. High quality treatment performance may allow for reductions in the required soil depth for the drainfield, and may allow for a reduction in the size of the installed drainfield.

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Vault and Pit Privies

A non-portable toilet enclosed in a vented outdoor structure. Vault privies have a waste storage chamber that is watertight or installed in impermeable material. Pit privies have a subsurface waste storage chamber that is not watertight.

Typical Applications: generally, these options have limited application except for parks, recreational facilities, and temporary or seasonal facility operation, etc… Holding tanks may be useful in other settings depending on need, site limitations, and desired service intervals.

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List of Approved Systems and Products

The following pages present the current List of Approved Systems and Products for alternative systems. If a certain manufacturer or product is not listed, or if a listed manufacturer's specific model number is not included on the list, the product IS NOT APPROVED for use in Washington State and may not be permitted by the local health officer.

Disclaimer

The manufacturers' contact information is presented here for information purposes only. Product approval and listing does not constitute departmental approval of marketing, advertising or labeling practices employed by a manufacturer, nor does it constitute an endorsement of these products, nor a preference among the manufacturers.

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The presence of a product on this list does not constitute approval of marketing, advertising or labeling practices employed by a manufacturer, nor is it an affirmation of manufacturer claims of product performance. Listing does not constitute endorsement of these products by the Department of Health. Information obtained from the sources listed is the sole responsibility of the manufacturer or other provider

Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Advanced Environmental Systems (AES) Bestep 10..... 500 gpd	Advanced Environmental Systems, Inc. PO Box 89435 Sparks, NV 50356	Tel: (702) 425-0911 Fax: (702) 425-0212 E-mail: Web:
AeroDiffuser ATS-AD-500 (with effluent filter)..... 500 gpd ATS-AD-500S ..... 500 gpd	Zabel Environmental Technology PO Box 1520 6244 Old LaGrange Road Crestwood, KY 40014	Tel: (800) 221-5742 Tel: (502) 992-8200 Fax: (502) 992-8201 E-mail: webmaster@zabelzone.com Web:
Alliance Wastewater Treatment System Alliance 500.....500 gpd	H.E. McGrew, Inc. 2835 Hollywood Avenue Suite 200 Shreveport, LA 71108	Tel: (318) 525-0122 Tel: (888) 746-5172 Fax: (318) 525-0125 E-mail: Web:
Bioclere is now listed under Proprietary Packed Bed Filters		
Biomax Secondary Treatment System K6..... 400 gpd K8 ..... 540 gpd K10..... 680 gpd	Biomax Systems PO Box 2730 Belfair, WA 98528	Tel: (360) 275-3776 Fax: (360) 801-0777 E-mail: Web:

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Cajun Aire CA00500 ..... 500 gpd CA00750 ..... 750 gpd CA001000. ..... 1000 gpd	H.E. McGrew, Inc 2835 Hollywood Avenue Suite 200 Shreveport, LA 71108	Tel: (318) 525-0122 Tel: (888) 746 5172 Fax: (318) 525-0125 E-mail: Web:
Clearstream Wastewater Treatment System *(Without Spinfilter Assembly)* 500N & 500NC..... 500 gpd 600N & 600NC..... 600 gpd 750N & 750NC..... 750 gpd 1000N & 1000NC..... 1000 gpd 1500N & 1500NC..... 1500 gpd *(With – ES1100 Spinfilter Assembly)* 500N & 500NC..... 500 gpd 600N & 600NC..... 600 gpd 750N & 750NC..... 750 gpd 1000N & 1000NC..... 1000 gpd 1500N & 1500NC..... 1500 gpd *These products tested using pretreatment by 250-gallon septic tank.*	Clearstream Wastewater Treatment Systems, Inc. PO Box 7568 Beaumont, TX 77726	Tel: (409) 755-1500 Fax: (409) 755-6500 E-mail: Web: http://www.clearstreamsystems.com

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Clearwater Ecological Systems CWW-450..... 450 gpd CWW-550..... 550 gpd CWW-650..... 650 gpd CWW-750..... 750 gpd CWW-1000..... 1000 gpd CWW-1250..... 1250 gpd CWW-1500..... 1500 gpd CWW-1750..... 1750 gpd CWW-2000..... 2000 gpd CWW-2500..... 2500 gpd CWW-3000..... 3000 gpd CWW-3500..... 3500 gpd *These products tested using pretreatment by 1000-gallon septic tank.*	Clearwater Ecological Systems 3321 SE 20th Portland, OR 97202	Tel: (503) 233-8165 Fax: (503) 233-8231 E-mail: Web:
EnviroServer ENFG 600 ..... 600 gpd ENFG 1200 ..... 1200 gpd ENFG 1500 ..... 1500 gpd	MicroSepTec Inc. 26601 Cabot Road Laguna Hills, CA 92653	Tel: (877) 4SEPTIC Tel: (949) 367-8686 Fax: (949) 367-8655 E-mail: Web: http://www.microseptec.com

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
FAST, Wastewater Treatment Systems MicroFAST 0.5 (Formerly listed under the name 23-001-750)..... 500 gpd MicroFAST 0.75 (Formerly listed under the name Single Home FAST 23-001-1100) ..... 750 gpd MicroFAST 0.9 (Formerly listed under the name Single Home FAST 23-001-1350) ..... 900 gpd MicroFast 1.5 ..... 1500 gpd MicroFast 3.0 ..... 3000 gpd	Bio-Microbics, Inc. 8450 Cole Parkway Shawnee, KS 66227	Tel: (800) 753-3278 Tel: (913) 422-0707 Fax: (913) 422-0808 E-mail: onsite@biomicrobics.com Web: http://www.biomicrobics.com
Five Star 505 Series Rotating Biological Contactor Treatment Systems 505KA ..... 500 gpd 505 KR ..... 600 gpd 505 KI ..... 600 gpd 505-KI-T ..... 1200 gpd 505-KI-Q..... 2400 gpd	Five Star Environmental Systems, Inc. PO Box 1768 Kingston, WA 98346-1768	Tel: (360) 297-3633 Fax: (360) 297-3636 E-mail: fivestar@silverlink.net Web: www.fivestarenviro.com

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Hydro-Action AP500 ..... 500 gpd G-500 ..... 500 gpd G-900 ..... 900 gpd G-1000 ..... 1000 gpd G-1100 ..... 1100 gpd G-1500 ..... 1500 gpd *"G-series"—these products were tested using pretreatment by 250-gallon septic tank.*	Hydro-Action 8645 Broussard Road Beaumont, TX 77713	Tel: (800)-370-3749 Tel: (409) 892-3600 Fax: (409) 246-2481 E-mail: webmaster@hydro-action.com Web: http://www.hydro-action.com
Jet Aeration Home Aerobic Plant J-500 ..... 500 gpd J-750 ..... 750 gpd J-1000 ..... 1000 gpd J-1250 ..... 1250 gpd J-1500 ..... 1500 gpd	Jet, Inc. 750 Alpha Drive Cleveland, OH 44143	Tel: (216) 461-2000 Fax: (216) 442-9008 E-mail: Web:
KEE Process BIODISC Rotating Biological Contactor Systems (Product originally approved under the name "Klargester") BF-1-450 ..... 450 gpd BF-2-700 ..... 700 gpd BF-3-1100 ..... 1100 gpd BF-4-1500 ..... 1500 gpd BF-5-3500 ..... 3500 gpd BC-1-450..... 450 gpd BC-1-500..... 500 gpd BC-1-600..... 600 gpd BC-2-750..... 750 gpd BC-3-1100..... 1100 gpd BC-4-1500..... 1500 gpd BC-4-2500..... 2500 gpd BC-5-3500……..3500 gpd	KEE Process, LTD c/o Waste Water Solutions International, Inc 3238 Old Fence Road Ellicott City, MD 21042	Tel: (410) 480-0272 Fax: (410) 480-0282 E-mail: wwsi@worldnet.att.net Web: http://www.keeprocess.com

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Mighty Mac 5080S..... 500 gpd 5100S ..... 600 gpd 5120S ..... 750 gpd	H.E. McGrew, Inc. 2835 Hollywood Avenue Suite 200 Shreveport, LA 71108	Tel: (318) 525-0122 Tel: (888) 746 5172 Fax: (318) 525-0125 E-mail: Web:
Multi-Flo Waste Treatment Systems FTB-0.5 .....500 gpd FTB-0.6 .....600 gpd FTB-0.75 .....750 gpd FTB-1.0 .....1000 gpd FTB-1.5 .....1500 gpd	Consolidated Treatment Systems 1501 Commerce Ctr. Dr. Franklin, OH 45005	Tel: (937) 746-2727 Fax: (937) 746-1446 E-mail: bennette@consolidatedtreatment.com Web: http://www.consolidatedtreatment.com/
Nayadic Residential Sewage Treatment System M-6A-F/M-6 ..... 500 gpd M-6A-C/M-6AC-F ..... .500 gpd M-8A-F/M-8A..... 600 gpd M-1050-F/M-1050A.... 800 gpd M-1200-F/M-1200A.. 1000 gpd M-2000-F/M-2000A.. 1500 gpd	Consolidated Treatment Systems 1501 Commerce Ctr. Dr. Franklin, OH 45005	Tel: (937) 746-2727 Fax: (937) 746-1446 E-mail: bennette@consolidatedtreatment.com Web: http://www.consolidatedtreatment.com/

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Singular Individual Home Wastewater Treatment System. **(900 series)** 900-500 ..... 500 gpd 900-750 ..... 750 gpd 900-1000 ..... 1000 gpd 900-1250 ..... 1250 gpd 900-1500 ..... 1500 gpd Singular Individual Home Wastewater Treatment System. **(960 series)** 960-500 ..... 500 gpd 960-750 ..... .750 gpd 960-1000 ..... 1000 gpd 960-1250 ..... 1250 gpd 960-1500 ..... 1500 gpd	Norweco Wastewater Equipment Co. 220 Republic Street Norwalk, OH 44857-1196	Tel: (419) 668-4471 Fax: (419) 663-5440 E-mail: webmaster@norweco.com Web: http://www.norweco.com
TRD-1000 TRD-1000-500 ..... 500 gpd TRD-1000-600 ..... 600 gpd TRD-1000-700 ..... 700 gpd TRD-1000-800 ..... 800 gpd TRD-1000-900 ..... 900 gpd TRD-1000-1000 ..... 1000 gpd	Thomas, Inc. On-site Wastewater Treatment Systems 2507 HWY 20 Sedro Woolley, WA 98284	Tel: (360) 856-0550 E-mail: Web:

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Aerobic Treatment Units (ATU's) – Category 1
(Typical Strength Residential)

(7 Pages)

Product Name / Model	Manufacturer Contact Information	
Whitewater Aerobic Treatment Unit DF40-CF ..... 400 gpd DF40-FF..... 400 gpd DF40-CC..... 400 gpd DF50-CF ..... 500 gpd DF50-FF..... 500 gpd DF50-CC..... 500 gpd DF60-CF ..... 600 gpd DF60-FF..... 600 gpd DF60-CC..... 600 gpd DF75-CF ..... 750 gpd DF75-FF..... 750 gpd DF75-CC..... 750 gpd DF100-CF ..... 1000 gpd DF100-FF..... 1000 gpd DF100-CC..... 1000 gpd DF150-CF ..... 1500 gpd DF150-FF..... 1500 gpd DF150-CC..... 1500 gpd	Delta Environmental Products, Inc. 8275 Florida Blvd. PO Box 969 Denham Springs, LA 70726	Tel: (800)-219-9183 Fax: E-mail: desales@deltaenvironmental.com Web: http://www.deltaenvironmental.com
Whitewater Aerobic Treatment Units in combination with the UV "The Disinfector" unit. DF-50 ..... 500 gpd	Delta Environmental Products, Inc. 8275 Florida Blvd. PO Box 969 Denham Springs, LA 70726	Tel: (800)-219-9183 Fax: E-mail: desales@deltaenvironmental.com Web: http://www.deltaenvironmental.com

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Aerobic Treatment Units – Category 2
(High Strength Non-Residential or Commercial)

Product Name / Model	Manufacturer Contact Information	
Nibbler Sewage Treatment System Treatment capacity: .81 lb BOD_5/pod/day Example: 8 pods, 6.5 lbs BOD_5/day Typically 8 pods/unit. Multiple units may be used.	NCS Wastewater Solutions, LLC Northwest Cascade-Stuth PO Box 73399 Puyallup, WA 98373	Tel: (800) 444-2371 Tel: (253) 848-2371 Fax: (253) 840-0877 E-mail: Web: http://www.nwcascade.com/ncsweb/

Aerobic Treatment Units - Category 3
(High-Strength Residential)

Product Name / Model	Manufacturer Contact Information	
Nibbler, Jr. Sewage Treatment System Treatment capacity: 1 lb BOD_5/day Example: 250 gpd, 500 mg/L BOD_5 500 gpd, 250 mg/L BOD_5	NCS Wastewater Solutions, LLC Northwest Cascade-Stuth PO Box 73399 Puyallup, WA 98373	Tel: (800) 444-2371 Tel: (253) 848-2371 Fax: (253) 840-0877 E-mail: Web: http://www.nwcascade.com/ncsweb/

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Composting Toilets

(2 Pages)

Product Name / Model / Loading	Manufacturer Contact Information	
Biolet Composting Toilet XL.....4-person residential UFA.....4-person residential	BioLet USA, Inc. 150 East State Street P.O. Box 548 Newcomerstown, OH 43832 BioLet Canada 6402 9th Line Beeton, ON L0G 1A0	Tel: (US) (800) 5BioLet Tel: (Canada) (800) 6BioLet Fax: (US) (740) 498-4073 Fax: (Canada) (905) 729-2542 E-mail: info@biolet.com Web: http://www.biolet.com/
Carousel Composting Toilet 80-A .....4-person residential	Ecotech 152 Commonwealth Ave. Concord, MA 01742-2943	Tel: (508) 369-3951 Fax: (508) 369-2484 E-mail: Web:
Clivus Multrum Composting Toilet M-12.....80 uses/day M-15.....100 uses/day M-18.....120 uses/day M-22..... 80 uses/day M-25.....100 uses/day M-28.....120 uses/day M-32.....110 uses/day M-35.....180 uses/day	Clivus Multrum, Inc. 15 Union Street Lawrence, MA 01840	Tel: (800) 425-4887 Fax: (508) 557-9658 E-mail: Web:
Composting Toilet System, Inc. CTS-410 ..... 4-person residential CTS-710 ..... 7-person residential CTS-904 .....60 uses/day CTS-914 .....120 uses/day CTS-1010 ..... 10-person residential (75 uses/day)	Composting Toilet Systems, Inc. PO Box 1928 Newport, WA 99156-1928	Tel: (888) 786-4538 Tel: (509) 447-3708 Fax: (509) 447-3708 E-mail: cts@povn.com Web: http://www.comtoilet.com

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Composting Toilets

(2 Pages)

Product Name / Model / Loading	Manufacturer Contact Information	
Envirolet Composting Toilet MS10 (110v) .....6-person residential RS2W110(110v) .. 8-person residential DC12 (12v) ..... 4-person residential RS2W12(12v) ..... 6-person residential Basic Plus (NE).... 2-person residential RS2WNE (NE)..... 4-person residential	Sancor Industries 140-30 Milner Ave Scarborough, Ontario, Canada M1S 3R3	Tel: (800) 387-5126 Tel: (416) 299-4818 Fax: (416) 299-3124 E-mail: info@envirolet.com Web: http://www.envirolet.com
Phoenix Composting Toilet PF-199 .....2-person residential PF-200 .....4-person residential PF-201 ……8-person residential (50 uses/day)	Advanced Composting Systems 195 Meadows Road Whitefish, MT 59937	Tel: (406) 862-3854 Fax: (406) 862-3855 E-mail: Web:
Sun-Mar Composting Toilet X.L. (Excel) ..... 3-person residential Centrex A/F..... 4-person residential Centrex A/F AC/DC..... 3-person residential Centrex Plus A/F..... 5-person residential Centrex Plus A/F AC/DC..... 4-person-residential Compact ..... 1-person residential Ecolet 110..... 1-person residential Ecolet M/RV ..... 1-person residential Excel NE ..... 2-person residential	Sun-Mar Corporation 5035 North Service Road, C9 Burlington, Ontario, Canada L7L 5V2	Tel: (800) 461-2461 Tel: (905) 332-1314 Fax: (905) 332-1315 E-mail: compost@sunmar.com Web: http://www.sun-mar.com

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Gravelless Drainfield Systems / Gravelless Chamber Products

Note: Infiltrative surface area is calculated from outside dimensions. Actual area may be less for some products due to support pads and dimensional variation.
(2 Pages)

Product / Model	Unit Size W / L / H (inches)	Void Space per unit (cu. ft.)	Void Space per linear foot (cu. ft)	Infiltrative Surface per unit (sq. ft.)	Infiltrative Surface per linear foot (sq. ft.)	Manufacturer Contact Information
Bio-Diffuser Plastic Leaching Chamber System						PSA, Inc. 4640 Truman Blvd Hilliard, OH Tel: (800) 821-6710 Fax: (614) 658-0204 E-mail: Web: http://www.ads-pipe.com
Standard (14")	34" x 76" x 14"	14.0	2.25	17.9	2.8	
Low Profile (11")	34" x 76" x 11"	8.5	1.36	17.9	2.8	
Bio 2	12.7" x 86.9" x 11.9"	5.0	0.7	9.0	1.3	
Bio 3	17.7" x 86.9" x 11.9"	8.6	1.2	13.2	1.8	
Cultec Field Panel System						Cultec, Inc. 878 Federal Road Brookfield, CT 06804 Tel: (800) 4CULTEC Tel: (203) 775-4416 Fax: (203) 775-1462 Fax: (203) 775-5887 E-mail: custservice@cultec.com Web: http://www.cultec.com
C1 Field Drain Contactor	12" x 96" x 8.5"	3.4	0.4	8.0	1.0	
C2 Field Drain Contactor	24" x 96" x 8.5"	6.7	0.8	16.0	2.0	
C3 Field Drain Contactor	36" x 96" x 8.5"	10.1	1.3	24.0	3.0	
C4 Field Drain Contactor	48" x 96" x 8.5"	13.4	1.7	32.0	4.0	
Contactor 75	26.5" x 75" x 12.4"	10.0	1.6	13.8	2.2	
Contactor 100	36" x 75" x 12.5"	13.3	2.1	18.8	3.0	
Contactor 125	28" x 78" x 18.0"	16.7	2.7	14.6	2.3	
Recharger 330	52" x 75" x 30.5"	55.6	8.9	27.1	4.3	

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Gravelless Drainfield Systems / Gravelless Chamber Products

Note: Infiltrative surface area is calculated from outside dimensions. Actual area may be less for some products due to support pads and dimensional variation.

(2 Pages)

Product / Model	Unit Size W / L / H (inches)	Void Space per unit (cu. ft.)	Void Space per linear foot (cu. ft)	Infiltrative Surface per unit (sq. ft.)	Infiltrative Surface per linear foot (sq. ft.)	Manufacturer Contact Information
EnviroChamber Leaching System						Hancor, Inc. PO Box 1047 Findlay, OH 45839-1047 Tel: (419) 422-6521 Fax: (419) 424-8300 E-mail: drainage@hancor.com Web: http://www.hancor.com
Standard	34” x 75” x 12”	11.63	1.85	17.7	2.8	
High Capacity	34” x 75” x 17.5”	18.3	2.93	17.7	2.8	
Infiltrator Chamber Leach Field System						Infiltrator Systems, Inc. PO Box 768 Old Saybrook, CT 06475 Tel: (800) 718-2754 Fax: (860) 577-7001 E-mail: info@infiltratorsystems Web: http://www.infiltratorsystems.com
Standard	34” x 75” x 12”	10.3	1.65	17.7	2.8	
High Capacity	34” x 75” x 16”	16.3	2.61	17.7	2.8	
Equalizer 24	15” x 101” x 11”	4.45	0.54	10.5	1.3	
Equalizer 36	22” x 101” x 11”	8.42	1.00	15.4	1.8	

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Gravelless Drainfield Systems / Gravelless Drainfield Pipe Products

(1 Page)

Product / Model	Unit Size OD / L (inches)	Void Space per unit (cu. ft.)	Void Space per linear foot (cu. ft)	Infiltrative Surface per unit (sq. ft.)	Infiltrative Surface per linear foot (sq. ft.)	Manufacturer Contact Information
Goldline GLP Gravelless Leachbed Pipe						Prinsco, Inc. 108 West Highway 7 PO Box 265 Prinsburg, MN 56281 Tel: (800) 992-1725 Tel: (320) 978-4116 Fax: (320) 978-8602 E-mail: info@prinsco.com Web: http://www.prinsco.com
GLP 8	9.5” OD x 120”	4.9	0.49	7.9	0.8	
GLP 9	11.6” OD x 120”	7.3	0.73	9.7	1.0	

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Gravelless Drainfield Systems / Gravel Substitute Products

(1 Page)

Product / Model	Unit Size W / L / H (inches)	Void Space per foot^3 of media (cu. ft)	Void Space per arrangement of units (cu. ft)	Void Space per linear foot of trench (cu. ft)	Infiltrative Surface per arrangement of units (sq. ft.)	Infiltrative Surface per linear foot (sq. ft.)	Manufacturer
EZflow systems							E-Z Drain Co., LLC 3600 Crates Way Building 2, Suite A The Dalles, OR 97058 Tel: (541) 298-4668 Fax: (503) 296-6277 E-mail: alex@ezdrain.com Web: http://www.ezflowlp.com
2003-H	10” x 30” x 120” Horizontal arrangement of three 10” diameter “tubes” in a 30” wide trench.	0.4	7.2	0.72	25	2.5	
2003-T	10” x 24” x 120” Triangular arrangement of three 10” diameter “tubes” in 24” wide trench.	0.4	7.2	0.72	20	2.0	
2012-H	12” x 36” x 120” Horizontal arrangement of three 12” diameter “tubes” in a 36” wide trench.	0.4	10.1	1.01	30	3.0	

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Incineration Toilets

(1 Page)

Product Name / Model / Loading	Manufacturer Contact Information	
Storburn Gas-Fired Incinerator Toilet 60 KP……..Propane……6-8 person 60 KN……..Nat. Gas…...6-8 person	Storburn International, Inc. 47 Copernicus Blvd Unit 3 Brantford, Ontario Canada N3P 1NA	Tel: (800) 876-2286 Tel: (519) 752-8521 Fax: (519) 752-5827 E-mail: storburn@sympatico.ca Web: http://www3.sympatico.ca/storburn
Incinolet – Electric Incinerator Toilet CF…….120 volt……..……4-person TR…….240 volt……..……8-person WB……120/240 volt……..4/8 -person	Research Products/ Blankenship 26 Andjon Dallas, TX 75220	Tel: (800) 527-5551 Tel: (214) 356-4238 Fax: (214) 350-7919 E-mail: sales@Incinolet.com Web: http://www.incinolet.com

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Proprietary Packed Bed Filters – Category 1

(Typical Strength Residential)

(1 Page)

Product Name / Model	Manufacturer Contact Information	
AdvanTex Wastewater Treatment System AX15……..……..400 gpd AX20……..……..500 gpd AX15 – 2……..800 gpd AX20 – 2……1000 gpd AX15 – 3……1200 gpd AX20 – 3……1500 gpd	Orenco Systems Inc. 814 Airway Avenue Sutherlin, Oregon 97479	Tel: (800) 348-9843 Fax: (541) 459-2884 E-mail: bcagle@orenco.com Web: http://www.orenco.com/
Alternating Intermittent Recirculating Reactor- AIRR (Classified as a Recirculating Sand Gravel Filter). Maximum design volume loading rate is 5-gallons/day/ft^2 residential strength.	Spec Industries, Inc 550 Parkson Road Henderson, NV 89015	Tel: (702) 558-4444 Fax: (702) 558-4563 E-mail: Web:
Bioclere #1612 ……..……500 gpd	AWT Environmental, Inc. 241 Duchaine Boulevard New Bedford, Massachusetts 02745-1209	Tel: (508)-998-7577 Fax: (508)-998-7177 Web: http://www.aquapoint.com

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Subsurface Drip System Dripline

Note: All dripline used for wastewater applications must be color-coded (purple or pantone) to identify the non-potable source.

Dripline must meet requirements outlined in the Department's recommended standards and guidance publication for Subsurface Drip Systems and must also be listed on the most current edition of the Department's List of Approved Systems and Products before it can be permitted for use with SDS. All other SDS components (filters, control valves, air-vacuum relief valves & controllers) must meet specifications of the dripline manufacturer.

(1 Page)

Product Name / Model	Manufacturer Contact Information	
Wasteflow PC (pressure compensating type) dripline • 0.55 inch ID; (available in 6, 12 and 24 inch emitter spacing, and with emitter discharge rates 0.53 and 1.03 gallons per hour (GPH)	Geoflow, Inc. 307-N W. Tremont Ave. Charlotte, NC 28203	Tel: (704) 347-3476 (800) 828-3388 Fax: (704) 347-0706 E-mail: rr@geoflow.com Web-site: http://www.geoflow.com
Bioline* (pressure compensating type) dripline • 0.57 inch ID, (available in 12, 18 and 24 inch emitter spacing, and with emitter discharge rates 0.42, 0.62 and 0.92 gallons per hour (GPH) *("Techfilter" disk filter with root inhibitor implanted into replaceable disk cartridge is required and must be specified for use with all Netafim dripline.)	Netafim 5470 E. Home Ave. Fresno, CA 93727	Tel: (888)-NETAFIM Fax: (55)9 453-6803 E-mail: FHarned@Netafimusa.com Web-site: www.netafimusa.com

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Upflow Media Filters

(1 Page)

Product Name / Model	Manufacturer Contact Information	
Glendon BioFilter Treatment System M3 .....240 - 480 gpd* M31 ..... 90 - 500 gpd* *Multiple units, in the same or a variety of sizes, may be used in parallel to accomplish daily design flows to 3,500 gpd.	Glendon BioFilter Technologies, Inc. 25448 Port Gamble Rd Poulsbo, WA 98370	Tel: (360) 297-7066 Fax: (360) 297-8479 E-mail: info@glendon.com Web: http://www.glendon.com

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Vault Toilets

(1 Page)

Product Name / Model / Loading	Manufacturer Contact Information	
CXT Aspen Mark 11 ..... 1000 gal Gunnison ..... 1000 gal Sierra ..... 1000 gal Tioga..... 2000 gal Tioga Special..... 2000 gal Vail..... 1000 gal	CXT, Inc. 3808 North Sullivan Road, Bldg. #7 Spokane, WA 99216	Tel: (800) 696-5766 Tel: (509) 921-8766 Fax: (509) 928-8270 E-mail: Web:
Romtec (750 or 1,000 gallon vaults) SST.....Original Restroom SST.....Traditional Restroom SST.....Aspen Wood Design Single Restroom SST.....Double Restroom Wood Design SST.....Aspen Concrete Single Restroom SST.....Aspen Concrete Double Restroom	Romtec, Inc. 18240 North Bank Road Roseburg, OR 97470	Tel: (541) 496-3541 Fax: (541) 496-0803 E-mail: romtec@rosenet.net Web:
WRS Vault Evaporator System WRS……1180 gal	Biological Mediation Systems PO Box 8248 Fort Collins, CO 80526	Tel: (800)-524-1097 (970)-221-5949 Fax: (970)-221-5748 Web: www.biologicalmediation.com

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Treatment Standard 1 and 2

Overview of Treatment Standards: Applying Performance Standards to Marginal Sites using Alternative On-site Sewage Treatment Systems

To strike a balance between site conditions and development plans, and between public health and environmental protection, the current State Board of Health (SBOH) rules for on-site sewage systems have integrated the concepts of using performance standards and using various types of sewage treatment and disposal systems.

- For sites and development plans consistent with the minimum standards for conventional sewage systems, the rules as presented in Chapter 246-272 WAC are applied.
- For sites where all conditions can be met except for vertical separation, pressure distribution in the drainfield may be substituted for up to 12 inches of vertical separation to retain the balance needed.
- For other more marginal situations, or sites where the desired development raises health protection issues to be addressed by the system designer, the rules employ use of two performance standards: Treatment Standard 1 (TS1) and Treatment Standard 2 (TS2).

Treatment Standards 1 and 2

Standard	Treated effluent from Alternative On-site Sewage Systems must meet (or exceed) these performance standards:		
	BOD_5 (5-day Biochemical Oxygen Demand) Maximum 30-day average (mg BOD / liter Effluent)	TSS (Total Suspended Solids) Maximum 30-day average (mg TSS / liter Effluent)	Fecal Coliform Maximum 30-day geometric mean, (Colonies/100 ml Effluent)
Treatment Standard 1:	**< 10 mg ***	**< 10 mg**	**< 200**
Treatment Standard 2:	**< 10 mg ***	**< 10 mg**	**< 800**

* A 30 day average of less than 8.3 mg /L of carbonaceous biochemical oxygen demand (5-day $CBOD_5$) will be accepted in lieu of the BOD_5 value when data are submitted in the course of NSF Standard No. 40 testing and reporting protocols.

The concept of integrating performance standards with on-site sewage systems management began when the SBOH, in response to legislative action, adopted amendments and additions to Chapter 246-272 WAC. These performance standards, which became effective 11/10/89, only applied to repair and replacement of on-site sewage system failures along marine shorelines. To address lot size and soil limitations often found at these sites, the amendments introduced the concept of TS1 and TS2, and linked the use of systems capable of meeting these standards to address limited vertical and horizontal separation situations. When the State Board of Health revised the on-site sewage system rules on January 1, 1995, this concept was expanded to apply the two performance standards beyond repair of marine shoreline system failures to protect vulnerable waters throughout the state.

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Application of Treatment Standards

Permit Event	System Must Meet Treatment Standard	Applies When & Where:
Repair or Replacement	1 or 2	Horizontal separation to a water supply or surface water cannot meet the standards for new construction.[1]
New Construction or Expansion	2	• Vertical separation is less than 2 feet in Soil Types 1B, 2A & B, and 3-6.[2] • Development where Soil Type 1A exists. [3]

[1] Table VI in the SBOH rules, Chapter 246-272 WAC
[2] Table IV in the SBOH rules, Chapter 246-272 WAC
[3] Table IV in the SBOH rules and Table VII in the SBOH rules, Chapter 246-272 WAC

Treatment Standards 1 and 2 are applied to existing and new sites *indirectly*:

- The Department of Health (DOH) reviews the performance data of alternative on-site sewage treatment systems and identifies those meeting parameters of the two standards. At least annually, DOH prepares a list of these systems and products.

- Certain site conditions determine the need for an on-site sewage system to meet Treatment Standard 1 or 2. Systems and products meeting the performance standards may be used at these conditional sites without further evaluation of the treatment system's performance.

- Appropriate design, installation and inspection, followed by proper operation by the system's owner and routine monitoring and maintenance by qualified service providers support presumption of satisfactory performance.

Treatment Standard 1 and 2 are stringent wastewater treatment standards. Not all systems or products meet the standards.

- Performance results of some systems may qualify them in two, but not all three, of the performance parameters. An example of this exists with the intermittent sand filter. Its performance level meets all the parameters of Treatment Standard 2, but meets only the BOD5 and TSS parameters of Treatment Standard 1. The effluent fecal coliform count exceeds Treatment Standard 1 criteria, and the system, therefore, does not qualify for TS1.

- For some systems or products that have been researched or tested, effluent samples were analyzed for only two, instead of all three of the parameters. An example of this exists with some aerobic treatment units that have been performance-tested according to the National Sanitation Foundation (NSF) Standard No. 40. This testing protocol evaluates products for BOD_5 ($CBOD_5$) and TSS, but not for fecal coliform; thus, only two of the three performance parameters have been tested for. Unless the manufacturer requests sample analysis for fecal coliforms, no comparable test data may exist to evaluate the system for fecal coliform reduction.

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List of Systems Meeting Treatment Standards 1 and/or 2

The tables on the following two pages identify the currently approved sewage treatment systems and products that meet the criteria for Treatment Standard 1 and / or 2. Also listed are systems and products that meet the BOD_5 and TSS parameters but not the fecal coliform parameter of the standards. Local health officers may permit these two-criterion systems and products at marginal sites that would otherwise require Treatment Standards 1 or 2 ***if*** **additional treatment and/or effluent disinfection is provided to address the fecal coliform criteria of either standard.**

Experience with effluent disinfection of small on-site wastewater systems among those working in the on-site sewage system arena in Washington State is limited. Manufacturer product literature and R&D suggest that methods, equipment, and materials are readily available for reliable and effective disinfection of on-site sewage treatment system effluent. Conversely, anecdotal evidence suggests that currently available or chosen methods, equipment, and materials may be failing to meet expectations for reliability and effective disinfection to the levels required by Treatment Standard 1 and 2. In anticipation of nationally developed standards for disinfection equipment, DOH has written the interim document, Recommended Standards and Guidance for Disinfection Methods and Equipment.

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List of Systems Meeting Treatment Standards 1 and/or 2			
Standard	**Performance level**	**Alternative System**	
		Domain Status	**System / Product**
Treatment Standard 1	**Meets or exceeds all parameters of the performance standard**	**Proprietary**	• **Glendon Bio Filter** • **TRD – 1000 Wastewater Treatment System** • **Whitewater Aerobic Treatment Unit DF-50 in combination with the UV "The Disinfector" unit.**
		Public Domain	• **Stratified Sand Filter**
	Meets or exceeds only BOD_5 and TSS parameters of the performance standard. <u>Requires additional treatment to meet pathogen attenuation requirements.</u>	**Proprietary**	• **AdvanTex AX20N Wastewater Treatment System** • **Alternating Intermittent Recirculating Reactor- AIRR** • **Biomax Secondary Treatment System** • **Biomicrobics/FAST Wastewater Treatment System** • **Clearwater Ecological System** • **Clearstream Wastewater System with CS1100 Spin Filter Assembly** • **Multi-Flo Waste Treatment System** • **Nayadic Residential Sewage Treatment System** • **Singulair Bio-Kinetic Wastewater Treatment System – 960 models** • **Whitewater Aerobic Treatment Unit**
		Public Domain	• **Intermittent Sand Filter** • **Recirculating Sand (Gravel) Filter**

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List of Systems Meeting Treatment Standards 1 and/or 2

Standard	Performance level	Alternative System	
		Domain Status	System / Product
Treatment Standard 2	Meets or exceeds all parameters of the performance standard	Proprietary	• Glendon Bio Filter • TRD 1000 Wastewater Treatment System • Whitewater Aerobic Treatment Unit DF-50 in combination with the UV "The Disinfector" unit.
		Public Domain	• Intermittent Sand Filter • Stratified Sand Filter
	Meets or exceeds only BOD_5 and TSS parameters of the performance standard. <u>Requires additional treatment to meet pathogen attenuation requirements.</u>	Proprietary	• AdvanTex AX20N Wastewater Treatment System • Alternating Intermittent Recirculating Reactor- AIRR • Biomax Secondary Treatment System • Biomicrobics/FAST Wastewater Treatment System • Clearwater Ecological System • Clearstream Wastewater System with CS1100 Spin Filter Assembly • Multi-Flo Waste Treatment System • Nayadic Residential Sewage Treatment System • Singulair Bio-Kinetic Wastewater Treatment System – 960 models • Whitewater Aerobic Treatment Unit
		Public Domain	• Recirculating Sand (Gravel) Filter

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Approved Experimental Systems

The Rules and Regulations of the State Board of Health for On-site Sewage Systems (Chapter 246-272 WAC) provide a means for evaluating and demonstrating experimental technologies. The Department of Health (DOH), with input from the Technical Review Committee (TRC), oversees testing and monitoring projects of this type. All experimental systems require DOH and local health officer approval, in that order. To assist local health officers in their review and permit issuance, DOH maintains a list of approved experimental systems. **Only systems so listed may be permitted by local health officers.**

Name of Applicant	System Type	Number of Application Sites		Status	County	Conditions of Approval
Mason	Subsurface Flow Constructed Wetland	1	Single family residence	Approved 9/29/98; state experimental permit expires 12/31/00	**Whatcom**	18 month system monitoring and wastewater sampling period with monthly monitoring and quarterly reporting.
Mesman	Subsurface Flow Constructed Wetland	1	Single family residence	Approved 12/31/98; system installed & monitoring began 10/00	Skagit	18 month system monitoring and wastewater sampling period with monthly monitoring and quarterly reporting.
Morse	Subsurface Drip System	30	Residential sites	Approved 10/29/98 with extension on system installation given to 12/31/00	Thurston, Lewis, Pierce, Grays Harbor, Kitsap, or Mason Counties	18-month system monitoring period with monthly monitoring and quarterly reporting.
Backman	Modified Mound System	30	Residential sites	Approved 8/1/00	Spokane or Tri-County Health	2-year system monitoring period with quarterly monitoring and biannually reporting.

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Approved Wastewater Tanks

Introduction

The following section presents manufacturer and product information for various wastewater tanks. This information is presented in two lists:

- ***Concrete Tanks Approved by Local Health Jurisdictions*** *(statewide, by county)*
  These tanks, approved by local health departments / districts, are acceptable to Department of Health and may be used statewide.

  Please note that some local health jurisdictions do not have a formal process for evaluating wastewater tanks. Designers are advised to check with the local health jurisdiction to confirm which tanks are permitted.

  This list is frequently updated, yet may not contain all tanks in current use in a given county. Local health jurisdictions may add or make corrections to this list by contacting the department.

- ***Concrete Tanks Approved by the Washington State Department of Health***
  This list reflects information about wastewater tank reviews and approvals by the department since January 1, 1995. These tanks may be used statewide.

- ***Non-Concrete Tanks Approved by the Washington State Department of Health****.*
  This list contains tanks constructed with fiberglass or polyethylene. This list reflects information about wastewater tank reviews and approvals by the department since January 1, 1995. These tanks may be used statewide.

Answers to questions regarding wastewater tank standards or information about application for product review and approval may be obtained from Richard Benson, P.E. at (509) 456-6177 or Richard.Benson@doh.wa.gov.

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Adams	M-1 Tanks 440 Rainier view Lane Moses Lake, WA 98837	One…… Two…… Two……	670 (pump) 1,000 (septic) 1,250 (septic)
Asotin-Garfield	Early Bird Supply, Inc 1508 15th Street Clarkston, WA 99403 (509) 758-3333	One…… Two……	1,000 (pump) 1,000
Benton-Franklin	Bert's Excavating PO Box 73 Sunnyside, WA 98944	Two……	1,000
	Pipe, Inc. PO Box 9156 Tacoma, WA 98409	Not Provided	2,100
	Selah Concrete Products 319 West First Street Selah, WA 98942	Two…… Two……	1,000 1,250
	Spokane Wilbert Vault 2215 East Brooklyn Spokane, WA 99217	Not provided Not provided Not provided	1,000 1,250 1,500
	Yakima Cement Products 1202 South First Yakima, WA 98907	Not provided	1,000

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Bremerton-Kitsap (name changed to Kitsap Health District. See "Kitsap"			
Chelan-Douglas	Godbey Red-E-Mix Concrete, Inc 912 SW Ansel Brewster, WA 98812	Two…… Two……	1,000 1,250
	H2 Precast Concrete Products PO Box 3568 Wenatchee, WA 98807	One…… Two…… Two…… Two……	750 (pump) 1500 (septic) 1,000 1,250
	ATTN: John Wood Quality Construction PO Box 39 Wenatchee, WA 98801	Two…… Two……	1,000 1,500
Clallam	Peninsula Septic Tanks 1370 Woodcock Road Sequim, WA 98382 (360) 683-4714	One…… Two…… Two…… Two…… Two……	750 (pump) 1,000 1,250 1,500 2,000
Columbia	Not Provided		
Cowlitz	No Concrete Tanks on list.		
Grant	M-1 Tanks 440 Rainier View Lane Moses Lake, WA 98837	One…… Two…… Two……	670 (pump) 1,000 1,250
Grays Harbor	Atlas Concrete Products, Inc. 19221 Sargent Road Rochester, WA 98579	Two……	1,200 (septic)
	Central Reddi-Mix, Inc. 1419 Bishop Road Chehalis, WA 98532	One…… Two……	750 (pump) 1,150 (septic)

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Grays Harbor (cont'd)	Evergreen Concrete Products 13212 Valley Ave. E Sumner, WA 98390	One…… Two……	750 (pump) 1,100 (septic)
	Northwest Cascade, Inc. 16207 Meridian Road Puyallup, WA 98373	Two……	1,125 (septic)
Island	Berg Vault Company 1671 Cederdale Road Mt. Vernon, WA 98273 (360) 424-4999	Not provided	1,000 1,250 1,750
	Cuz Concrete Products 19521 63rd Avenue NE Arlington, WA 98223 (360) 435-5650	Not provided	1,000 1,250 1,500
	Everett Bros. Construction Co. PO Box 761 Oak Harbor, WA 98277 (360) 675-2727	Not provided	1,000
	Pacific Pre-Cast PO Box 1761 Oak Harbor, WA 98277 (360) 679-0702 (360) 675-9560	Not provided	1,000
	Stanwood Redi-Mix 2431 Larson Road Stanwood, WA 98292 (360) 652-7777	Not provided	1,000 1,200
	Whidbey Island Sand and Gravel PO Box 434 Freeland, WA 98249 (360) 321-6101	Not provided	1,000

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Island (cont'd)	William Crane & Precast PO Box 638 Freeland, WA 98249 (800) 755-5506	Not provided	1,000 1,250
Jefferson	Cotton Ready Mix	One…… Two……	700 (pump) 1,000
Kitsap *(Formerly Bremerton-Kitsap)*	Evergreen Pre-Cast, Inc. P.O. Box 58 Sumner, WA 98390 Phone: (253) 863-6510	One…… One…… Two…… Two…… One……	750 (pump) 1100 (pump) 1100 (septic) 1500 (septic) 1700 (pump)
	Fred Hill Materials P.O. Box 6 Poulsbo, WA 98370 Phone: (360) 779-4431 Contact: Eric Smallbeck	One…… One…… Two…… One…… Two…… One…… Two……	500 (pump) 1100 (pump) 1100 (septic) 1250 (pump) 1250 (septic) 1500 (pump) 1500 (septic)
	Kurt's Precast, Inc. P.O. Box 99 Belfair, WA 98528 Phone: (360) 275-1996 Contact: Kurt	One…… One…… Two…… One…… Two……	500 (pump) 1125 (pump) 1125 (septic) 1500 (pump) 1500 (septic)
	Northwest Cascade P.O. Box 73399 Puyallup, WA 98373 Phone: (800) 444-2371 Contact: JR Inman	One…… One…… Two…… One…… Two……	750 (pump) 1000 (pump) 1000 (septic) 1200 (pump) 1200 (septic)
Kittitas	Evergreen Precast PO Box 58 Sumner, WA 98390 (206) 863-6510	Two…… Two……	1,000 1,500

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Kittitas (cont'd)	ATTN: Larry Haven H2 Precast Concrete Products, Inc PO Box 3568 Wenatchee, WA 98807 (360) 884-6644	Two…… Two……	1,000 1,250
	M-1 Tanks 440 Rainier View Lane Moses Lake, WA 98837 (509) 766-2914	Two……	1,000
	Panhandle Concrete 675 West Dalton Avenue Coeur d'Alene, ID 83814 (208) 667-8179	Two……	1,000
	Selah Concrete Products 319 South First Street Selah, WA 98942 (509) 697-4755	Two…… Two……	1,000 1,250
	Sno-Valley Concrete Products 19401 State Road Monroe, WA 98272 (206) 788-5686	Two……	1,000
	Stuth Company PO Box 950 Maple Valley, WA 98038 (206) 255-3546	Two……	1,000
	Spokane Wilbert Vault Co. 1323 North Cedar Street Spokane, WA 99201-2795 (509) 325-4573	Two…… Two…… Two……	1,000 2,000 2,500
	Yakima Precast, Inc. 1210 South First Street, Suite #104 Yakima, WA 98901 (509) 248-1984	Two……	1,000
Lewis	Atlas Concrete Products 19221 Sargent Road Rochester, WA 98579 (360) 354-3912	Not provided	

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Lewis (cont'd)	Central Reddi Mix, Inc. 305 East Summa Centralia, WA 98531 (360) 736-1131	Not provided	
	Northwest Cascade PO Box 73399 Puyallup, WA 98373	Not provided	
	Roto-Tech 201 Carlisle Coos Bay, OR 97420	Not provided	
Lincoln	Godbey Red-E-Mix Concrete, Inc 912 SW Ansel PO Box 505 Brewster, WA 98812 (509) 689-2415	Two…… Two……	1,000 1,250
	M-1 Tanks 440 Rainier View Lane Moses Lake, WA 98837 (509) 766-2914	Two……	1,000
	Spokane Wilbert Vault Co. 1323 North Cedar Street Spokane, WA 99201-2795 (509) 325-4573	Two…… Two…… Two…… Two…… Three……	1,000 1,500 2,000 2,500 1,500
	White Block Co. 6219 East Trent Spokane, WA 99212 (509) 534-0651	Two…… Two…… Two…… Two…… Three……	1,000 1,500 2,000 2,500 1,500
Mason	Not Provided		

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
NE Tri-County: ***Ferry, Stevens, Pend Oreille)***	Colville Valley Concrete Corp. 1175 East 3rd Colville, WA 99114 (509) 684-2534	One……. Two……. Two……. Two …….. Three……..	1,500 (mono) 500 (mono-pump) (Note: mono" means monolithic pour.) 1,000 (2 piece) 1,000 (mono) 1,500 (mono)
	Godbey Red-E-Mix Concrete, Inc 912 SW Ansel PO Box 505 Brewster, WA 98812 (509) 689-2415	Two…… Two……	1,000 1,250
	Spokane Wilbert Vault Co. 1323 North Cedar Street Spokane, WA 99201-2795 (509) 325-4573	Two…… Two…… Two…… Two…… Three…….	1,000 1,500 2,000 2,500 1,500
	Toner's Sand & Gravel East 4611 Eloika Road Chattaroy, WA 99003 (509) 325-4573	Two……	1,250
	White Block Co. 6219 East Trent Spokane, WA 99212 (509) 534-0651	Two…… Two…… Two…… Two…… Three…….	1,000 1,500 2,000 2,500 1,500
Okanogan	Cascade Concrete Products, Inc. PO Box 2435 Winthrop, WA 98862 (509) 996-2435	One (oval)…….. One (oval)…….. Two (oval)…… Two (rectangle)….. Two (oval)……...	1,000 (pump) 1,250 (pump) 1,000 1,000 1,250
	Godbey Red-E-Mix Concrete, Inc 912 SW Ansel PO Box 505 Brewster, WA 98812 (509) 689-2415	One…… One…… Two…… Two……	1,000 (pump) 1,250 (pump) 1,000 1,250

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List of *County*-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Okanogan (cont'd)	Okanogan Valley Concrete, Inc 2145 Elmway Okanogan, WA 98840 (509) 422-3211	One (round)…….. One (oval)…… One (rectangle)…… Two (oval)…… Two (rectangle)……	500 (pump) 1,000 (pump) 1,250 (pump) 1,000 1,250
	South Okanogan Concrete Products, LTD. Box 419 Osoyoos, B.C Canada VOH 1VO (604) 495-7556	One…… One…… One…… One…… Two…… Two…… Two……	800 (pump) 1,000 (pump) 1,250 (pump) 1,500 (pump) 1,000 1,250 1,500
Pacific	Dennis Company Redi-Mix P.O. Box 891 Ilwaco, WA 98624 TEL: (360) 642-3153	One…… One…… Two……	500 (pump) 1000 (pump) 1000 (septic)
San Juan	Berg Vault Company 1671 Cedardale Road Mt. Vernon, WA 98273 (360) 424-4999	Not provided	
	Cuz Concrete Products 19521 63rd Avenue NE Arlington, WA 98233 (360) 435-5650	Not provided	
	Island Concrete Products 1793-B Cattle Point Road Friday Harbor, WA 98250 (360) 378-5878	Not provided	
	Lopez Sand & Gravel Route 1, Box 2382 Lopez, WA 98261 (360) 468-2320	Not provided	
	Sea Island Sand & Gravel Route 1, Box 81-C Eastsound, WA 98254 (360) 376-4215	Not provided	

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Seattle-King			**Legend for Seattle-King liquid capacity:** **P = Pump tank** **S = Septic tank** **H = Holding tank**
	Campbell's Pre-Cast 11515 120th Street E Puyallup, WA 98373	Two……	890 (**P**) 1,125 (**S,P,H**)
	Cuz Concrete Products 19521 63rd Avenue NE Arlington, WA 98233 (360) 435-5650	Two…… Two…… Two…… Two…… One……	1,000 (**S,P,H**) 1,250 (**S,P,H**) 1,500 (**S,P,H**) 1,750 (S) 1,750 (P)
	Evergreen Precast PO Box 58 Sumner, WA 98390 (206) 863-6510	One…… One…… One…… Two…… One…… Two…… One…… Two……	1,100 (**S,P,H**) 730 (**P**) 1,500 (**P,H**) 1,500 (**S,P,H**) 1,000 (S,P,H) 1,000 (S,P,H) 3,000 (S,P,H) 3,000 (S,H)
	Northwest Cascade PO Box 73399 Puyallup, WA 98373	Two…… One…… Not provided Not provided	1,125 (**S,P,H**) 750 (P) 1,000 (S,P.H) 1,750 (S,P,H)
	Puget Sound Concrete PO Box 436 Carnation, WA 98014	Two……	750 (**P**) 1,000 (**S,P,H**)
	Quality Concrete Products PO Box 1703 Woodinville, WA 98072	Two……	1,000 (**S,P,H**)

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Seattle-King (cont'd)	Sno-Valley Concrete 19401 State Route 203 Monroe, WA 98272	One…….. Two…….	750 (**P**) 1,000 (**S,P,H**)
Skagit	ATTN: Kim & Norman Schultz Berg Vault Company 1671 Cederdale Road PO Box 1205 Mt. Vernon, WA 98273 (360) 424-4999	One…… One……. Two…….	400 (pump) 750 (pump) 1,000
	Concrete Nor'west 1031 Hampton Road Lynden, WA 98264 (360) 364-3243		
	Cuz Concrete Products 19521 63rd Avenue NE Arlington, WA 98233 (360) 435-5650	One…….	1,000
	Everett Brothers Ready-Mix, Inc. 3651 State Hwy 20 Oak Harbor, WA 98277 (206) 657-2727 (206) 675-2215	One…….	1,000
	ATTN: Doug Tacia Pacific Precast PO Box 1761 Oak Harbor, WA 98277 (360) 679-0702 (360) 678-5617	One…… Two……	600 (Pump) 1,000
	Stanwood Redi-Mix 2431 Larson Road Silvana, WA 98287 (360) 652-7886 (360) 652-7777	Two……. Two…… One……	1,000 1,250 120 (pump)

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Snohomish	ATTN: Norman Schultz Berg Vault Company PO Box 1205 1671 Cederdale Road Mt. Vernon, WA 98273 (360) 424-4999	Not Provided	750 (pump) 1,000
	ATTN: Joe Zachry Cuz Concrete Products 19521 63rd Avenue NE Arlington, WA 98233 (360) 435-5650	Not Provided	750 (pump) 1,000 (septic/pump) 1,250 (septic/pump) 1,500 (septic/pump)
	ATTN: Dave Soloman Sno-Valley Concrete Products, Inc. 19401 State Route 203 Monroe, WA 98272	One…… One…… Two……	750 (pump) 1,000 (pump) 1,000 (septic)
	ATTN: Kim Schultz Stanwood Redi-Mix PO Box 68 2431 Larson Road Silvana, WA 98287 (360) 652-7886 (360) 652-7777	One…… Two……	750 (pump) 1,000
	Stuth Company PO Box 950 Maple Valley, WA 98038 (206) 255-3546	Not Provided	750 (pump) 1,000 (septic/pump) 1,750 (septic/pump)
Southwest: ***Clark, Skamania, Klickitat***	Atlas Tanks Distributor: Cuz Concrete Products 19521 63rd Avenue NE Arlington, WA 98233 (360) 435-5650	Two…… Two…… Two……	1,000 1,250 1,500
	D & K 15008 NE 15th Avenue Vancouver, WA 98665 (360) 573-4020	1,000 1,250 1,500	1,000 1,250 1,500

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Southwest: ***Clark, Skamania, Klickitat*** (cont'd)	Home & Farm Concrete 2625 NE Goodwin Road Camas, WA 98607 (360) 696-3789	Two…… Two…… Two……	1,000 1,250 1,500
	Michaels Precast 35125 SE Highway 211 Boring, OR 97009 (541) 668-4073	Two……	1,000
	Rick Murphy S & K Tanks Route 1, Box 1019 Prosser, WA 99350	Two……	1,000
	Riley Brothers Concrete, Inc. PO Box 718 Bingen, WA 98805	Two…… Two……	1,000 1,250
	Sound Redi Mix CRI Engineering 4562 Westside HWY Castle Rock, WA 98661 Tel: (360) 507-4311 Fax: (360) 274-5355	Three……	2,633
	Willamette Greystone, Inc. 2405 NE 244th Ave. Portland, OR 97060 (503) 669-7612	Two…… Two…… Two…… Two…… Two	1,000 1,250 1,500 2,000 3,000
Spokane	Custom Excavating	Two……	1,000
	Newport Concrete	Two……	1,000
	Panhandle Concrete Products	Two……	1,000

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Spokane (cont'd)	ATTN: Scott Erickson Spokane Wilbert Vault Co. 1323 North Cedar Street Spokane, WA 99201-2795 (509) 325-4573	Two…… Two…… Two…… Two…… Three……	1,000 1,500 2,000 2,500 1,500
	ATTN: Larry Toner Toner's Sand & Gravel East 4611 Eloika Road Chattaroy, WA 99003 (509) 325-4573	Two…… Two……	1,000 1,000 (Delzotto)
	White Block Co. 6219 East Trent Spokane, WA 99212 (509) 534-0651	Two…… Two…… Two…… Two…… Three……	1,000 1,500 2,000 2,500 1,500
Tacoma – Pierce	Evergreen Precast PO Box 58 Sumner, WA 98390 (206) 863-6510	One…… One…… One…… One…… Two……	750 1,000 1,500 1,000 1,500
	Northwest Cascade PO Box 73399 Puyallup, WA 98373	One…… One…… One……	1,500 1,000 1,500
	Stuth Company PO Box 950 Maple Valley, WA 98038 (206) 255-3546	Not provided	750 1,000 1,750
	White's Inc. 8914 Villa Beach RD Anderson Island, WA 98303	Two……	1,000

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Thurston	ATTN: Rod Liseth Atlas Concrete Products 19221 Sargent Rochester, WA 98579 (360) 354-3912	One…….. One……..….... One…….. Two…….. Two……..	400 800 1,150 1,150 1,200
	ATTN: Jim Campbell, Jr. Campbell Pre-Cast Concrete PO Box 1522 Graham, WA 98388	Two……	1,000
	ATTN: Tom Brakken Central Redi-Mix 1836-B Carpenter Road NE Olympia, WA 98506	One……... One……... Two……..…. Two……	800 380 1,150 1,200
	Evergreen Pre-Cast PO Box 58 Sumner, WA 98390	Two……...	1,100
	ATTN: Dave Turgeon Northwest Cascade PO Box 73399 Puyallup, WA 98373	Two……... Two…….	1,125 1,150
	Stuth Company, Inc. PO Box 950 Maple Valley, WA 98038 (206) 255-3546	One……... Two…… Nibbler……	750 1,000 1,750
Wahkiakum	Not provided		
Walla Walla	Koncrete Industries 1360 Dell Avenue Walla Walla, WA 99362	Not provided	1,200

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Walla Walla (cont'd)	Rada & Sons 15 East Ice Harbor Drive Pasco, WA 99301	Not provided	1,000 1,600
	Reese Concrete Products 1606 South Ely Kennewick, WA 99337-2899	Not provided	1,000 1,600
	Selah Concrete Products 319 South First Avenue Selah, WA 98942	Not provided	1,000 1,250
Whatcom	Bode's Precast 144 River Road Lynden, WA 98264	Not provided	750 900 1,000 1,250 1,500 500 (pump)
	Vanderveen Precast 8077 Guide Meridian Lynden, WA 98264	Not provided	750 900 1,000 1,250 1,500 500 (pump)
Whitman	Not provided		
Yakima	Bert's Precast Septic Tanks 1506 Sunnyside-Mabton Road Sunnyside, WA 98944 Tel: (509) 837-2117 Fax: (509) 837-6282	One…….. Two…… Three…….	1,000 gallons 1,250 gallons 1,500 gallons 1,000 gallons 1,250 gallons 1,500 gallons 1,500 gallons
	Ground Level Construction 400 East Selah Road Yakima, WA 98901 (509) 575-1668	Not provided	

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List of County-Approved Concrete Septic Tanks and Pump Chambers

County	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Yakima (cont'd)	Quick's Concrete Finishing 181 Quick Lane Zillah, WA 98953 (509) 865-4269 (509) 865-2710	Not provided	
	Selah Concrete Products 319 South First Avenue Selah, WA 98942 (509) 697-4755	Not provided	
	Spokane Wilbert Vault Co. 1323 North Cedar Street Spokane, WA 99201-2795 (509) 325-4573	Not provided	
	Valley Septic Services 903 Ahtanum Road Union Gap, WA 98903 Tel: (509) 248-6810 Fax: (509) 248-1608	Two……	1,000 gallons 1,250 gallons
	Yakima Precast, Inc. 1210 South First Street Yakima, WA 98901 (509) 248-1984	Not provided	

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Concrete Tanks Approved by the Washington State Department of Health

These tanks may be used statewide. This list consists of concrete wastewater tanks that have been reviewed and approved by DOH since January 1, 1995.

List of *State*-Approved Concrete Septic Tanks and Pump Chambers

(1 pages)

Manufacturers	Number of Compart-ments	Liquid Capacity (gallons)
Evergreen Pre-Cast, Inc. PO Box 58 Sumner, WA 98390	One……. Two……..	3000 3000
Sound Ready-Mix of Castle Rock, WA 4562 Westside Highway Castle Rock, WA 98611	Three……	2633
Utility Vault Company PO Box 588 Auburn, WA 98071-0588 1-800-892-1538 (253) 839-3500 Approved with conditions.....for details, please contact the Large Onsite Sewage System (LOSS) office in Spokane at (509) 456-4431.	**Model 818-8……..** **2-compartment** **Model 818-9 …….** **1-compartment**	**7,200-gal. septic tank** **8,400-gal. pump tank**

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List of *State*-Approved Non-Concrete Septic Tanks and Pump Chambers

(2 pages)

Description	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Fiberglass	Fiber Septic Systems, Inc. Ninth and Harris Bellingham, WA 98225 (360) 733-6248	Two…….	1,000 gallons 1,250 gallons (June 1992)
	Fextex Systems, Inc. 732 North 16th AVE Suite 21 Yakima WA 98902 (509) 965-8437	One, two or three……. One, two or three……. One, two or three……. One, two or three……. One, two or three……. One, two or three……. One, two or three……. One, two or three…….	3,000 4,000 6,000 8,000 10,000 12,000 15,000 20,000
	ATTBAR, Inc. 5985 South 6th Way Ridgefield, WA 98642 (888) 887-3581	One or Two……. Two……	1000 1500
	Orenco Systems, Inc. 814 Airway Avenue Sutherlin, OR 97479 (800) 348-9843 (541) 459-4449 FAX (541) 459-2884 www.orenco.com	One……. One or Two…… Two……..	750 1000 1500
	Western Industrial Laminations, LTD. 301 - 19837 Telegraph Trail Langley, BC CANADA V3A 4P8 (604) 986-8070	Two…….	1,000 gallons 1,250 gallons 1,500 gallons 1,800 gallons 2,000 gallons

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List of *State*-Approved Non-Concrete Septic Tanks and Pump Chambers

(2 pages)

Description	Manufacturers	Number of Compartments	Liquid Capacity (gallons)
Polyethylene	NORWESCO PO Box 439 St. Bonifacius, MN 55375-0439	Two…….	1,000 gallons 1,250 gallons 1,500 gallons (March 1992)
	Premier Plastics, Ltd. 8328 River Way Delta, B.C. CANADA V4G 1C4 Tel: (800) 661-4473 (Canada ___and USA) Tel: (604) 952-6686 Fax: (604) 952-6696 www.premierplastics.com	One…… (Model PCU 760 "Saturna")	760 gallons
		Two……. (Model STSU 1000)	1,000 gallons (July 1995)
	Roto Tech Industries 201 Carlisle Coos Bay, OR 97420 (541) 267-4804		1,250 gallons (Sep. 1991) 1,000 gallons (Feb. 1992)

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