

**UINTA COUNTY REGULATIONS
FOR A SMALL WASTEWATER FACILITY PERMIT
TO CONSTRUCT, INSTALL, OR MODIFY
AND
DEPARTMENT OF ENVIROMENTAL QUALITY
CHAPTER 25
SEPTIC TANKS, SOIL ABSORPTION SYSTEMS
AND OTHER SMALL WASTEWATER SYSTEMS**

**Prepared by
Uinta County Planning Department**

**June 1985
Amended December 2016**

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Uinta County Small Wastewater System Regulations

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Department of Environmental Quality Small Wastewater System Design Standards
Chapter 25

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UINTA COUNTY REGULATIONS FOR A PERMIT TO CONSTRUCT, INSTALL, OR MODIFY SMALL WASTEWATER FACILITIES

Amended December 2016

Section 1. Authority.

This rule and regulation is promulgated pursuant to the Wyoming Environmental Quality Act, (W.S.) 35-11-101 through 35-11-1904m specifically 35-11-302(a)(iii). And (W.S.) 35-11-301 specifically stipulates that no person, except when permit authorized, shall: construct, install, modify, or operate any small wastewater facility. (W.S.) 35-11-304 stipulates that to the extent requested, authority to enforce and administer (W.S.) 35-11-301 (a)(iii) shall be delegated to qualifying municipalities, water and sewer district or counties.

Section 2. Purpose.

The purpose of these regulations are to prevent, reduce and eliminate pollution and enhance the waters of the State of Wyoming and to protect the health, safety and welfare of the environment and its inhabitants by ensuring that the design and construction of the small wastewater systems meets the purpose of the Environmental Quality Act. These regulations shall apply to all small wastewater systems as defined in Chapter 25, Section 4 of these regulations within Uinta County, Wyoming.

Section 3. Intent.

The intent of these design and construction standards included in these regulations is directed toward conventional small wastewater systems. These standards impose limiting values of design for which a construction, installation or modification permit application and plans and specifications can be evaluated by Uinta County, Wyoming. The terms "shall" and "must" are used when practice is sufficiently standardized to permit specific delineation of requirements or when safeguarding public health or protection of water quality justifies such definite action. Other terms, such as "should" "recommended" and "preferred" indicate desirable procedures or methods which allow deviations provided the purpose of these regulations can be accomplished.

Section 4. Objective.

This Chapter 25 contains the minimum standards for the design and construction of small wastewater systems that are defined by (W.S.) 35-11-103 (c)(ix). In addition, this Chapter contains the minimum standards for the design and construction of Underground Injection Control (UIC) Class V facilities 5C1-5C3, 5C6, 5D1, 5E1, 5E3-5E5 as defined in Chapter 27, Appendices C and D.

The following situations will require the application package to be sealed, signed, and dated by a professional engineer (PE): non-domestic wastewater from commercial and industrial facilities, high strength wastewater, individual permits to construct, or standard soil absorption systems with a soil percolation rate that is either less than 5 minutes per inch (mpi) or more than 60 minutes per inch (mpi).

These standards pertain to permits required pursuant to Chapters 3 and 25, Wyoming Water Quality Rules and Regulations. The installation of all components of a small wastewater system require a permit to construct. Permits to construct are specified throughout this chapter as general permits, described in Chapter 3, Section 7; permit by rule, described in Chapter 3, Section 8; or as individual permits to construct, described in Chapter 3, Section 6.

Section 5. Timing of Compliance with These Regulations.

Any Chapter 3 permit-to-construct issued for facilities subject to this chapter prior to the effective date of these regulations, and any facility authorized under the Division's "General Permit to Construct, Install, Modify or Operate a Small Wastewater Facility" shall remain covered under those permits. New construction or modification of existing facilities following the effective date of this regulation must obtain authorization under a new permit.

Section 6. Prohibitions.

No person, company, corporation or other legal entity shall, except when authorized by permit issued to these regulations:

- a. Engage in or allow the construction, installation, operation, or modification or any small wastewater system.

- b. Engage in or allow the construction, installation , operation or modification of any small wastewater system in non-compliance with the terms and conditions of an issued permit;
- c. Engage in or allow the construction, installation, operation, or modification of any small wastewater system with a permit that has expired or has been suspended or revoked.
- d. Discharge wastes into any small wastewater system which is inconsistent with the type and or quantity of wastes for which the facility is designed.

Section 7. Permit Required; Control of Construction, Installation and Modification Permits; Responsibility on Issued Permits; Exemptions.

- a. Construction, installation, or modification of small wastewater facilities shall be allowed only in accordance with the terms and conditions of permits issued pursuant to the provisions of these regulations.
- b. No construction, installation or modification of a small wastewater system shall be allowed unless a permit to construct, install or modify has been obtained from Uinta County, Wyoming.
- c. The issuance of a permit to construct does not relieve the permittee of its responsibility to properly plan, design, construct, operate and maintain the facility described in the application and permit conditions.

Section 8. Application Requirements.

The following procedures will be followed in applying for a permit:

- a. Any person who proposes to construct, install or modify a facility required to be permitted under Section 6 shall submit a written application on forms provided by the Uinta County Engineering and Planning Department.
- b. All plans and specifications must conform to common engineering practices and include the following:
 - (1) Plans for small wastewater systems shall contain the following:
 - (a) A title showing the name of the owner and the location of the project; a north arrow and drawing scale; and the name and seal or signature of the designing engineer (except on the plans for a single residential unit designed by the owner).
 - (b) Datum used shall be indicated.
 - (c) A site plans showing topography of the site, boundaries of the project and property nearby wells and waterlines, waterways, buildings, septic tank and drain field, including all dimensions and isolation distances.
 - (d) Detailed drawings both plan and cross-section of septic tank and disposal field.
 - (e) Location of percolation test holes and soil test pit(s).
 - (f) Percolation test data.
 - (2) Specifications for small wastewater systems shall include the following:
 - (a) The identification of the type, size and strength of construction materials.
 - (b) The type, size, strength, operating characteristics, rating or requirements and installation procedures for all mechanical and electrical equipment.
 - (c) All the plans and specifications must conform to the minimum design standards identified in Chapter 25, Sections 1 through 19.

Section 9. Application Processing Procedures.

All permit applications received will be processed in the following manner:

- a. The Uinta County Engineering and Planning Department shall review each application and take final action within 14 days from the date the application is received.
- b. Incomplete applications will not be processed. The Uinta County Engineering and Planning Department shall promptly notify the applicant of the deficiencies in the submitted permit application package.
- c. All plans and specifications must meet or exceed minimum design standards and these regulations.
- d. Applications for a modification of an existing permitted facility to increase the capability to treat, hold, or dispose of wastes may be approved requiring only the modification needed to meet the minimum design standards. Facilities not in compliance with these regulations will require additional modifications to other portions of the facility to bring the facility into compliance with these regulations.
- e. Each application must be submitted with all supporting data necessary for review. Processing of the application with respect to recommendations or required changes will be done in accordance with the provisions of applicable statutes, rules and regulations.
- f. The Uinta County Engineering and Planning Department shall promptly notify the applicant of the final action taken on the application. If the conditions of the permit are different from the proposed application submitted by the applicant for review, the notification shall include reasons for the changes made.
- g. If, upon review of an application, the Uinta County Engineering and Planning Department determines that a permit should not be granted, the Uinta County Engineering and Planning Department shall notify the applicant the permit denial and state the reasons for denial.
- h. If the applicant is dissatisfied with the permit conditions or denial of any permit issued by the Uinta County Engineering and Planning Department, he may request a hearing in accordance with Section 13.c.

Section 10. Construction and operation in Compliance with Issued Permit.

The permittee shall:

- a. Conduct all construction, installation, or modification of any facility permitted consistent with the terms and conditions of the permit. Unauthorized changes, deviations or modifications will be a violation of the permit. A new application or amended application must be filed with the Uinta County Engineering and Planning Department to obtain modification of a permit. No modification shall be implemented until a new or modified permit has been issued or a waiver given pursuant to subsection b.
- b. Requests for authorization to utilize materials and/or procedures different from those specified in the terms of the issued permit. Such requests shall be directed to the Uinta County Engineering and Planning Department. A waiver may be granted if materials and/or procedures specified in the permit cannot be obtained or accomplished and alternative materials and procedures meet minimum standards. In order to prevent undue delay during construction, the Uinta County Engineering and Planning Department may grant a waiver orally, upon oral request, provided that this oral request is followed by a written request within five days. Any changes shall be noted on the permit.
- c. Conduct the operation in accordance with statements, representations, and procedures presented in the complete application and supporting documents, as accepted and authorized by the Uinta County Engineering and Planning Department.

- d. Notify the Uinta County Engineering and Planning Department at least 24 hours prior to backfilling of system. The Uinta County Engineering and Planning Department will perform a final inspection of the installation to insure compliance with these regulations. The compliance section of the permit will then be signed. If the applicant does not notify Uinta County Engineering and Planning Department the following actions may be taken as required by the Uinta County Engineering and Planning Department.
 - (1) digging up the system to show compliance with these regulations,
 - (2) revocation of the permit,
 - (3) legal action, or
 - (4) all of the above.

Section 11. Duration and Termination of Permits; Transfer of Permits

- a. The duration of construction, installation or modification permits will be variable, but shall not exceed one year from the date of issuance. The expiration date will be recorded on each permit issued. Those permits issued without a specified expiration date will be in force no more than one year from date of issuance.
- b. Permits will be issued to the official applicant of record, who must be the owner of the permitted facility or his agent. If the permit contains any special condition, the owner must sign the permit indicating his acceptance of the conditions. The permit shall be automatically terminated upon one of the following:
- c.
 - (1) Within 60 days after sale or exchange of the facility unless application for transfer is received pursuant to subsection c of this section.
 - (2) When construction is completed. Except that conditions included in the permit will remain in effect throughout the life of the facility.
 - (3) Upon issuance of a new, renewed or modified permit.
 - (4) Upon written request of the permittee.
 - (5) Expiration date of the permit.
- c. Permits shall be transferred to new owners by the submittal of a written request to the Uinta County Engineering and Planning Department. The Uinta County Engineering and Planning Department shall act within 30 days after receipt of the request.
- d. Any conditions established in a construction, installation or modification permit will be automatically transferred to the new owner whenever a transfer of ownership of the facility occurs.

Section 12. Renewal of a Permit.

A permit may be renewed where construction has not been completed by contacting the Uinta County Engineering and Planning Department stating that there will not be any changes in the plans for construction, installation, or modification of a permitted facility no less than 30 days prior to the expiration date of the permit.

Section 13. Denial of a Permit.

- a. The Uinta County Engineering and Planning Department may deny a permit for any of the following reasons:
 - (1) The application is incomplete or does not meet applicable minimum design and construction standards as specified in these regulations.
 - (2) The project, if constructed, will cause violation of applicable state surface or groundwater standards;
 - (3) The project does not comply with applicable state and local water quality management plans as specified in Section 16 of these regulations.
 - (4) No new small wastewater system shall be approved for a building to which connections to be sanitary sewer is cost effective, and the connection is allowed by the controlling authority for the sanitary sewer.

- b. If the Uinta County Engineering and Planning Department proposes to deny issuance of a permit, the applicant shall be notified of the intent to deny and the reason for denial.
- c. In the case of the denial or conditioning of a permit by the Uinta County Engineering and Planning Department, the applicant, if he so desires, may request a hearing before the Uinta County Board of Commissioners. A request for hearing shall be made in writing by the applicant within 20 days of notification of the denial to the Uinta County Board of Commissioners and shall state the grounds for the request. Any hearing shall be conducted pursuant to the regulations of Uinta County. The Uinta Board of Commissioners may not issue a waiver from the design standards of these regulations.

Section 14. Modification of a Permit.

Either before construction is completed upon a permitted small wastewater system, or during the review of a proposed facility application, the Uinta County Engineering and Planning Department may, for good cause, modify a construction permit.

- a. When reviewing an application or before construction on a facility is completed, the Uinta County Engineering and Planning Department may modify a permit due to the following reasons:
 - (1) existing, unknown or changing site conditions which would prevent construction and resultant operation from complying with these regulations; or
 - (2) receipt of additional information; or
 - (3) any other reason necessary to effectuate applicable statutes, standards or regulations.
- b. The Uinta County Engineering and Planning Department shall notify the permittee by registered or certified mail of intent to modify the permit.
- c. Such notification shall include the proposed modification and the reasons for modification and time frame to have modifications constructed, installed or operational. Modification requirements shall be implemented before construction, installation, or modification of a facility is completed.
- d. The modification shall become final within 20 days from the date of such notice unless within that time the permittee requests a hearing before the Uinta County Board of Commissioners. Such request for hearing shall be made in writing by the applicant to the Uinta County Board of Commissioners and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of Uinta County.
- e. A copy of the modified permit shall be forwarded to the permittee as soon as the modification becomes effective.

Section 15. Suspension or Revocation of a Permit.

The Uinta County Engineering and Planning Department may suspend or revoke a permit before construction, installation or modification of a facility is completed for the reasons set forth below, in item b.

- a. Before a permit may be suspended or revoked, the permittee shall be given an opportunity to show compliance with all lawful requirements for the retention of the permit.
- b. The Uinta County Engineering and Planning Department shall notify the permittee of its intent to suspend or revoke the permit in the event that it becomes necessary due to:
 - (1) non-compliance with the terms of the permit; or
 - (2) unapproved modifications in design or construction; or
 - (3) false information submitted in the application; or
 - (4) changing site conditions which would result in violations of applicable regulations;
 - (5) non-compliance with any requirements of these regulations; or
 - (6) any other reason necessary to effectuate applicable statutes, standards or regulations.

- c. The notification shall include the reasons for suspension or revocation.
- d. The suspension or revocation shall become final 20 days from the date of such notice unless within that time the permittee requests a hearing before the Uinta County Board of Commissioners. Such a request for hearing shall be made in writing by the applicant to the Uinta County Board of Commissioners and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the applicable regulations.

Section 16. Compliance With State and Local Water Quality Management Plans.

No permit may be issued for any facility which is in conflict with an approved water quality management plan prepared under Sections 303,208 and/or 201 of the Federal Clean Water Act, as amended.

Section 17. Facilities and systems not specifically covered by these standards.

This section is provided to encourage new technology and equipment and provide a process for evaluation and permitting of designs which deviate from these regulations. The construction of innovative facilities and processes not in compliance with these regulations will be permitted provided that the facility, when constructed, can operate meeting the purpose of these regulations.

- a. Each application for a permit to construct a facility not in compliance with these regulations shall be evaluated jointly by the Uinta County Engineering and Planning Department and the Department of Environmental Quality, Water Quality Division on a case-by-case basis using the best available technology. The following information should be included with the application:
 - (1) Data obtained from a full scale, comparable installation which demonstrates the acceptability of the design and/or,
 - (2) Data obtained from a pilot plant operated under the design condition for a sufficient length of time to demonstrate the acceptability of the design and/or,
 - (3) Data obtained from a theoretical evaluation of the design which demonstrates a reasonable probability of the facility meeting the design objectives; and
 - (4) An evaluation of the flexibility of making corrective changes to the constructed facility in the event it does not function as planned.
- b. If an applicant wishes to construct a pilot plant to provide the data necessary to show the design will meet the purpose of the act, a permit to construct must be obtained.

CHAPTER 25

SEPTIC TANKS, SOIL ABSORPTION SYSTEMS, AND OTHER SMALL WASTEWATER SYSTEMS

Section 1. Authority.

This rule is promulgated pursuant to Wyoming Statutes (W.S.) 35-11-101 through 35-11-1904, specifically 35-11-302(a)(iii).

Section 2. Objective.

This Chapter contains the minimum standards for the design and construction of small wastewater systems that are defined by W.S. 35-11-103(c)(ix). In addition, this Chapter contains the minimum standards for the design and construction of Underground Injection Control (UIC) Class V facilities 5C1-5C3, 5C6, 5D1, 5E1, 5E3-5E5 as defined in Chapter 27, Appendices C and D.

The following situations will require the application package to be sealed, signed, and dated by a professional engineer (PE): non-domestic wastewater from commercial and industrial facilities, high strength wastewater, individual permits to construct, or standard soil absorption systems with a soil percolation rate that is either less than 5 minutes per inch (mpi) or more than 60 minutes per inch (mpi).

These standards pertain to permits required pursuant to Chapters 3 and 25, Wyoming Water Quality Rules and Regulations. The installation of all components of a small wastewater system require a permit to construct. Permits to construct are specified throughout this chapter as general permits, described in Chapter 3, Section 7; permit by rule, described in Chapter 3, Section 8; or as individual permits to construct, described in Chapter 3, Section 6.

Section 3. Timing of Compliance with These Regulations.

Any Chapter 3 permit-to-construct issued for facilities subject to this chapter prior to the effective date of these regulations, and any facility authorized under the Division's "General Permit to Construct, Install, Modify or Operate a Small Wastewater Facility" shall remain covered under those permits. New construction or modification of existing facilities following the effective date of this regulation must obtain authorization under a new permit.

Section 4. Definitions

(a) "100 year floodplain" means a tract of land throughout a watershed that has a one- in-one hundred chance or occurrence of flooding in any given year or a return period of once every 100 years , as determined by the United States Geological Survey (USGS), Federal Emergency Management Agency (FEMA) or a local planning and development authority.

(b) "Absorption surface" means the interface where treated effluent infiltrates into native or fill soil.

(c) "Bed" means a soil treatment and dispersal system where the width is greater than three (3) feet.

(d) "Bedrock" means geological layers, of which greater than fifty percent (50%) by volume consist of unweathered in-place consolidated rock or rock fragments. Bedrock also means weathered in-place rock that cannot be hand augered or penetrated with a knife blade.

(e) "Bedroom" means any room that is or may be used for sleeping.

(f) "Blackwater" means water containing fecal matter and/or urine.

- (g) **“Five day biochemical oxygen demand (BOD5)”** means a measurement of the dissolved oxygen used by microorganisms in the biochemical oxidation of organic matter during a five (5) day period.
- (h) **“Building sewer”** means the pipe that carries wastewater from the building.
- (i) **“Chamber”** means a domed open bottom structure that is used in lieu of perforated distribution pipe and gravel media.
- (j) **“Delegated small wastewater program”** means a local governmental entity, delegated by the Administrator, with the authority to administer the provisions of W.S. 35-11- 301(a) (iii) for small wastewater systems pursuant to the provisions of W.S. 35-11-304.
- (k) **“Direct human consumption food crops”** are crops consumed directly by humans. These include but are not limited to fruits, vegetables, and grains grown for human consumption.
- (l) **“Domestic wastewater”** means a combination of the liquid or water-carried wastes from residences, business buildings, institutions, and other establishments arising from normal living activities.
- (m) **“Domestic septage”** means liquid or solid material removed from a waste treatment vessel that has received only wastes from residences, business buildings, institutions, and other establishments arising from normal living activities.
- (n) **“Dosing tank”** means a tank equipped with an automatic siphon or pump designed to discharge effluent on an intermittent basis.
- (o) **“Effluent”** means liquid flowing out of a septic tank, other treatment vessel, or system.
- (p) **“Effluent filter”** means a removable, cleanable device inserted into the outlet piping of a septic tank or other treatment vessel designed to trap solids that would otherwise be transported to the soil absorption system or other downstream treatment components.
- (q) **“Evapotranspiration”** means the combined loss of water from soil by evaporation from the soil or water surface and by transpiration from plants.
- (r) **“Greywater”** means untreated wastewater that has not been contaminated by any toilet discharge; that is unaffected by infectious, contaminated, or unhealthy bodily wastes; and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. “Greywater” includes but is not limited to wastewater from bathtubs, showers, washbasins, clothes washing machines (unless soiled diapers are serviced), laundry tubs, and kitchen sinks.
- (s) **“Grease interceptor”** means a device designed to separate fats, oils, and grease from wastewater.
- (t) **“Groundwater”** means subsurface water that fills available openings in rock or soil materials such that they may be considered water saturated under hydrostatic pressure.
- (u) **“High groundwater”** means seasonally or periodically elevated levels of groundwater.
- (v) **“High strength wastewater”** means a wastewater stream with a BOD5 higher than 200 mg/L.
- (w) **“Holding tank”** means a watertight receptacle designed to receive and store wastewater.
- (x) **“Manifold”** means a non-perforated pipe that distributes effluent to individual distribution pipes.

(y) **“Mound system”** means an onsite wastewater system where any part of the absorption surface is above the elevation of the existing site grade and the absorption surface is contained in a mounded fill body above the grade.

(z) **“Mulch basin”** means an excavated area that has been refilled with a highly permeable media, organic and inorganic materials intended to distribute greywater to irrigate vegetation.

(aa) **“Pathogens”** are disease-causing organisms. These include, but are not limited to certain bacteria, protozoa, viruses, and viable helminth ova.

(bb) **“Percolation rate”** means the time expressed in minutes per inch required for water to seep into saturated soil at a constant rate.

(cc) **“Pipe invert”** means the bottom of the internal surface of the pipe.

(dd) **“Percolation test”** means the method used to measure the percolation rate of water into soil as described in Appendix A.

(ee) **“Permit by rule”** means an authorization included in these rules that does not require either an individual permit or a general permit. A facility that is permitted by rule must meet the requirements found in this chapter, but is not required to apply for and obtain a permit to construct and operate the facility.

(ff) **“Pressure distribution”** means a network of pipes in which effluent is forced through orifices under pressure.

(gg) **“Restrictive layer”** means a nearly continuous layer that has one or more physical or chemical properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide unfavorable root conditions. Examples are bedrock, cemented layers, and dense layers.

(hh) **“Septage”** means liquid or solid material removed from a waste treatment vessel that has received wastes from residences, business buildings, institutions, and other establishments.

(ii) **“Septic tank”** means a watertight tank designed and constructed to receive and treat raw wastewater

(jj) **“Serial distribution”** means a group of trenches arranged so that the total effective absorption area of one trench is used before liquid flows into the next trench.

(kk) **“Service provider”** means a person authorized and trained by a system manufacturer or their vendor to operate and maintain any proprietary system.

(ll) **“Soil absorption system”** means a shallow, covered, excavation surface, or mound made in unsaturated soil into which wastewater effluent from the septic tank is discharged through distribution piping for application onto absorption surfaces through porous media or manufactured components.

(mm) **“Trench”** means an absorption surface with a width of three (3) feet or less.

Section 5. Design Flows.

The volume of wastewater shall be determined by one of the following:

(a) Tables 1 and 2 provided in this section.

- (b) Metered water supply data from the facility.
- (c) Metered water supply data from another facility where similar water demands have been demonstrated.

Table 1. Residential Design Flow Rates per Bedroom (gallons per day, gpd)¹

1 bedroom	150
2 bedrooms	280
3 bedrooms	390
4 bedrooms	470
5 bedrooms	550
6 bedrooms	630

¹An unfinished basement is considered two (2) additional bedrooms.

²The design flow shall be increased by eighty (80) gpd for each additional bedroom over six (6).

Table 2. Non-Residential Wastewater Design Flow Rates¹

Facility	Unit	Flow (gallons/unit/day)
Airports	person	4
Apartment	bedroom	120
Automobile Service Station	vehicle served	10
Bars	seat	20
Bathhouses and swimming pools	person	10
Campgrounds (w/ toilets only)	person	25
Campgrounds (w/shower facility)	person	45
Church	person	4
Country Club	member	25
Day School, Office Building, Retail Store, Warehouse (no showers)	person	15
Hospital	bed	250
Industrial Building (sanitary waste only)	employee	20
Laundry (self-service)	machine	450
Mobile Home	bedroom	see table 1
Motel, Hotel, Resort	bedroom	140
Recreational Vehicle	each	100
Rest Home, Care Facility, Boarding School	bed	100
Restaurant	meal	10
Restaurant (kitchen waste only)	meal	6
Theater	seat	3

¹Values shown in the above table are the typical flow rates from *Wastewater Engineering Treatment and Reuse*, Metcalf and Eddy, 2003.

Section 6. Systems Not Specifically Covered by This Rule.

This section is provided to encourage new technology and equipment and provide a process for evaluating and permitting designs that deviate from this rule. The proposed construction of facilities and processes not in compliance with this rule may be permitted provided that the facility, when constructed and operated, meets the objective of these rules.

(a) Each application for a permit to construct shall include an engineering design report, detailed construction plans, and technical specifications for all piping, tanks, and equipment. All of the documents shall have a suitable title showing the owner's name and the Wyoming registration number, seal, and signature of the engineer.

(b) Each application for a permit to construct will be evaluated on a case-by-case basis using the best available technology. The application shall include at least one of the following:

(i) Data obtained from a full scale, comparable installation that demonstrates the acceptability of the design.

(ii) Data obtained from a pilot plant operated under the design condition for a sufficient length of time to demonstrate the acceptability of the design.

(iii) Data obtained from the theoretical evaluation of the design that demonstrates a reasonable probability the facility will meet the design objectives.

(iv) An evaluation of the flexibility of making corrective changes to the constructed facility in the event it does not function as planned.

(c) If an applicant wishes to construct a pilot plant to provide data necessary to show the design will meet the purpose of the act, a permit to construct must be obtained.

Section 7. Site Suitability.

(a) Small wastewater systems must be located where the surface drainage is sufficient to allow proper operation of the small wastewater system. Avoid depressions and bases of slopes and areas in the path of runoff from roofs, patios, driveways, or other paved areas unless surface drainage is provided. Small wastewater systems shall not be located beneath buildings, parking lots, roadways, driveways, irrigated landscaping, or compacted areas.

(b) The site must include area for both the proposed soil absorption system and a future replacement soil absorption system. Both the proposed and replacement soil absorption systems shall be sized to receive one-hundred (100%) percent of the wastewater flow. If a trench system is used, the replacement soil absorption system may be located between the trenches of the proposed soil absorption system if there is at least nine (9) feet of spacing between trench sidewalls.

(c) For standard soil absorption systems, effective suitable soil depth shall extend at least four (4) feet below the bottom of the soil absorption system to any restrictive layer, fractured rock, or highly permeable material.

(d) The depth to high groundwater shall be at least four (4) feet below the bottom of the absorption surface for all treatment systems except pressure distribution. For pressure distribution systems, the depth to high groundwater shall be at least three (3) feet below the bottom of the absorption surface if the percolation rate of the soil is five (5) minutes per inch or greater (5-60 mpi).

(e) Slope

(i) Table 3 shows the maximum permissible slopes of the site on which an absorption system may be constructed

Table 3. Slope and Percolation Rates for Absorption Systems

Percolation Rate (minutes/inch)	Maximum Slope ¹
5	25%
6-45	20%
46-60	15%

¹ Flatter slopes may be required where the effluent surfaces downslope.

(ii) Serial distribution, with the use of drop boxes or approved fittings, is the preferred installation method for sloping terrain. The bottom of individual trenches shall be level and the trenches shall be constructed to follow the contours of the land.

(iii) The placement of multiple trenches, with each subsequent trench down slope of the previous trench shall be avoided when the addition of effluent to the soil absorption system trenches may lead to either an unstable slope or seepage down slope.

(iv) All absorption surfaces must be located at least 15 horizontal feet from the top of any break in slope that exceeds the maximum slope allowed.

(f) Soil Exploration Pit and Percolation Tests

(i) Delegated small wastewater programs shall require a percolation test in addition to the soil exploration pit.

(ii) A minimum of one soil exploration pit within the proposed soil absorption system location shall be excavated to a minimum depth of four (4) feet below the bottom of the proposed soil absorption system to evaluate the subsurface conditions.

(iii) The percolation test shall be performed in accordance with Appendix A of this chapter. An evaluation of the soil texture, in the proposed soil absorption system location, by a person experienced in soils classification, may be used as an additional tool to confirm the percolation rate.

(g) Minimum horizontal setback distances (in feet) are as follows:

Table 4. Minimum Horizontal Setbacks for Domestic Wastewater in Feet^{1, 2}

From	To Septic Tank Or Equivalent	To Absorption System
Wells (includes neighboring wells)	50	100
Public Water Supply Well	100	200 ²
Property Lines	10	10
Foundation Wall (w/o drains)	5	10
Foundation Wall (with drains)	5	25
Potable Water Pipes	25	25
Septic Tank	N/A	10
Surface Water, Spring (including seasonal and intermittent)	50	50
Cisterns	25	25

¹ For disposal of non-domestic wastewater, the setback distance shall be determined by a hydrogeological study in accordance with Section 17(b) of Chapter 3, but shall not be less than the distances shown in Table 4.

² Small wastewater systems that discharge to the same aquifer that supplies a public water supply well and are located within Zone 1 or 2 (Attenuation) of the public water supply well, as determined by *Wyoming Department of Environmental Quality Source Water Assessment Project (2004)* or as established in Section 2 of the [Wyoming Wellhead Protection Guidance Document \(1997\)](#), shall provide additional treatment. These systems will be required to obtain an individual permit to construct and will require that a PE sign, stamp, and date the application, as stated in Section 2 of this chapter. The additional treatment shall be in accordance with Chapter 3 Section 2(b)(ii). The treatment system shall be designed to reduce the nitrates to less than 10 mg/L of NO₃- as N and provide 4-log removal of pathogens before the discharge leaves the property boundary of each small wastewater system.

Section 8. Soil Absorption System Sizing.

(a) The total infiltration surface area of a soil absorption system shall be calculated by dividing the design flow rates (gpd) from Table 1 or Table 2 by the loading rate (gpd/ft²) found in Table 5.

Table 5. Rates of Wastewater Application for Soil Absorption System Areas

Percolation Rate (mpi)	Loading Rate (gpd/ft ²)	Percolation Rate (mpi)	Loading Rate (gpd/ft ²)
5	0.80	21	0.45
6	0.75	22	0.44
7	0.71	23-24	0.43
8	0.68	25	0.42
9	0.65	26-27	0.41
10	0.62	28-29	0.40
11	0.60	30-31	0.39
12	0.58	32-33	0.38
13	0.56	34-35	0.37
14	0.54	36-37	0.36
15	0.52	38-40	0.35
16	0.50	41-43	0.34
17	0.49	44-46	0.33
18	0.48	47-50	0.32
19	0.47	51-55	0.31
20	0.46	56-60	0.30

(b) The total infiltration area shall be defined as follows:

(i) For standard trenches the total infiltration area shall be calculated based on the following formula:

$$A = L(W + 2S)$$

A = Total infiltration area

L = Total length of trench

W = Bottom width

S = Sidewall height of 12 inches or less

(A) The sidewall height is the depth below the flowline of the pipe to the bottom of the trench.

(B) The maximum credit for sidewall height shall not exceed twelve (12) inches even if the actual sidewall height exceeds twelve inches.

(ii) For chamber trenches, the total infiltration area shall be calculated based on the following formula:

$$A = L(E + 2S)$$

A = Total infiltration area

L = Total length of trench

E = Effective bottom width (Multiply width of the chamber by factor of 1.43 to get effective bottom width)

S = Sidewall height of 12 inches or less

(A) The factor of 1.43 incorporates a thirty percent (30%) reduction of the bottom area.

(B) The maximum credit for sidewall height shall not exceed twelve (12) inches even if the actual sidewall height exceeds twelve (12) inches.

(C) The sidewall height is the height of the slotted sidewall of the chamber or depth below the flow line of the inlet pipe, whichever is less.

(D) The total length of the trench is the number of chambers in a row multiplied by the length of one piece of chamber.

(iii) For standard bed systems, the total infiltration area shall be calculated based on the following formula:

$$A = LW$$

A = Total infiltration area

L = Total length of bed

W = Width of the bed

(A) The sidewall credit shall not be used in calculating the total infiltration area for a bed system.

(iv) For chamber bed systems, the total infiltration area shall be calculated based on the following formula:

$$A = L(E \times R)$$

A = Total infiltration area

L = Total length of bed

E = Effective bottom width of the chamber (Multiply width of the chamber by factor of 1.43 to get effective bottom width)

R = Number of chamber rows (Multiply effective bottom width of chamber by number of chamber rows to get effective bottom width of bed.)

(A) The factor of 1.43 incorporates a thirty percent (30%) reduction of the bottom area.

(B) The total length is the number of chambers in a row multiplied by the length of one piece of chamber.

(c) Coarse sand or soils having a percolation rate less than one (1) minute per inch (mpi) are unsuitable for subsurface effluent disposal. These soils may be used if a one (1) foot layer of fine sand or loamy sand is placed below the constructed soil absorption system. The soil absorption system shall be sized based on the percolation rate of the fill material.

Section 9. Building Sewer Pipes.

All building sewers shall be installed in accordance with the 2012 International Plumbing Code (IPC). In the absence of a locally approved plumbing code, and in addition to the IPC, the building sewer shall comply with the following:

(a) Suitable building sewer pipe materials are polyvinyl chloride (PVC) or acrylonitrile-butadiene-styrene (ABS). The septic tank inlet and outlet pipes shall be schedule 40 PVC or ABS pipe and shall span the excavations for the septic tank and/or dosing chamber. American Society for Testing and Materials (ASTM) D-3034 Standard Dimension Ratio (SDR) 35 plastic pipe may be used if the void at the tank's side is filled with material that is granular, clean, and compacted.

(b) Building sewer pipes shall be sized to handle the peak hourly flow from the building and shall not be smaller than four (4) inches in diameter. When two different sizes or types of sewer pipes are to be connected, a proper type of fitting or conversion adapter shall be used.

(c) Sewer pipe shall not decrease in size flowing downstream.

(d) Building sewer pipes shall be laid at a standard slope of 1/4 inch per foot, and shall not be flatter than 1/8 inch per foot.

(e) Cleanouts shall be provided between the structure and the tank, at branch connections, every change in alignment, and at least every 100 feet in straight runs.

(f) All sewer piping shall be laid on a firm bed throughout its entire length. It shall be protected from damage due to rocks, hard lumps of soil, debris, and the like.

(g) Special care shall be used to prevent lateral movement or deformation during backfill. The backfill material shall be compacted to a density at least equivalent to the trench walls. Backfill over the pipe shall be of sufficient depth to protect the pipe from expected traffic loads and the wastewater from freezing.

Section 10. Septic Tanks and Other Treatment Tanks.

(a) Septic Tanks

(i) Septic tanks shall be fabricated or constructed of concrete, fiberglass, thermoplastic or an approved material. Tanks shall be watertight and fabricated to constitute an individual structure, and shall be designed and constructed to withstand anticipated loads. As part of the application review process, Department of Environmental Quality, Water Quality Division (DEQ/WQD) or the delegated small wastewater program shall review the design of prefabricated septic tanks for compliance with applicable construction standards.

(ii) The septic tank shall be placed on a level grade and a firm bedding to prevent settling. Where rock or other undesirable protruding obstructions are encountered, the opening for the septic tank shall be over excavated, as needed, and backfilled with sand, crushed stone, or gravel to the proper grade.

(A) Septic tanks shall not be buried deeper than the tank manufacturer's maximum designed depth for the tank. The minimum depth of soil cover over the top of the tank is six (6) inches.

(B) Backfill around and over the septic tank shall be placed in such a manner as to prevent undue strain or damage to the tank or connected pipes.

(C) Septic tanks shall not be placed in areas subject to vehicular traffic unless engineered for the anticipated load.

(iii) Size

(A) The minimum liquid volume of a septic tank shall be 1000 gallons for residences up to a four (4) bedroom capacity. Additional capacity of 150 gallons per bedroom shall be provided for each bedroom over four (4).

(B) Septic tanks for high strength wastewater or non-residential units shall have a minimum effective liquid capacity sufficient to provide at least 48 hour retention at design flow or 1,000 gallons, whichever is greater.

(iv) Configuration

(A) Single compartment septic tanks shall have a length to width ratio of no less than two (2) to one (1), or be partitioned to protect against short circuiting flow.

(B) For septic tanks with two (2) compartments or more, the inlet compartment shall not be less than one-half (1/2) of the total capacity of the tank.

(C) The liquid depth shall be between three (3) feet and six (6) feet.

(D) The tank partition shall allow the venting of gases between compartments and out through the vent stack on the plumbing system of the house.

(E) The inlet and outlet on all tanks or tank compartments shall be provided with open-ended sanitary tees or baffles made of approved materials constructed to distribute flow and retain scum in the tank or compartments.

(I) The tees or baffles shall extend above the liquid level a minimum distance of five (5) inches.

(II) The inlet tees or baffles shall extend below the liquid level at least eight (8) inches but no more than 40% of the liquid level. The outlet tees or baffles shall extend below the liquid level at least ten (10) inches but no more than 45% of the liquid level.

(III) A minimum of one (1) inch of clear space shall be provided over the top of the baffles or tees for venting.

(IV) The inlet pipe shall be at least two (2) inches higher than the outlet pipe. The outlet elevation shall be designed to provide a minimum distance of nine (9) inches or twenty (20) percent of the liquid depth between the top of the liquid and the bottom of the septic tank cover for scum storage and the venting of gases.

(v) If additional septic tank capacity over 1,000 gallons is needed, it may be obtained by joining tanks in series provided the following requirements are met:

(A) The inlet of each successive tank shall be at least two (2) inches lower than the outlet of the preceding tank, and shall have no tee or baffle except for the inlet to the first tank and the outlet for the last tank.

(B) The first tank or the first compartment of the first tank shall be equal to fifty percent (50%) or larger of the total septic tank system volume.

(vi) An access opening shall be provided to each compartment of the septic tank for inspection and cleaning.

(A) The access opening(s) in the cover/lid of the tank shall have a minimum diameter of twenty (20) inches. Both inlet and outlet devices shall be accessible.

(B) The riser from the access opening shall terminate at a maximum of six (6) inches below the ground surface. Riser covers terminating above grade shall have an approved locking device.

(vii) Land application of domestic septage in remote areas that meet the conditions found in Appendix B will be permitted as a permit by rule. Delegated small wastewater programs may issue individual permits.

(viii) An effluent filter with an opening of 1/8-inch or smaller shall be provided on the outlet of a septic tank or other tank that precedes a small diameter pressure distribution system.

(b) Dosing Tanks

(i) Dosing tanks shall meet the same material and installation requirements as septic tanks. Dosing tanks shall have a minimum 20-inch diameter access opening and it shall have a riser from the access opening to the ground surface. The following table shall be used to calculate the size of the dosing tank:

Table 6. Dosing Tank Volume (gallons)

Average Design Flows (gpd)	0-499	500-999	1000-1499	1500-2000
Between Pump "off" and Tank Inlet	350	700	1000	1300
Between Tank Inlet and Alarm Switch	200	400	600	800
Between Alarm switch and Pump "on"	50	100	100	100
Between Pump "on" and Pump "off"	100	200	300	400
Recommended Pump Capacity (gpm)	10	20	30	40

(ii) High water alarms shall be provided for all tanks that use pumps or siphons. The alarm device shall be an audible alarm or an indoor illuminated alarm or both.

(iii) The minimum effluent level shall achieve complete submergence of the pump.

(iv) Dosed systems using a siphon shall have a dose counter installed to check for continued function of the siphon.

(c) Holding Tanks

(i) Holding tanks shall meet the same material requirements as septic tanks. Holding tanks shall have a twenty (20)-inch minimum diameter access opening. A riser shall be brought to ground surface from the access opening.

(ii) Holding tanks shall not be used for residential systems when other alternative systems are available, except on a temporary, seasonal or intermittent basis, or when used to correct a failed soil absorption system when other alternatives are unavailable.

(iii) Holding tanks must be located in an area readily accessible to the pump truck and where the tank itself will not float due to high groundwater. If seasonal high groundwater may be present, the tank shall be properly anchored.

(iv) The minimum liquid volume shall be the greater of 1,000 gallons or seven (7) days storage based upon flow rate determined from Section 5.

(v) All holding tanks shall be equipped with a high-water level alarm. The device shall be an audible alarm or an indoor illuminated alarm or both. The device shall be installed so that the alarm is triggered when the water level reaches 3/4 of the tank capacity.

(vi) A design package for holding tanks is provided online at the Division's website to assist the applicant in submitting a completed application for coverage under the general permit for small wastewater systems. The worksheet and calculations were prepared by a registered professional engineer employed by the Wyoming Department of Environmental Quality, Water Quality Division. The general design requirements stated in this section are incorporated into the worksheets such that by properly completing the forms and installing the components, the system will comply with these requirements.

(d) Grease Interceptors:

(i) A commercial or institutional food preparation facility with a waste stream containing fat, oil, and grease (FOG) in excess of 25 mg/L shall install an exterior grease interceptor or a device approved by the delegated health department or county. Facilities that typically have waste streams high in FOG are, but not limited to, restaurants, cafeterias, slaughterhouses, and institutional kitchens.

(ii) Waste streams high in FOG shall be plumbed separately and directly to a grease interceptor prior to the waste treatment process.

(iii) Waste streams from sanitary facilities such as bathrooms, toilets, urinals, or other similar fixtures shall not be discharged into the grease interceptor. These sources must be connected at least four to six (4-6) feet downstream of the grease interceptor's discharge. The design shall prevent any backflow from the sanitary sources into the grease interceptor.

(iv) Only one source facility per grease interceptor shall be allowed.

(v) Grease interceptors shall be located so that they are easily accessible for inspection, cleaning, and removal of the collected wastes. The interceptor shall not be closer than fifteen (15) feet from the last discharging fixture and no further away than thirty-five (35) feet.

(vi) Grease interceptors shall have at least two (2) compartments with a 20-inch minimum diameter access opening for each compartment for cleanout. Each access opening shall have a riser brought to the surface and have a sealed lid that is rated for any anticipated load. There shall be a means provided to sample the effluent.

(vii) There shall be no internal cleanout tees or bypasses.

(viii) The inlet and outlet of the grease interceptor shall be vented. The vent pipe shall be at least two (2) inches in diameter. The inlet and outlet vents shall not be interconnected.

(ix) The outlet pipe invert shall be no more than two (2) inches lower than the inlet invert.

(x) The dividing wall between compartments shall be the same height as the other walls and the cover should contact the top of the dividing wall. If the partition/dividing wall does not contact the cover, the outlet tee or baffle shall extend below the liquid level, 40-50% of the total liquid depth.

(xi) The effluent from each compartment shall be drawn from the bottom of a riser pipe that terminates at least eighteen (18) inches below the inlet pipe invert of that same compartment.

(xii) Grease interceptors shall be accessible during normal business hours without interrupting normal business operations.

(xiii) Grease interceptors shall be installed in accordance with the manufacturer's instructions and applicable requirements of this section. A copy of the manufacturer's instructions shall be submitted with every permit to construct application submitted to DEQ/WQD.

(xiv) Grease interceptors shall be sized according to the following:

Kitchens (grease, garbage)

Number of meals per peak hour	X	Waste Flow rate*	X	Retention time**	X	Storage factor***	=	Interceptor size (liquid capacity)
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*Waste flow rate — see Table 2.

**Retention times

Kitchen waste:	
Dishwasher and/or disposal	2.5 hours
Single service kitchen:	
Single serving with disposal	1.5 hours

***Storage factors

Fully equipped commercial kitchen	8 hr. operation: 1 16 hr. operation: 2 24 hr. operation: 3
Single service kitchen:	1.5

(A) The minimum interceptor size (liquid capacity) shall be 750 gallons.

(e) Other Interceptors

(i) Interceptors are required for oil, grease, sand, and other substances harmful or hazardous to the building drainage system, or the small wastewater treatment system.

(A) Laundries

(I) Commercial laundries, laundromats, and dry-cleaners shall be equipped with an interceptor in order to reduce the quantity of lint and silt that enter the collection system.

(II) The system must be of adequate size and design to allow for cool-down of wastewater so that separation can be more readily achieved.

(III) The interceptor shall be installed with a wire basket or similar device. The wire basket or similar device shall be removable for cleaning and shall prevent passage into the drainage system of solids 1/2 inch (12.7 mm) or larger in size, such as string, rags, buttons, or other materials which are detrimental to the waste treatment system.

(IV) Sizing must be in accordance with the following formula:

Laundries (grease, lint, silt)

Total gallons per cycle	X	Cycles per hour	X	Retention time*	X	Storage factor**	=	Interceptor
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*Retention times

Institutional laundries	2.5 hours
Standard commercial laundry	2.0 hours
Light commercial laundry	1.5 hours

****Storage factors**

8 hours of operation	1.0
12 or more hours of operation	1.5

(A) Car Washes

(I) Where automobiles are washed (including detail shops using hand-wash practices), separators shall have a minimum capacity of 1000 gallons for the first bay, with an additional 500 gallons of capacity for every other bay.

(II) Additionally, wash racks must be constructed to eliminate or minimize the impact of run-off from rain/storm events. Minimum requirements are roofed structures with at least two walls and appropriate grading to prevent storm water infiltration into the sanitary sewer.

(III) An effluent sampling point is required.

(f) Abandonment of Septic and Holding Tanks

The following is the procedure to abandon septic tanks and holding tanks when the system is upgraded, equipment replacement is necessary, or central sewer lines are made available.

(i) The abandoned tank should be pumped and the septage hauled to a licensed facility approved to receive the waste or the septage pumped into the newly constructed septic or holding tank. Discharging to a central sewer requires coordination with, and the approval of, the owner/operator of the sewer system.

(ii) Once the abandoned tank is empty, it should be removed and the excavation backfilled. As an alternative to removing the tank, the access covers can be removed; the bottom drilled or broken up sufficient to drain; and the tank filled with native soil, pit run, or sand.

(iii) If the abandoned tank is part of a Class V UIC facility, the abandonment must also be in compliance with Chapter 27, Section 19.

Section 11. Effluent Distribution Devices.

Distribution boxes and flow divider tees are suitable for level or nearly level ground and are installed before the soil absorption system with the goal of splitting flows equally between soil absorption system laterals. Drop boxes are suitable for sloping ground and are installed to achieve serial loading.

(a) Distribution Boxes

(i) The distribution box shall be installed on a level, stable base to prevent tilting or settling, and to minimize movement from frost heave.

(ii) Boxes shall be watertight and constructed of concrete or other durable material.

(iii) Boxes shall be designed to accommodate the inlet pipe and the necessary distribution lines. The inlet piping to the distribution box shall be at least one (1) inch above the outlet pipes and all pipes shall have a watertight connection to the distribution box.

(iv) The box shall be protected against freezing and made accessible for observation and maintenance.

(v) Boxes shall have flow equalizers installed on each outflow.

(b) Flow divider tees may be used in place of distribution boxes.

(c) Drop boxes are suitable for sloping ground and are installed to achieve serial loading. The drop boxes shall meet the requirements in paragraphs (a)(i through v) of this section.

Section 12. Standard Soil Absorption Systems.

(a) General Design Requirements:

(i) All soil absorption systems shall be designed in such a manner that the effluent is effectively filtered and retained below the ground surface. The absorption surface accepts, treats, and disperses wastewater as it percolates through the soil.

(ii) Soil absorption systems shall not be excavated when the soil is wet enough to smear or compact easily. Open soil absorption system excavations shall be protected from surface runoff to prevent the entrance of silt and debris. All smeared or compacted surfaces shall be raked to a depth of one (1) inch, and loose material removed before filter or filler material is placed in the soil absorption system excavation.

(iii) Soil absorption systems shall be designed to approximately follow the ground surface contours so that variation in excavation depths will be minimized. The trenches may be installed at different elevations, but the bottom of each individual trench shall be level throughout its length.

(iv) Shallow soil absorption system depths are encouraged to promote treatment and evapotranspiration. The minimum soil cover depth over the soil absorption system is one (1) foot. The maximum depth to the bottom absorption surface of a soil absorption system is five (5) feet. Finished grading shall prevent ponding and promote surface water runoff.

(v) Pipes, chambers or other products shall be bedded on firm, stable material. Heavy equipment shall not be driven in or over soil absorption systems during construction or backfilling.

(vi) Standard trenches refer to perforated pipe embedded in aggregate-filled trenches that shall conform to the following:

(A) The perforated pipe shall have a minimum diameter of 4 inches. Suitable pipe materials include: ASTM D-2729-11 PVC, ASTM D-3034-08 PVC, Schedule 40 PVC ASTM d1784-11, and ASTM F810-07 PE.

(B) The aggregate shall be crushed rock, gravel or other acceptable, durable and inert material that is free of fines, and has an effective diameter between ½ inch and 2- ½ inches.

(C) Prior to backfilling, the aggregate shall be covered throughout with a woven/non-woven geotextile material or a three (3) inch layer of straw.

(D) Aggregate shall extend the full width and length of the soil absorption system to a depth of at least twelve (12) inches with at least six (6) inches of drain gravel under the distribution pipe and at least two (2) inches over the distribution pipe.

(E) Maximum width of trench excavation is three (3) feet.

(F) Minimum spacing of trenches (wall to wall) is three (3) feet. Trench spacing shall be increased to nine (9) feet when the area between each trench is considered as reserve area. For clay loam soils that have percolation rates greater than 60 min/in., the nine (9) foot spacing shall also be required but it is not considered as reserve area.

(vii) Standard beds shall conform to the same pipe and aggregate requirements for trenches as found in subparagraphs (vi)(A through D) of this section. Standard beds shall also conform to the following:

(A) The soils shall have percolation rates less than 60 minutes per inch (5-60 mpi). The bottom of the bed must be level, therefore the site shall be relatively flat, sloping no more than one (1) foot from the highest to the lowest point in the installation area.

(B) Distribution laterals within a bed must be spaced on not greater than six (6) feet centers. Sidewalls shall not be more than three (3) feet from a distribution lateral.

(C) Beds must not be wider than twenty-five (25) feet if gravity distribution is used. Multiple beds must be spaced at one-half the bed width.

(D) Rubber tired vehicles must not be driven on the bottom surface of any bed excavation.

(viii) Chambered trenches, when used in lieu of perforated pipe and aggregate, shall be installed in conformance with the manufacturer recommendations. No cracked, weakened, modified, or otherwise damaged chamber units shall be used in any installation.

(A) All chambers shall be an open, arch-shaped structure of durable, non-degradable design, suitable for distribution of effluent without filter material.

(B) All chamber endplates shall be designed so that the bottom elevation of the inlet pipe is at least six (6) inches from the bottom of the chamber.

(C) Inlet and outlet effluent sewer pipes shall enter and exit the chamber endplates. Inspection ports shall be installed at all outlet effluent sewer pipes.

(D) All chambers shall have a splash plate under the inlet pipe or another design feature to avoid unnecessary channeling into the trench bottom.

(E) The maximum width of the bottom absorption surface for a chambered trench is three (3) feet. The excavation to install a chambered trench may exceed three (3) feet.

(F) Minimum spacing of trenches (wall to wall) is three (3) feet. Trench spacing shall be increased to nine (9) feet when the area between each trench is considered as reserve area. For clay loam soils that have percolation rates greater than 60 min/in., the nine (9) foot spacing shall also be required but it is not considered as reserve area.

(ix) Chambered beds shall conform to the same requirements for chambered trenches as found in subparagraphs (viii)(A through D) of this section. Aggregate, as specified in subparagraph (vi)(B) of this section, or native soil shall be used to fill the space between the chambers.

(x) Serial Sidehill Trench:

(A) A minimum of six (6) feet of undisturbed soil shall be maintained between adjacent trench or bed side walls.

(B) The bottom of each serial trench or bed system shall be level.

(C) The overflow pipe between serial soil absorption systems shall be set no higher than the mid-point of the upstream distribution pipe. The overflow pipe shall not be perforated.

(b) A design package for standard soil absorption systems is provided online at the Division's website to assist the applicant in submitting a completed application for coverage under the general permit for small wastewater systems. The worksheet and calculations were prepared by a registered professional engineer employed by the Wyoming Department of Environmental Quality, Water Quality Division. The general design requirements stated in this section are incorporated into the worksheets such that by properly completing the forms and installing the components, the system will comply with these requirements.

Section 13. Pressure Distribution Systems.

(a) General Design Requirements:

(i) The basic elements of a pressure distribution system include a dosing tank, filter, and a means to deliver specified doses to a small diameter pipe network within a soil absorption system. Pressure distribution is required for mound systems or for bed systems with a width greater than twenty-five (25) feet.

(ii) Pumps must be sized to match the distribution system curve or demand. Pumps shall be designed for sewage pumping applications and be accessible from the ground surface.

(iii) The control system for the pump and dosing tank shall, at a minimum, consist of a "pump off" switch, a "pump on" switch, and a "high liquid alarm".

(A) All electrical connections must be made outside of the chamber in either an approved weatherproof box or an explosion-proof junction box.

(B) The wiring from the junction box to the control box must pass through a sealing fitting to prevent corrosive gases from entering the control panel.

(C) All wires must be contained in solid conduit from the dosing chamber to the control box.

(iv) The pressure transport piping between the tank and the soil absorption system shall be designed to prevent freezing.

(A) The ends of lateral piping shall be constructed with long sweep elbows or an equivalent method to bring the end of the pipe to finished grade. The ends of the pipe shall be provided with threaded plugs, caps, or other devices to allow for access and flushing of the lateral.

(B) All joints in the manifold, lateral piping, and fittings shall be solvent-welded using the appropriate joint compound for the pipe material. Pressure transport piping may be solvent-welded or flexible gasket jointed.

(C) Where automatic siphons or other devices are used, they shall be designed to empty the dosing tank in less than ten (10) minutes.

(v) The pressure distribution system shall have a combination of at least three (3) vertical feet of filter sand and/or unsaturated native soil above the high groundwater level. The filter sand shall conform to ASTM C-33, with less than 2% passing the #200 sieve.

(b) A design package for pressure distribution systems is provided online at the Division's website to assist the applicant in submitting a completed application for coverage under the general permit for small wastewater systems. The worksheet and calculations were prepared by a registered professional engineer employed by the Wyoming Department of Environmental Quality, Water Quality Division. The general design requirements stated in this section are incorporated into the worksheets such that by properly completing the forms and installing the components, the system will comply with these requirements.

Section 14. Sand Mound Systems.

The sand mound consists of a sand fill, an aggregate bed and a soil cap.

(a) Selection Criteria:

The high groundwater level, bedrock, or impervious clay layer is less than four (4) feet below the bottom of the soil absorption system excavation.

(b) Site Requirements:

(i) A minimum of one (1) foot of vertical separation of the native soil is required between the bottom of the sand fill and the top of the high groundwater level, any restrictive layer, or any highly permeable material.

(ii) The percolation rate of the native soil at the interface of the sand fill shall be greater than five (5) and less than sixty (60) minutes per inch (5-60 mpi). The percolation shall be measured in the top twelve (12) inches of native soil.

(c) General Design Requirements:

(i) Sand Layer

(A) Filter sand shall conform to ASTM C-33, with less than two percent (2%) passing through the #200 sieve.

(B) The minimum depth of sand below the aggregate bed surface shall be one (1) foot.

(C) The sand mound shall have a combination of at least four (4) vertical feet of filter sand and unsaturated native soil above the high groundwater level.

(I) For sand mounds using pressure distribution systems, the depth to high groundwater shall be three (3) feet below the bottom of the absorption surface if the percolation rate of the soil is five (5) minutes per inch or greater (5-60 mpi).

(D) The top of the sand layer under the aggregate bed shall be level in all directions.

(E) The sand layer shall fill around the perimeter of and to the top of the aggregate bed.

(F) The slope of all sides shall be three (3) horizontal to one (1) vertical or flatter. The side slopes shall be graded to prevent seepage and/or ponding at the bottom of the slope.

(G) The infiltration area, which is the bottom of the sand fill, shall be calculated by dividing the design flowrates (gpd) from Table 1 or Table 2 by the loading rate (gpd/ft²) found in Table 5.

(ii) Aggregate Bed

(A) The aggregate shall be crushed rock, gravel or other acceptable, durable and inert material that is free from fines, and has an effective diameter between one-half (1/2) inch and two and one half (2 ½) inch.

(B) The aggregate bed depth shall not be less than nine (9) inches with a minimum of six (6) inches of clean aggregate placed below the distribution pipe and two (2) inches above the distribution pipe. The aggregate shall be covered with an approved geotextile material after installation and testing of the pressure distribution system.

(C) The design shall be a long, narrow bed design with a maximum width of twenty-five (25) feet.

(D) The infiltration area, which is the bottom of the aggregate bed, shall be calculated by dividing the design flowrates (gpd) from Table 1 and Table 2 by the loading rate of 0.8 gpd/ft².

(iii) Soil Cover

(A) The soil cap shall be constructed of a sandy loam, loamy sand, or silt loam. The depth of the soil cap shall be at least six (6) inches at the edges to twelve (12) inches at the center. The slope of all sides shall be three (3) horizontal to one (1) vertical or flatter.

(B) A layer of top soil at least six (6) inches thick shall be placed over the entire sand mound area. The sand mound should be planted with vegetation that does not require watering and will not establish deep roots. Native grasses are commonly used.

(d) A design package for sand mound systems is provided online at the Division's website to assist the applicant in submitting a completed application for coverage under the general permit for small wastewater systems. The worksheet and calculations were prepared by a registered professional engineer employed by the Wyoming Department of Environmental Quality, Water Quality Division. The general design requirements stated in this section are incorporated into the worksheets such that by properly completing the forms and installing the components, the system will comply with these requirements.

Section 15. Small Wastewater Lagoons.

(a) Selection Criteria:

(i) Lagoons shall only be considered in areas of Wyoming where the annual evaporation exceeds the annual precipitation during the active use of the lagoon.

(ii) Lagoons shall only be allowed when the percolation rate exceeds sixty (60) minutes per inch and the soil extends vertically down at least two (2) feet from the bottom of the lagoon to the seasonal high groundwater table or bedrock formations.

(iii) A lagoon shall not be constructed within the 100 year floodplain.

(b) General Design Requirements:

(i) Beyond the horizontal setback distances requirements specified in Section 7(g) of this rule, the lagoon shall not be placed within one hundred (100) feet of the owner's property line.

(ii) The use of a septic tank that meets the specifications in Section 9 of this rule shall be required before the small wastewater lagoon.

(iii) The lagoon shall be located and constructed so it will not receive surface runoff water.

(iv) The slope of the lagoon site shall not exceed five percent (5%).

(v) The lagoon site must be located in an area of maximum exposure to sun and wind.

(vi) The lagoon shall be designed for complete retention.

(vii) The area of the lagoon shall be calculated based on the following formula.

$$584 \times Q$$

$$A = \frac{584 \times Q}{(365 \times S) + (E - P)}$$

A = Area of the lagoon (in square feet) at the maximum operating depth of five (5) feet.

Q = Average daily sewage flow, gallons per day. (Multiply values from Table 1 or 2 by 1.6 to get average daily flow.)

E = Average annual lake evaporation in inches per year. (Note: lake evaporation is less than pan evaporation; lake evaporation equals pan evaporation times a pan coefficient of 0.7)

P = Average annual precipitation rate in inches per year.

S = Seepage rate in decimal form, in inches per day.

(viii) The slopes of the dikes shall not be steeper than three (3) horizontal to one (1) vertical. The minimum width of the top of the dike shall be four (4) feet.

(ix) All fill shall consist of impervious material that is well compacted and free of rocks, frozen soil, or other large material.

(x) The minimum operating depth shall be two (2) feet. The dikes shall provide a minimum freeboard of two (2) feet.

(xi) The floor of the lagoon shall be level and maintained free of all vegetation.

(xii) The influent line into the lagoon must discharge near the center.

(xiii) A cleanout, with a tightly fitting cap, ~~or manhole~~ shall be provided in the influent line near the dike.

(xiv) The area around the small wastewater lagoon shall be fenced to preclude the entrance of livestock, pets, and humans. The fence shall be equipped with a locking gate. The gate shall have a sign indicating "NO TRESPASSING – WASTEWATER LAGOON".

(c) A design package for a small wastewater lagoons is provided online at the Division's website to assist the applicant in submitting a completed application for coverage under the general permit for small wastewater systems. The worksheet and calculations were prepared by a registered professional engineer employed by the Wyoming Department of Environmental Quality, Water Quality Division. The general design requirements stated in this section are incorporated into the worksheets such that by properly completing the forms and installing the components, the system will comply with these requirements.

Section 16. Privies or Outhouses.

Privies or outhouses that meet the requirements of this section are permitted by rule. A permit by rule requires the owner to submit the information contained in paragraph (g) of this section to the Wyoming Department of Environmental Quality, Water Quality Division prior to constructing or installing the facility. By submission of the required information, the owner acknowledges and certifies they will comply with the requirements contained in this section.

Pre-fabricated privies or outhouses shall be sealed, water-tight vaults and shall meet the following conditions.

(a) The horizontal setback distance requirements for sealed privies or outhouses shall comply with Section 7(g) for septic tanks.

(b) The depth to seasonally high groundwater from the bottom of a water tight vault shall be sufficient to prevent floatation of the empty vault.

(c) The vault must have sufficient capacity for the dwelling served, and must have at least 27 cubic feet or 200 gallons of capacity.

(d) Privies or outhouses must be insect tight; must have a self-closing door; the privy or outhouse seat must include a cover; and all exterior openings, including vent openings, shall be screened.

(e) Privies or outhouses must be adequately vented.

(f) Privies or outhouses shall not be constructed within the 100 year floodplain.

(g) Owner's name, address, phone number, legal description of privy or outhouse (address, latitude/longitude, or $\frac{1}{4}$ section), and the date construction or installation will begin.

Section 17. Greywater Systems.

Greywater systems that meet the requirements of this section are permitted by rule. A permit by rule requires the owner to submit the information contained in paragraph (e) of this section to the Wyoming Department of Environmental Quality, Water Quality Division prior to constructing, modifying, or installing the system. By submission of the required information, the owner acknowledges and certifies they will comply with the requirements contained in this section.

(a) Greywater Operation and Requirements

(i) Restrictions

(A) Greywater shall not leave the property on which it is generated. Ponding or runoff is prohibited.

(B) Greywater systems shall not be installed in a delineated floodplain.

(C) The volume of greywater shall not exceed an average of 2000 gallons per day.

(D) Greywater shall not come in direct contact with or adversely impact surface or groundwater.

(E) Food crops for direct human consumption should not be harvested for 30 days after application of greywater.

(ii) Odor control of the greywater system shall meet the requirement of Wyoming DEQ Air Quality Regulations Chapter 2, Section 11.

(iii) If the greywater system is to be used during the winter, the greywater system shall be designed to prevent freezing.

(b) Estimating Greywater Discharge

(i) The greywater discharge for single family and multi-family dwellings shall be calculated by estimates of greywater use based on water use records, or the following procedure:

(A) The number of occupants of each dwelling unit shall be calculated as 2 occupants per bedroom.

(B) The estimated greywater flows of each occupant shall be calculated in gallons per day (gpd) as follows:

Showers, bathtubs and wash basins – 25 gpd/occupant Laundry –

15 gpd/occupant

(ii) The total number of occupants shall be multiplied by the applicable estimated greywater discharge as provided above and the type of fixtures connected to the greywater system.

(c) Greywater System Configurations

(i) All greywater systems shall have means to direct greywater to either the black water system or the greywater system.

(ii) Diverter valves shall not have the potential to allow backflow from the black water system into the greywater system.

(iii) Greywater used for surface irrigation should be disinfected. The disinfection should achieve a fecal coliform level of 200 cfu/100 mL or less.

(d) Setbacks

(i) A 30 foot buffer zone is required between the greywater application site and adjacent property lines and any public right-of-way.

(ii) A 30 foot separation distance is required between greywater application sites and all surface waters.

(iii) A 100 foot separation distance is required between greywater application sites and all potable water supply wells.

(e) Owner's name, address, phone number, legal description of greywater system (address, latitude/longitude, or ¼ ¼ section), and the date construction or installation will begin.

Section 18. Operation and Maintenance.

(a) For any system that disposes of wastewater through land application or subsurface filtration, the owner shall not add any chemical or biochemical additive to the system that would adversely affect the quality of the groundwater as stated in the WDEQ Water Quality Rules & Regulations, Chapter 8.

(b) Septic tanks shall be pumped as needed to prevent solids carryover into the soil absorption system.

(c) Holding tanks and sealed vaults shall be pumped prior to reaching their maximum capacity.

(d) Any service provider that pumps septic tanks, holding tanks, or sealed vaults, shall dispose of the wastewater contents at a permitted wastewater treatment facility or in a manner approved by the Division or delegated authority.

(e) Damaged fittings and broken, crushed or plugged piping associated with any small wastewater system shall be replaced in a timely manner.

(f) Composting or non-discharging toilets, where permitted, shall have their waste disposed of at a permitted wastewater treatment facility or landfill, or in a manner approved by the Division or delegated authority.

Section 19. Commercial and Industrial Wastes and/or Domestic Wastes Greater Than 2000 Gallons per Day.

(a) Commercial/industrial wastewater systems or combination commercial/industrial and domestic wastewater systems are subject to applicable requirements listed in sections 1 through 15 of this chapter, in addition to requirements in this section.

(b) If the wastewater is classified as, or determined to be hazardous, toxic, and/or contain petroleum products, the applicant shall demonstrate to the administrator that any discharge or seepage from the wastewater facility will not cause a violation of the surface and/or groundwaters of the state in accordance with Chapter 1, "Quality Standards for Wyoming Surface Waters" and Chapter 8, "Quality Standards for Wyoming Groundwaters."

(c) If the impact of the hazardous, toxic, and/or petroleum products cannot be determined and mitigated, disposal of the wastewater using a soil absorption system shall be prohibited.

(d) Pre-treatment of the wastewater to remove the hazardous, toxic, and/or petroleum products shall be required prior to disposal if deemed necessary to protect the groundwater(s) and surface water(s) of the state.

(e) The minimum horizontal setback distances (in feet) shown in Table 7 shall be maintained for commercial and industrial wastes and/or wastes greater than 2000 gallons per day but less than 10,000 gallons per day.

Table 7. Minimum Horizontal Setbacks for Commercial and Industrial Wastes in Feet¹

From	To Septic Tank Or Equivalent	To Absorption System
Wells (includes neighboring wells)	50	200
Public Water Supply Well	100	500 ²
Property Lines	10	10
Foundation Wall (w/o drains)	5	10
Foundation Wall (with drains)	5	50
Potable Water Pipes	25	50
Septic Tank	N/A	10
Surface Water, Spring (including seasonal and intermittent)	50	100
Cisterns	50	50

¹ For systems larger than 10,000 gallons per day, the isolation distance shall be determined by a hydrogeological study in accordance with Section 17(b) of Chapter 3, but shall not be less than those shown in Table 7.

² Wastewater systems that discharge to the same aquifer that supplies a public water supply well and are located within Zone 1 or 2 (Attenuation) of the public water supply well, as determined by [Wyoming Department of Environmental Quality Source Water Assessment Project \(2004\)](#) or as established in [Section 2 of the Wyoming Wellhead Protection Guidance Document \(1997\)](#), shall provide additional treatment. These systems will be required to obtain an individual permit to construct and will require that a PE sign, stamp, and date the application, as stated in Section 2 of this chapter. The additional treatment shall be in accordance with Chapter 3, Section 2(b)(ii). The treatment shall reduce the nitrates to less than 10 mg/L of NO₃⁻ as N and provide 4-log removal of pathogens before the discharge leaves the property boundary of each small wastewater system.

PERCOLATION TEST PROCEDURE

LOCATION: The percolation test holes shall be spaced over the proposed leach field site. Note isolation distances listed on back when deciding where to place absorption field. **A minimum of six test holes is required.**

If six or more percolation tests are performed, the design percolation rate for the leach field is the **average** of all holes tested. It is generally to your advantage to have **six tests** performed since averaging results allows a higher percolation rate to be used, which means a smaller leach field will be necessary. If only three to five percolation tests are performed, the design percolation rate for the absorption system is the **slowest** rate from all the holes tested.

PREPARATION: A hole 4 to 12 inches in diameter shall be dug or bored to the proposed depth of the absorption field, which is typically 2 to 3 feet. **Do not dig the hole with a backhoe.** An auger or a post-hole digger may be used. The walls shall be vertical. To expose a natural soil surface, the sides and bottom shall be scraped with a sharp pointed instrument, and the loose material shall be removed from the hole. Dirt and rocks will be removed from around percolation test holes and the ground leveled in a two foot radius from center of hole.

PRESOAKING: The purpose of presoaking is to have the water conditions in the soil reach a stable condition similar to that which exists during continual wastewater application. The minimum time of presoaking varies with soil conditions but must be sufficiently long so that the water seeps away at a constant rate. The following presoaking instructions are usually sufficient to obtain a constant rate.

1. In sandy soils, place 12 inches of water in the hole and allow it to seep away. Fill the hole again with 12 inches of water; and, if the water seeps away in 10 minutes or less, it indicates that the soil is excessively permeable and the Compliance Officer in the Surveying/Planning office should be contacted. If the water remains after 10 minutes, additional saturation is necessary. Refer to Section 2, below.
2. In other soils, maintain 12 inches of water in the hole for at least 4 hours. After the 4 hours of water contact, allow the soil to swell for 12 hours before starting percolation test.

GROUNDWATER AND BEDROCK EVALUATION: At the time of the percolation test, the soil scientist will also inspect the site for high groundwater, bedrock, and impermeable soil. **A 7 to 8 foot deep pit shall be dug for this purpose in the area of the leach field. Before digging, call Wyoming-One-Call at 1-800-348-1030 to confirm there are no electric, gas or telephone lines where you plan to dig. Call before you dig.** A backhoe may be used to dig this hole since it is for visual inspection only.

SCHEDULING TESTS: After the percolation test holes and inspection pit have been dug, call the County Surveying/Planning office at 783-0318 or toll free from the valley 782-7432 to schedule the test. The test will be performed at no charge. Soak the holes, as described above, 24 hours before the percolation test is done.

ISOLATION DISTANCE

<u>From</u>	<u>To Septic Tank Or Equivalent</u>	<u>To Absorption System</u>
Wells (includes neighboring wells)	50	100
Public Water Supply Well	100	200
Property lines/right-of-ways	10	10
Building Foundation (without foundation drains)	5	10
Building Foundation (with foundation drains)	5	25
Potable Water Pipes	25	25
Septic Tank	--	10
Stream or Surface Body of Water (including seasonal and intermittent)	50	50
Cisterns	25	25

<u>Percolation Rate (Minutes/Inch)</u>	<u>Loading Rate Gallons Per Day Per Square Foot of Infiltration Area</u>
5	0.80
7	0.71
9	0.65
12	0.58
15	0.52
17	0.49
20	0.46
25	0.42
30-31	0.39
34-35	0.37
41-43	0.34
44-46	0.33
50-52	0.32
51-55	0.31
60	0.30

APPENDIX B Land Application of Domestic Septage in Remote Areas

Section 1. Restrictions and Requirements

To qualify for the land application of domestic septage in remote areas, the following conditions must be met.

(a) Location restrictions:

(i) Domestic septage generated on a specific property may be land applied on said property, and shall not be transported to another location for land application.

(ii) No land application of domestic septage shall occur within 1,000 feet of all adjacent properties.

(iii) No land application of domestic septage shall occur within 300 feet of a public road, permanent surface water body, or intermittent stream.

(b) Site restrictions:

(i) The land application of domestic septage shall only occur on those sites with established vegetation such as rangeland, pasture or hay meadows.

(ii) No more than 5,000 gallons of domestic septage per acre per year shall be land applied.

(iii) No land application of domestic septage shall occur where the site's slope exceeds five percent (5%) or where the depth to groundwater is less than four (4) feet.

(iv) The land application of domestic septage shall not occur between November 1 and May 1, or any other time when frozen or saturated ground conditions exists.

(v) No public access shall be allowed to any site where domestic septage has been applied for at least one (1) year following application.

(vi) No grazing animals shall be allowed access to any site where domestic septage has been land applied for at least thirty (30) days following application.

(c) Crop restrictions:

(i) No root crops shall be harvested from soils where domestic septage has been land applied for at least thirty-eight (38) months following application

(ii) No truck crops (harvested parts touch land surface) shall be harvested from soils where domestic septage has been land applied for at least fourteen (14) months following application.

(iii) No commodity crops (other food, feed, and fiber crops whose harvested parts do not touch land surface) from soils where domestic septage has been land applied shall be harvested for at least thirty (30) days following application.

(iv) No turf shall be harvested from soils where domestic septage has been land applied for at least one (1) year following application.

(d) Reporting Requirements:

(i) The property owner shall notify the appropriate Department of Environmental Quality, Water Quality Division (DEQ/WQD) District Engineer prior to the land application of domestic septage to confirm the requirements and to arrange a possible DEQ/WQD inspection of the land application.

(ii) All records related to each septage application will be maintained for at least five (5) years.

(iii) There is a worksheet provided online at the Division's website that must be completed, signed, and returned to the DEQ/WQD, or the appropriate delegated local permitting authority, within 15 days of the land application.