

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

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**REGULATIONS FOR PERMIT TO CONSTRUCT,
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CHAPTER I

AUTHORITY, APPLICABILITY, AND SCOPE

Section 1. Authority. This regulation is promulgated pursuant to the Wyoming Environmental Quality Act, W.S. 35-11-101 through W.S. 35-11-1428 and W.S. 35-1-301 through 35-1-309. Specifically, portions of W.S. 35-11-301 (a) (iii).

Prohibited acts.

a. No person, except when authorized by a permit issued pursuant to the provisions of this act, shall: Construct, install, modify or operate any sewerage system, treatment works, disposal system or other facility, excluding uranium mill tailing facilities, capable of causing or contributing to pollution, except that no permit to operate shall be required for any publicly owned or controlled sewerage system, treatment works or disposal system:

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. Applicability.

a. These rules and regulations shall apply to all small wastewater systems as defined in Chapter II, Section 3 of these rules and regulations.

b. These rules and regulations shall apply to all lots, parcels, and tracts not served by public sewer without regard to whether such lots, parcels or tracts may have been in existence prior to the effective date of these rules and regulations.

c. The repair, addition to, or alteration of an existing small wastewater system shall be governed by these rules and regulations.

d. The construction, installation, repair, addition to, modification, or alteration of a small wastewater system for which a valid application for a small wastewater system permit was made under prior regulations shall be governed by these rules and regulations per their effective date of adoption.

e. No person, firm or corporation shall discharge sewage including any household, commercial, or industrial liquid waste into any ditch, stream, lake, pond, natural or artificial

waterway, field drain tile or to the surface of the ground without permission from the Administrative Authority.

Section 3. **Scope.** The provisions of these rules and regulations shall apply to the design, construction, installation, addition to, repair, modification, and use of all small wastewater systems except as otherwise provided in these rules and regulations. For the purpose of these rules and regulations the terms construction and installation shall include additions to, repairs, and modifications of small wastewater systems.

CHAPTER II

TITLE, PURPOSE AND DEFINITIONS

BE IT ORDAINED BY THE BOARD OF HEALTH OF THE CITY OF CASPER-NATRONA COUNTY

Section 1. Title. These rules and regulations shall be known as the "Board of Health Regulations for Permit to Construct, Install, or Modify Small Wastewater Systems" and may be so cited and are referred to herein as "these rules and regulations."

Section 2. Purpose and Policy Declared. These rules and regulations are enacted as an exercise of the police power of Natrona County to protect and preserve the public peace, health, safety, and welfare. Its provisions shall be liberally construed for the accomplishment of these purposes. It is expressly the purpose of these rules and regulations to provide for and promote the health, safety and welfare of the general public, and not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefitted by the terms of these rules and regulations.

It is the specific intent of these rules and regulations to place the obligation of complying with its requirements upon the owner of premises within its scope, and no provision of nor terms used in these rules and regulations is intended to impose any duty whatsoever upon the City of Casper-Natrona County Board of Health or any of its officers or employees.

The issuance of small wastewater system permits provides that the Administrative Authority has evaluated and determined that the application meets minimum applicable construction and design standards. The compliance with construction standards and the

operation and maintenance of the facility to meet the applicant's/engineer's design are the responsibility of the applicant, owner, or operator.

The authority to construct granted by a permit does not mean or imply that the Administrative Authority guarantees or ensures that the permitted facility, when constructed, will meet applicable effluent or operational requirements.

Nothing in a permit constitutes an endorsement of the construction or the design of the small wastewater system. A permit indicates only that standards of design and construction required by these rules and regulations have been met. The Administrative Authority assumes no liability for, and does not in any way guarantee the performance of, the permittee in the exercise of its activities allowed under a permit. The permittee understands that it is solely responsible to any third parties for any liability arising from the construction or operation of a small wastewater system. By the issuance of a permit, the Administrative Authority does not in any way waive its sovereign immunity.

Nothing in a permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties established pursuant to any applicable law or regulation.

The issuance of a permit does not convey any property rights in either real or personal property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

Section 3. Definitions. Certain words and phrases in these rules and regulations, unless otherwise clearly indicated by their context, shall mean as follows:

ABSORPTION SYSTEM

See Drainfield

ADMINISTRATIVE AUTHORITY

The State of Wyoming Department of Environmental Quality (D.E.Q.), under W.S. 35-11-301 (a) (iii) and/or the City of Casper-Natrona County Board of Health where delegated by W.S. 35-11-304.

AEROBIC UNIT

A covered, watertight receptacle which receives wastewater. The

unit removes settleable solids, floatable material, and a portion of soluble organic matter by the use of aerobic biological treatment.

ALTERNATIVE SYSTEMS

Units other than individual septic tanks and individual drain fields or devices that can function as septic tanks with subsurface disposal and shall include lagoons, community systems, and other systems approved for use by the Wyoming Department of Environmental Quality.

APPROVED

Approved in writing by the Health Officer, and where required, by the Wyoming Department of Environmental Quality.

BLACK WATER

Waste originating from toilets, bidets, and urinals and/or including human and animal body waste.

BREAK IN SLOPE

Break in slope is defined as the point at which the topographic ground surface adjacent to a septic system drainfield declines with a minimum of fifteen (15) percent slope relative to the ground slope over the drainfield (See Figure 1A). For the purpose of ascertaining setback requirements, if a horizontal line drawn from the bottom of the distribution lateral inverts within the drainfield does not intersect the topographic surface expression of an adjacent slope (regardless of the degree of slope), said slope shall not be figured into any setback calculations regarding breaks in slope. (See Figures 1B, 1C)

BUILDING DRAIN

That part of a building drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the building sewer which begins two (2) feet outside the building walls.

BUILDING SEWER

The sewage piping system designed to conduct sewage from the building drain to a point of connection to a septic tank or other private sewage disposal facility.

CESSPOOL

An excavation in soil for the purpose of receiving untreated domestic sewage.

COMMUNITY ON-SITE SYSTEM

Any on-site sewage disposal system under one ownership utilizing a collection system and serving more than one (1) residential unit and/or more than one (1) commercial unit.

COMMERCIAL UNIT

Any structure not meeting the definition of a residential unit. (Chapter II, Section 3 - Definitions of these rules and regulations)

COVER

Soil material that is used to cover a small wastewater system.

D-BOX

See Distribution Box

DEPARTMENT

The City of Casper-Natrona County Health Department.

DISTRIBUTION BOX

A water-tight receptacle which receives liquid effluent from a septic tank and distributes such effluent in equal portions into two or more pipes leading to the drainfield.

DOMESTIC SEWAGE

Any liquid or liquid-borne waste, including gray or black water, derived from the ordinary living processes, or liquid or liquid borne waste which contains animal or vegetable matter in suspension or solution; free from industrial waste, and of such character as to permit satisfactory disposal without special treatment.

DOSING SYSTEMS

Those small wastewater systems using a pump or siphon to transport effluent to the drainfield.

DRAINFIELD

A system consisting of trench(s), bed, or mound, together with the piping, gravel, or gravelless components; designed and installed for the purpose of receiving effluent from a pretreatment device, effectively filtering the effluent through soil or media.

EFFLUENT LINE

The solid sewer line exiting on the downstream end of the septic/pump tank which conveys pretreated liquids to the D-box/drainfield.

EXCESSIVELY PERMEABLE SOILS

Soils having a percolation rate of one (1) minute per inch or less and/or where conditions are such that the treatment potential is ineffective in retaining and/or removing substances of public health significance to underground sources of water.

EXPERIMENTAL SYSTEM

Any alternative system, generating two thousand gallons per day (2,000 gpd) or less, which has not yet had guidelines established by these rules and regulations and/or by the Wyoming Department of Environmental Quality pursuant to W.S. 35-11-302.

FILL

Soil materials that have been displaced from their original location.

FOOD SERVICE ESTABLISHMENT

Any commercial establishment in which food is processed or otherwise prepared, packaged, or repackaged into another container for consumption or for resale.

GRAYWATER

Wastewater originating from all residential plumbing fixtures with the exception of toilets, bidets, and urinals, and/or excluding human and animal body wastes.

GROUND WATER

Subsurface water occupying the zone of saturation, (permanently or seasonally, the top surface of which is commonly referred to as the water table) the indication of which may be demonstrated by one (1) or more of the following methods:

1. Water seeping into or standing in an open excavation from the soil surrounding the excavation.

2. Spots or blotches of different color or shades of color interspersed with a dominate color in soil, commonly referred to as mottling. This is caused by intermittent periods of saturation and drying, and may be indicative of poor aeration and impeded drainage.

HEALTH OFFICER

The Director of the City of Casper-Natrona County Health Department or his/her authorized representative.

HYDROGEOLOGICAL STUDY

A study of the occurrence, distribution, quality and movement of the shallow-most groundwater of the site and the potential impact of wastewaters on the groundwater.

IMPERMEABLE

Having a percolation rate greater than or equal to sixty (60) minutes per inch.

INDUSTRIAL SEWAGE

The wastewater from industrial processes, trade, or business, as distinct from domestic sewage.

INTERMITTENT WATER

Channelized meteoric water. A common example would be channelized flash flood waters created by heavy rainfall.

LOCAL SEWER SERVICE AREA

Incorporated cities or towns and local service areas identified in the City of Casper-Natrona County Approved Water Quality Management Plan prepared under Section 201 of the Federal Clean Water Act, as amended.

LOT SIZE

Lot surface area which is bounded by the property lines of that lot as defined by a legally recorded survey/plat.

ORDINARY HIGH-WATER MARK

The mark on all lakes, reservoirs, streams, and rivers which will

be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation, as that condition exists on the effective date of these rules and regulations, or as it may naturally change thereafter.

ORIGINAL PERMEABLE SOIL

The naturally occurring soil overlying any impermeable layer, or overlying the elevation of seasonal high ground water, whose percolation rate is not greater than or equal to sixty (60) minutes per inch.

PERCOLATION TEST

A soil test performed at the depth of the bottom of a proposed drainfield to estimate the water absorption capability of the soil. The results are normally expressed as the rate in minutes at which a one (1) inch vertical column of water is absorbed by the soil (minutes/inch).

PERMIT

Shall include a permit to construct and a permit of completion.

PERMIT OF COMPLETION

The permittee's completion of construction, installation, repair, or modification of a small wastewater system and final inspection and approval by the Health Officer as documented on the permit to construct.

PERMIT TO CONSTRUCT

A written authorization issued by the Department, duly executed, which authorizes the permittee to construct, install, repair, or modify a small wastewater system as set forth in these rules and regulations.

PERSON

Any individual, firm, partnership, corporation, joint stock company, association, organization, cooperative, public or municipal corporation, or agency of any government unit however designated.

PLUMBING SYSTEM

The plumbing system means and includes all potable water supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipe and all building drains, including their respective joints and connection, devices, receptacles and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, fuel gas piping, water heaters and vents for same.

PUBLIC SEWER

The collection system and trunk sewers of a public sewer system.

PUMP TANK

A tank in which dosing pumps or siphons are installed. A pump tank shall be separate and distinct from a system's septic tank.

PUMP LINES

The sewage piping system designed to conduct sewage effluent from the pump tank by use of a pump or siphon to a drainfield.

REPAIR

The replacement, addition, or modification of a septic tank, distribution box, tight line, or other appurtenances of an existing small wastewater system, and including any replacement, addition, or modification to a drainfield.

REPLACEMENT AREA

A square footage area suitable for installation of a replacement drainfield meeting the requirements of these rules and regulations.

RESIDENT OWNER

A person who is legally recorded at the Natrona County Assessor's Office as the property owner.

RESIDENTIAL UNIT

A single structure providing separate living quarters for no more than four (4) families (4 plex maximum).

RESTRICTIVE LAYER

A layer that obstructs the movement of water, air, and growth of plant roots. Examples of such layers or conditions are ground water tables, hardpans, claypans, fragipans, compacted soil, bedrock and clayey soil.

SEASONAL WATER

Any body of water not classified as surface water, which either flows, is contained, or saturates the ground to the surface and/or which changes the soils from an aerobic to an anaerobic condition.

SEEPAGE PITS (DRY WELLS)

Deep excavations with covered, porous-walled, chambers placed in the excavation and surrounded by gravel or crushed rock.

SEPTIC TANK

A watertight pretreatment receptacle and its components which receives the discharge of sewage from a building sewer or sewers, and is designed and constructed so as to permit separation of settleable and floating solids from the liquid, and detention and digestion of the organic matter, prior to discharge of the liquid portion.

SEWAGE

See Domestic Sewage and Industrial Sewage.

SEWAGE COLLECTION FACILITY

Those facilities which collect wastewater as publicly owned collection works.

SEWER UTILITY

The owner and/or operator of a public sewer system.

SIDE SEWER

The sewage piping system designed to conduct sewage from a building or other source of sewage, located on any premises, to a point of connection to a public sewer.

SMALL WASTEWATER SYSTEM

Any sewerage system, disposal system or treatment works, for the disposal of domestic sewage by means other than into a public sewer system, having simple hydrologic and engineering needs which is intended for wastes originating from a single residential unit serving no more than four (4) families or which distributes two thousand (2,000) gallons or less of domestic sewage per day.

SOIL LOG

An excavation in soil of sufficient size and depth made to adequately determine the soil's characteristics together with the detailed description of the soil's texture, structure, color, water absorption capabilities or permeability, and/or any other characteristics providing information as to the soil's capacity to act as an acceptable treatment and disposal medium for sewage effluent.

SUBDIVISION

A division of land into lots, tracts, parcels, sites, or divisions and including in these rules and regulations the division of a single parcel into two (2) parcels.

SURFACE WATER

Any body of water which either flows or is contained in natural or artificial depressions or drainage courses or has been identified by the State Department of Environmental Quality, Water Quality Division, as surface waters of the State (Chapter 1, DEQ Water Quality Rules and Regulations). Such bodies include, but are not limited to, natural and artificial lakes, ponds, rivers, streams, swamps, marshes, wetlands and intermittent water.

VERTICAL SEPARATION

The depth of unsaturated soil that exists between the bottom of a drainfield and a restrictive layer or seasonal high groundwater.

WAIVED

Waived in writing by the Health Officer, and where required, by the Wyoming State Department of Environmental Quality, Water Quality Division.

WASTEWATER

See Black Water, Graywater and Sewage.

CHAPTER III

PERMITS AND CERTIFICATION

Section 1. Permits.

a. It is unlawful to construct, install, repair, or modify small wastewater systems without a small wastewater system permit. Such permit shall be posted on the building or premises where the work permitted is being done, before the work is begun, and unless revoked, shall not be removed until such work has been finally approved by the Health Officer. The State Department of Environmental Quality commercial/industrial wastewater facility permit holders shall be required to notify, make application and receive a City of Casper-Natrona County Health Department wastewater system permit.

b. No small wastewater system permit will be issued without Department approval of a site design per Chapter IV, Section 1 of these rules and regulations. Permit application requirements for Chapter III, Section 1, c. shall be at the discretion of the Health Officer.

c. The fee for a small wastewater system permit shall be one hundred twenty-five dollars (\$125.00) for a new system. The fee for a repair permit for an on-site small wastewater system shall be based upon the following schedule:

- (1) Complete replacement of system - \$125.00
- (2) Replacement of drainfield - \$125.00
- (3) Replacement of any one or combination of the following: septic tank, pump tank - \$75.00
- (4) Replacement of any one or combination of the following: septic tank inlet or outlet, baffles, D-box and other appurtenances - \$25.00
- (5) Replacement of tight lines between building and septic tank and between septic tank and other appurtenances - no fee

d. Small wastewater system permits to construct shall expire one (1) year from date of issue with extensions grantable by the Health Officer.

e. Small wastewater system permits shall only be issued to the official applicant of record for only the type of construction of record. The official applicant of record must be the owner of the property or have power of attorney.

f. Application for a small wastewater system permit shall be made in writing in a manner prescribed by the Health Officer. The Health Officer may deny the application or revoke the permit if, in the Health Officer's judgment, operation of the system will result in a public health hazard, and/or non-compliance with the criteria as set forth in these rules and regulations. The Health Officer may consider any relevant health and safety

factors and these rules and regulations in making such a determination. If an application is denied on the grounds of a hazard to the public health, the Health Officer, at the time of the denial, shall inform the applicant in writing of the reasons for the denial and the applicant's right to an appeal to contest the denial. A request for hearing shall be made to the Board of Health in writing within sixty (60) days of notification of the denial and shall state the grounds for the request. Any hearings shall be conducted pursuant to the regulations of the Board.

g. Natrona County Planning and Zoning Certificates are required when the applicant of record is constructing above ground structures and/or requiring mechanical, plumbing, or electrical permits. Planning and zoning certificates shall only be signed by the Health Officer when the following conditions have been met: 1) Completion of Chapter III, Section 1, a. through f. of these rules and regulations. 2) Completion of Chapter IV, Section 1 of these rules and regulations. 3) The Health Officer shall review the completed application and on-site information and make a determination as to whether or not a small wastewater system is feasible for the location in question. If not feasible, the zoning certificate shall not be signed.

h. Permits to replace appurtenances as referenced in c.(4) of this Section may be completed in the field by the property owner under the direction of a certified small wastewater system installer. Permits and permit fees shall be remitted to the Health Officer by the installer within five (5) working days of the completion of the repair.

i. The authority to issue permits shall not be delegated by the Health Officer.

Section 2. Required Certificate.

a. For the Designer

(1) All designs for small wastewater systems servicing commercial units shall be completed and signed by a professional engineer (P.E.).

(2) Designers shall be accessible to their clients, the installers, and the Department during normal working hours. This is to be accomplished by either maintaining office personnel, a phone answering service, a phone answering device or any other method acceptable to the Health Officer.

b. For the Installer

(1) It is unlawful to install small wastewater systems

without a currently valid City of Casper-Natrona County Health Department installer's certificate of competency.

(2) The fee for a small wastewater system installer's certificate of competency is fifty dollars (\$50.00) per year. For any certificates of competency issued after July 1 of each year the fee shall be one-half (1/2) the annual fee.

(3) Application for installer certification

(a) Application for a small wastewater system installer's certificate of competency shall be made to the Health Officer, who may examine the applicant, and may deny the applicant, and may deny the application if in the Health Officer's judgement the applicant is for any reason, including previous finding of negligence, incompetency, misrepresentation or failure to comply with these rules and regulations, not qualified to install small wastewater systems.

(b) As a condition for certification, the applicant must successfully complete a small wastewater system installer's examination to be administered by the Department. A passing score of seventy-five (75) percent shall be required. Tests shall be given on a monthly basis. No applicant may take more than one (1) exam per month.

(c) Installers shall have one hundred twenty (120) days from the adoption of these rules and regulations to comply with installer certification requirements.

(4) Provisions for certification

(a) The Health Officer may suspend or revoke any small wastewater system installer's certificate of competency, pursuant to Chapter III, Section 2, b., 3. (a) of these rules and regulations.

(b) Small wastewater system installer's certificates of competency shall expire December 31 of each year. The holder of such a certificate may renew the certificate at any time prior to February of the year following expiration without taking the examination required by this section. However, installers may not construct, install, repair, or modify any system until they have renewed their certification.

(c) The Health Officer shall hold, as necessary, informational/educational meetings for all holders of small wastewater system installer's certificates of competency. A minimum of four (4) weeks advance notice of the meeting time and location shall be given to each installer. Installers unable to attend these meetings shall be provided the information via

certified mail.

Section 3. Resident Owner.

a. A resident owner may personally design a small wastewater system for his/her own residential unit, provided that the application submitted by the resident owner demonstrates compliance with these rules and regulations.

b. A resident owner may personally construct, install, modify or repair a small wastewater system, provided that the resident owner demonstrates compliance with these rules and regulations.

Section 4. Constructing Small Wastewater Systems.

a. Small wastewater systems shall only be constructed or installed by a small wastewater system installer, certified pursuant to Chapter III, Section 2., with the exception of provisions in Chapter III, Section 3.b. of these rules and regulations.

b. The installer shall certify to the Health Officer that he/she was physically present during the initial installation of a small wastewater system, and that the system was installed according to the approved design. This requirement shall apply to resident owners should they install their own systems.

CHAPTER IV

APPLICATION AND GENERAL DESIGN REQUIREMENTS

Section 1. Application Requirements.

a. Design of small wastewater systems shall be such as to accommodate all sewage from the buildings and premises to be served, and in accordance with these rules and regulations. The type of system shall be determined by location, soil permeability, ground water level, and other relevant conditions. The design shall be supported by the following:

(1) Completion of the application for a small wastewater system including:

- (a) Approximate site address of property
- (b) Mailing address and phone number of applicant
- (c) Legal description of property
- (d) Lot size
- (e) Type of building(s) the system will support, i.e., residential or commercial
- (f) Number of bedrooms/type of commercial operation

- (g) Name and phone number of system contractor
- (h) Description of subsurface soil conditions (soil boring or slit trench)
- (i) Ground water conditions including probable maximum height (soil boring or slit trench for verification)
- (j) Source of domestic water supply
- (k) Location of property and easement lines
- (l) Date, location, and results of percolation testing
- (m) Signature of property owner
- (n) Natrona County Zoning Certificate (if applicable)

(2) A completely dimensioned plot plan, drawn to approximate scale, showing direction of surface drainage and other features relevant to the design and installation of an adequate and efficient small wastewater system. Proposed and existing water sources on the applicants property and water sources near property lines (wells, bodies of water and water sources within one hundred (100) feet) must be shown. Proposed location of the small wastewater system and the replacement area shall be shown on the plot plan.

(3) Construction plans and specifications shall provide a drainfield detail drawing that includes the location, dimensions, and elevations of stub outs, septic tank(s), dosing chambers, D-boxes, laterals and other appurtenances. The drawing shall also include the location of any proposed footing drains, curtain drains, and/or interceptor drains.

(4) If the location of the replacement area is at an elevation above the outlet of the septic tank, the design shall include all pump tanks, and piping necessary to allow distribution of the effluent to the replacement area with a minimum of disruption to the original drain field and other property of the owner. The Health Officer may require the installation of the replacement small wastewater system where the future access to the replacement area will be severely limited.

(5) Provide an accurate vicinity location sketch or route map to the property.

(6) Completion of the application for an appurtenance replacement (Chapter III, Section 1., h.) shall include:

- (a) Approximate site address of property
- (b) Mailing address and phone number of applicant
- (c) Legal description of property
- (d) Signature of property owner
- (e) Signature of certified installer
- (f) Description of the replacement appurtenance
- (g) Detailed drawing that includes the location and setbacks from the house/building of the replaced appurtenance

(h) Orientation of drawing with true north direction by arrow

(7) Such other information as the Health Officer may require.

Section 2. General Design Requirements.

a. Drainfields shall not be located in an area where the natural slope is steeper than stated below. The following are the maximum permissible slopes on which a drainfield may be constructed.

Percolation Rate (min/inch)	Maximum Slope*
Faster than 5	25%
6-45	20%
46-60	15%

* Flatter slopes may be required where the effluent may surface downslope.

b. All drainfields must be located at least fifteen (15) feet from the top of any break in slope which exceeds the maximum allowed in Section 2., a. above.

c. Small wastewater systems shall not be located on property other than that owned by the applicant and on which the building that the system will service is located, with the exception of a properly executed easement.

d. Small wastewater systems shall not be located on land forms that are unstable. Such unstable areas may include those areas identified as Class III landslide hazards by the United States Geological Survey.

e. Where any type of drain is to be installed for the purpose of intercepting subsurface water and channeling, concentrating, focusing or directing its flow onto a downstream property not under the ownership or agency of the applicant, a release of damages holding the City of Casper-Natrona County Board of Health and its employees harmless for any subsequent erosion or loss or limitation of use of such property must be recorded prior to approval of any small wastewater system permit application.

f. All types of drains installed for the purpose of establishing vertical separation shall be verified by monitoring, as effective during the high water table season. High water

table season shall be determined through the application of climatic, topographic and irrigation variables.

g. No downspout or footing drain shall be directly or indirectly connected to a small wastewater system, and small wastewater systems shall be so constructed and installed that surface water or ground water will not interfere with the operation of such system.

h. Seepage pits shall not be used for the disposal of sewage and/or septic tank effluent.

i. The installation and use of cesspools for disposal of sewage is not permitted.

j. Grease traps shall be installed for all commercial food preparation establishments which generate grease as a by-product of food preparation. When grease traps are used, the installation shall comply with criteria set forth in "Design Manual, On-site Waste Water Treatment and Disposal Systems," United States Environmental Protection Agency, October 1980, and as hereinafter amended or modified by these rules and regulations. In addition, the design application shall include a grease trap maintenance schedule.

k. When siphon systems are used, they shall comply with criteria set forth in "Design Manual, On-site Waste Water Treatment and Disposal Systems," United States Environmental Protection Agency, October 1980.

l. The connection of an additional guest house, garage apartment, or other accessory dwelling unit to an existing system designed for a single family residence or commercial structure shall be permitted through the Department of Environmental Quality.

m. The use of low volume flush toilets and reduced flow showerheads and faucets shall be encouraged.

n. No drainfield, septic tank, distribution box, or pump tank shall be constructed without the use of detection tape, permanent markers, or other methods approved by the Health Officer to aid in the future location of these components.

o. All small wastewater systems must comply with the setbacks contained in Table A. All of the setback minimums shall be measured from the nearest edge of the drainfield, or septic/pump tank.

p. Small wastewater systems potentially subject to the presence of domestic livestock or vehicular traffic shall be

fenced to preclude damage to those systems.

**TABLE A
MINIMUM SETBACKS**

	Septic/Pump Tank	Drainfield	Pump Lines
Surface Water	50' _{1, 2, 3}	50' _{1, 2, 3}	50'
Seasonal Water	50' _{1, 2, 3}	50' _{1, 2, 3}	--
Potable Water Source:			
Private Well	50' ₁	100' ₁	50'
Public Well	100' ₁	100' ₁	50'
Springs	100' ₁	100' ₁	50'
Property Lines/ Easement Lines	50'	100'	10'
Building Foundations	5'	10'	--
Building Foundations w/foundation drains	5'	25'	--
Septic Tank	--	10'	--
Water Lines	25'	25'	--
Interceptor/ Curtain Drains/ Footing Drains			
Level or Upslope from system ₄	--	10'	--
Downslope from systems ₄	5'	30'	--
Cuts or Banks			
Less than 5' in vertical height	--	15' + height of bank	--
Greater than 5' in vertical height with minimum of 5' of original undisturbed soil above restrictive layer	--	15' + height of bank with minimum setback of 25'. Maximum setback need not exceed 100'	--
Greater than 5' in vertical height with			

less than 5' of original,
undisturbed soil above
restrictive layer or a
layer due to a textural
change and that layer
is intersected by the
cut or bank

--

15' + height of bank
with minimum setback of
50'. Maximum setback
need not exceed 100'

--

SUBSCRIPT DEFINITIONS:

1. With excessively permeable soils or other sites where conditions indicate a greater potential for ground or surface water contamination or pollution, the distance from any water supply or surface water may be increased by the Health Officer, as indicated in writing to the applicant.
2. This separation cannot be reduced by culverting of streams without written approval from the Wyoming State Department of Environmental Quality.
3. Setback measured from ordinary high water mark of surface water. Greater setback may be required to prevent pollution, provided the Health Officer has given reasons for greater setback to applicant in writing.
4. Based on relative elevation of bottom of drainfield trench and bottom of interceptor/curtain drain.

All properties divided or subdivided after adoption of these rules and regulations shall comply with Table A, setback requirements.

All other properties shall comply with Table A requirements with the exception of Setbacks to Property Lines for Septic Tank/Pump Tank and Drainfield, which shall be a minimum requirement of ten (10) feet. **However, these setbacks shall meet the requirements in Table A regarding Property Line setbacks as much as is practicable.**

Section 3. Soil Test Procedures.

a. Soil Logs

(1) A log of the soil must be submitted as part of the application for design approval. In areas where the soil characteristics of the proposed replacement area may not comply with the minimum standards as set forth in these rules and regulations, the Health Officer may require soil logs from the proposed replacement area. Soil logs shall show soil types encountered in the drainfield and replacement area (if necessary), at least four (4) feet below the level of the bottom of the proposed drainfield or ten (10) feet from the surface, whichever is greater. The log must describe soil type and the depth of each type. Classification may be in general terms such as loose sand, cemented sand, sandy silt, silt clay, silt, clay hardpan, claypan, rock, etc. (see Appendix A.), or classification may be in specific terms such as "Alderwood gravelly sandy loam" or "Buckley silt loam" as described in United States Department

of Agriculture Soil Conservation Service Soil Survey. Any evidence of seasonal water table must be noted and described. Sieve tests may be required by the Health Officer in cases where identification of soil types is in question (See Figure 2).

(2) Soil logs for single residential units must be made from two (2) or more test holes located in representative parts of the drainfield and must be separated by at least twenty (20) feet. Holes must be a minimum of four (4) inches in diameter and excavated soils must be continuously monitored by the Health Officer, or qualified geologist, soils scientist, or professional engineer, to describe representative samples from the soil profile and determine color, texture, structure, and in addition, elevation of water table if it is encountered. In lieu of these holes, this requirement may be satisfied by the excavation of a slit trench located outside the proposed drainfield, but within ten (10) feet of the proposed drainfield site. The slit trench must be a minimum of eighteen (18) inches in width to allow the observer to describe representative samples from the soil profile and determine color, texture, structure, and in addition, elevation of water table if it is encountered. Trench width requirements may be waived by the Health Officer in those soils where the color, structure, texture, and elevation of water table can clearly be seen with a smaller trench width. Additional soil logs may be required at the discretion of the Health Officer to preclude the installation of small wastewater systems in areas that may not meet the minimum requirements of these rules and regulations. Test holes/trenches shall be so excavated and maintained as to prevent injury or damage to the general public or the creation of a hazard to livestock. Contractors/excavators shall provide adequate safeguards such as covers, flagging, or fencing for open soil excavations. Test holes/trenches shall not be excavated under the following conditions, unless otherwise authorized by the Health Officer:

- (a) Rainfall
- (b) Snowfall
- (c) Frozen ground
- (d) Soils saturated with water
- (e) Ambient air temperature below thirty-two (32) degrees Fahrenheit.

b. Percolation Tests

(See Appendix B)

A minimum of three (3) percolation test holes are required. The soil permeabilities for system sizing utilizing three (3) to five (5) percolation tests will be as follows:

- (1) Any percolation test value less than or equal to 1.0

minute/inch will be the definitive soil permeability for the series of tests. Soils with percolation rates less than or equal to 1.0 minute/inch are excessively permeable.

(2) When all test results are greater than 1.0 minute/inch, the highest value will be used for system sizing.

(3) When six (6) or more percolation tests are performed, the design percolation rate for the absorption system is the mean average of all the holes tested.

c. Particle Size Analysis

When particle size analysis tests (sieve tests) are run, the procedure used must be consistent with American Society for Testing Materials Standard D-442.

d. Infiltration Test

For the purpose of determining the disposal trench area for sand filter treated effluent, an infiltration test may be conducted (See Appendix C).

Section 4. Soil Conditions.

a. For small wastewater systems, the depth to bedrock or impermeable soil must be at least four (4) feet from the bottom of the absorption system stone and from the natural ground surface. The depth to seasonally high groundwater must be at least four (4) feet from the bottom of the absorption system stone and at least two (2) feet from the natural ground surface.

Also, a minimum of four (4) feet of unsaturated soils shall be maintained between the bottom of the absorption system stone and the estimated groundwater mound imposed on the seasonally high groundwater table. The height of the groundwater mound may be estimated from Figures 3 through 8. The average daily flow should be used and may be estimated as 0.6 times the flow determined from Table B.

b. All small wastewater systems constructed in excessively permeable soils shall have the bed/trench overdug by two (2) feet in a vertical aspect and refilled with a two (2) foot layer of one of the following soil types: Fine sand, loamy sand, sandy loam, or loam as defined by the United States Department of Agriculture Soil Conservation Service. Systems requiring such filters will be sized based on the percolation rate of the texture of the filter material used, as follows:

Soil Texture	Percolation Rate
Fine sand and loamy sand	15 min/inch

Sandy loam and loam 30 min/inch

c. Where marginal soil conditions exist, soil investigations and percolation studies may be accepted only if performed with the Health Officer present. The scope of the investigation and the number of percolation tests and soil logs necessary to yield representative information will be determined by the Health Officer.

d. Where there is evidence of a high water table or shallow restrictive layer, the Health Officer may require additional testing or monitoring to verify that a high water table does or does not exist. Such testing must allow adequate time to monitor and evaluate the seasonal water table. The Health Officer may require the applicant to provide one (1) year of groundwater monitoring to delineate the highest groundwater level.

Section 5. Required Absorption Area.

a. Design Flows

(1) The small wastewater system shall have a minimum absorption area based on the minimum peak design flows listed in Table B.

(2) Wastewater strength entering a conventional sand filter system shall not exceed a BOD₅ of two hundred (200) mg/L and a TSS of one hundred fifty (150) mg/L per day unless otherwise authorized in writing by the Health Officer.

b. Soil Absorption System Sizing

(1) For trench, bed, and mound systems, the total infiltrative surface of a soil absorption system shall be calculated based on the flow rate as determined by the criteria stated in Section 5., a. and with the allowable loading rate as determined by using Figure 9, **but in no case shall be less than five hundred (500) square feet.** The total infiltrative surface is the sum of the sidewall and bottom areas of the absorption system below the invert of the distribution pipe. Gravelless systems infiltrative surface areas shall be calculated according to manufacturer's specifications and/or specifications approved by the Wyoming Department of Environmental Quality.

(2) Soils with a percolation rate of sixty (60) minutes per inch or greater are unacceptable for subsurface absorption systems with the exception of treated effluent from sand filter systems.

(3) Bottomless sand filters disposing effluent directly beneath the filter (in situ) shall not be allowed without the expressed written authorization of the Health Officer. Soil absorption systems for sand filters shall be trenches. The total infiltrative surface of a sand filter soil absorption system shall be calculated based on the system loading rate as determined by Table F. For conventional, gravel type, gravity-fed trenches an absolute minimum of one hundred twenty-six (126) square feet of infiltrative area shall be required. For gravelless, gravity fed trenches an absolute minimum of ninety (90) square feet of infiltrative area shall be required. All pressure dosed disposal trenches shall require an absolute minimum of fifty (50) square feet of infiltrative area. Total infiltrative surface calculations shall not include the sidewall.

(4) For sand filter systems, soils with a percolation rate of sixty-one (61) minutes per inch to one hundred twenty (120) minutes per inch shall be assigned a system loading rate according to Table F for the purpose of calculating soil absorption system size. Soils with percolation rates greater than one hundred twenty (120) minutes per inch are unacceptable for sand filter effluent disposal areas.

(5) Sand filter system absorptive areas may also be calculated from data obtained from infiltration tests (See Appendix C). Infiltration rates less than 1.06 gallons per square foot per day shall be unacceptable for sand filter effluent disposal areas (See Table F.).

TABLE B
Quantities of Domestic Sewage Flows

Type of Establishment	Flow (Gallons per day per)
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Residential Units

Single Family Dwelling.....	150/bedroom
Multiple Family Dwelling (with laundry capabilities).....	150/bedroom
Multiple Family Dwelling (without laundry capabilities).....	120/bedroom
Resort cottage/cabin.....	50/person
Mobile Home Park.....	450/home*

Commercial Facilities

Airport.....	5/passenger
Bar	5/patron
Bathhouse and swimming pool (Sanitary facilities only).....	15/person
Campground (individual sewer outlets available).....	100/site
Campground (service building only).....	75/site
Car or truck wash.....	200/vehicle
Church (no food preparation or dishwashing).....	5/seat
Church (food preparation and/or dishwashing).....	7/seat
Country Club.....	100/member
Factory.....	30/employee
Hospital.....	200/bed
Laundry (self-service).....	600/machine or 50/cycle
Motel.....	80/double bed; 40/single bed
Office Building.....	30/employee
Restaurant (toilet and kitchen wastes).....	13/meal
Restaurant (kitchen waste).....	6/meal
Restaurant (additional for bars and lounges).....	2/meal
Restaurant (kitchen wastes with disposable service).....	2/meal
Rest Home.....	100/resident
Schools:	
Boarding.....	100/resident student
Day, without gyms, cafeterias or showers.....	15/student
Day, with cafeterias only.....	20/student
Day, with cafeteria, gym and showers.....	25/student
Service station.....	10/vehicle served
Shopping Center.....	2/parking space

Store, Retail.....30/employee
 Theaters:
 Movie.....5/seat
 Drive-in.....15/vehicle space
 Warehouse.....30/employee
 Work/Construction Camp.....15/employee
 Additional for Food Service.....25/employee
 Additional for Showers.....5/employee
 *Must consider flow into the soil absorption system from mobile homes where taps are allowed to run to prevent freezing.

For uses not listed in Table B., the upper range values in "Design Manual: On-site Wastewater Treatment and Disposal Systems," United States Environmental Protection Agency, EPA-625/1-80-012, October, 1980 shall be used.

Section 6. Permit Application For Sewage Collection Facilities As Defined in Chapter III, Section 3, Wyoming Water Quality Rules and Regulations.

- a. Design of these systems shall comply with State Department of Environmental Quality requirements for sewage collection facilities.
- b. Prior to construction, plans and specifications for sewage collection facilities shall be submitted to and approved by the State Department of Environmental Quality, Water Quality Division.
- c. After approval of the plan and specifications by the State Department of Environmental Quality, Water Quality Division, a wastewater system permit shall be obtained from the City of Casper-Natrona County Health Department prior to installing the sewage collection facility, as deemed necessary and documented on the D.E.Q. permit.

**CHAPTER V
 SPECIFIC REQUIREMENTS**

Section 1. Building Sewer.

- a. Construction, materials, distance separations and other specifications shall be as follows:
 - (1) Pipe used for construction for a building sewer beyond the building drain shall be a minimum of four (4) inches inside diameter and of concrete, cast-iron or polyvinyl chloride (PVC). Polyvinyl chloride pipe shall be Schedule 40 at a minimum.
 - (2) Construction of the building sewer line shall be such as to secure water-tight joints and it shall be on a grade of not less than one-eighth (1/8) inch per foot.
 - (3) No straight T's or ninety (90) degree elbows shall be permitted in the building sewer line and all forty-five (45)

degree or more acute bends shall have accessible cleanouts. Sanitary T's shall be acceptable as cleanouts.

(4) Building sewers shall have cleanouts placed outside the building at or near the connection of the building drain and the building sewer. Additional building sewer cleanouts shall be installed at intervals not to exceed one hundred (100) feet in straight runs, and for each change in direction equal to or greater than forty-five (45) degrees.

(5) 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. Special care shall be utilized to prevent lateral movement or ovalation 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 2. Septic Tank. Section 2. Septic Tank. Section 2. Septic Tank. Section 2. Septic Tank.

a. Design Standards

(1) Before septic tanks or grease traps may be manufactured, constructed, or sold on a commercial basis for installation in Natrona County, plans must be submitted and approved by the Health Officer/D.E.Q. Such plans shall show all dimensions, reinforcing, structural details and other pertinent data as required. Approval may not be construed or used in any manner to imply endorsement of a product by the Department. Upon approval by the Health Officer, the plans will be assigned an official number. Plans shall also be submitted for individual, built-in-place, septic tanks.

(2) No pre-cast septic tank shall be installed except those which have been clearly and legibly marked on the upper surface of the lid showing the number assigned by the Health Officer.

(3) All septic tank systems, whether they are installed singly, in series, or in a divided system, must be designed according to waste load and in no case shall have a total capacity of less than one thousand (1,000) gallons.

**MINIMUM LIQUID CAPACITIES FOR THE SEPTIC TANK
COMPONENT(S) OF SMALL WASTEWATER SYSTEMS**

Number of Bedrooms	Minimum Liquid Capacity Below Outlet Invert (in gallons)
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4 or less. 1,000
Each additional bedroom, add. 250

(4) Commercial/Industrial Systems shall have septic tanks with a minimum effective liquid capacity sufficient to provide at least thirty-six (36) hour retention at peak flow or one thousand (1,000) gallons, whichever is greater.

(5) The outlet elevation shall be designed to provide a distance of twenty (20) percent of the liquid depth between the top of the liquid and the bottom of the septic tank cover for scum storage. The inlet pipe shall be at least three (3) inches higher than the outlet.

(6) The liquid depth of any tank or compartment thereof shall not be less than forty-eight (48) inches nor shall a liquid depth greater than seventy-two (72) inches be considered in determining septic tank capacity. All tanks must have a length to width ratio of no less than 2:1.

(7) All septic tanks installed shall have a minimum of two (2) compartments or the equivalent, i.e., two (2) single compartment tanks in series. In lieu of a two (2) compartment tank, an approved effluent filter may be used. Effluent filters must meet the criteria as defined in Chapter V, Section 3., e., (6), of these rules and regulations.

(8) When multi-compartment tanks or two (2) or more tanks in series are used, the first compartment or tank shall have a minimum liquid capacity of two-thirds (2/3) of required total liquid capacity.

b. Construction

No septic tank/pump tank may be installed which does not comply with the following standards:

(1) Septic tanks/pump tanks shall be constructed of sound and durable material not subject to excessive corrosion or deterioration due to alkali attack, hydrogen sulfide gas, and other corrosive elements associated with decomposing waste. Tanks shall be watertight and constructed to prevent the entrance of rain water, surface drainage or ground water. Baffles shall be T-type, constructed of rigid, non-corrosive, durable material and secured to the compartment wall. Metal septic tanks/pump tanks shall not be allowed.

(2) All septic tanks/pump tanks must be demonstrated to be watertight.

(3) Septic tanks must be provided with a pumpout(s) a minimum of six (6) inches in diameter capable of allowing sludge removal from the first and second compartment. Septic tanks shall be provided with a manhole(s) (Minimum of twenty (20) inches in the least dimension) and/or removable lids (minimum of twenty (20) inches in the least dimension) to allow access to all portions of the tank interior. Manholes may serve in lieu of pumpouts. Manhole covers or lids shall have adequate handles. All baffles shall be accessible without entering the tank.

(4) Septic tank manholes and/or pumpouts shall be extended to within twelve (12) inches of the finished grade. Manholes and covers shall be structurally capable of supporting the loads to which they will be subjected. Manholes shall be provided with watertight covers. Any manhole lids extending to grade must be equipped with a locking-type cover.

(5) Septic tank inlet and outlet piping shall be affixed to the tank through the use of a non-shrink grout coated with a waterproof material or other method approved by the Health Officer.

(6) In each septic tank the inlet and outlet T-baffles shall extend below the liquid level a distance equal to a minimum of thirty-four (34) percent, maximum of forty (40) percent of the liquid depth. These T-baffles shall extend at least six (6) inches above the liquid level to provide for scum storage and venting.

(7) Septic tanks shall have one (1) inch minimum, two (2) inch maximum air space between the under side of the top of the tank and top of inlet and outlet baffles to allow the required ventilation of the tank and disposal field through the main building vent stacks.

(8) Each compartment dividing wall shall have a minimum diameter opening of four (4) inches, the invert of which is a minimum of one (1) inch and a maximum of three (3) inches below the tank outlet invert. A T-baffle shall be located on the inlet side of the wall and shall extend below the liquid level a distance equal to a minimum of thirty-four (34) percent, maximum of forty (40) percent, of the liquid depth and shall extend a minimum of six (6) inches above the liquid level. (See Figure 10.)

c. Location of Septic Tank

(1) Minimum setbacks shall be as indicated in Table A.

(2) No septic tank/pump tank shall be located under paving unless the manhole(s) and pumpout holes are extended up through

the paving and the manhole(s) is equipped with a tight fitting, locked cover.

(3) Septic tanks shall be installed level. Care shall be taken to ensure that the septic tank will not settle by setting it on undisturbed soil or compacted soil.

Section 3. Pump Tanks.

a. Where required, dosing systems shall be equipped with an automatic siphon or pump or duplicate alternating siphons or pumps.

b. Pump tanks shall be equipped with an opening of a minimum of twenty (20) inches in the least dimension with tight fitting, locked covers on manholes extending to grade to provide access to the pump tank, or a permanent marker that will remain visible above the ground surface may be utilized provided that the top of the tank is no more than twelve (12) inches below the finished grade. The pump tank shall be vented. The vent shall have a downward turn that terminates at least twelve (12) inches above ground and be provided with a screen.

c. The pump tank shall be of sufficient size so as to provide the required dosing gallonage. (See Table C)

**Table C
Pump Tank
Volume (gallons) Required Between**

Pump Average Flows Capacity (Gallons per day) (gpm)	"Off" & "On" Switch	"On" & "Alarm" Switch	"Alarm" Switch & Tank Inlet
0-499 10	100	50	200
500-999 20	200	100	400
1000-1499 30	300	100	600
1500-2000 40	400	100	800

d. Where pumping is required, an electrically operated visual or audible high water level alarm shall be provided. Effluent pump switching mechanisms shall not be located within the effluent tank, except for sealed floats.

e. Designs utilizing sewage effluent pumps shall specify:

(1) Sizing

The pump shall have a flow rate of at least ten (10) gallons per minute when installed. The pressure loss (feet of head) of the system can be calculated by adding: the elevation difference between the discharge outlet at the soil absorption system and the low water level in the pump tank; and the friction losses incurred in the pressure transfer pipe and distribution piping. The following table may be used to estimate the head loss of the pipe when pumping ten (10) gallons per minute and using plastic pipe.

Diameter (inches)	Head Loss per 100 feet of pipe (in feet)
1	12
1 1/4	4
1 1/2	2

(2) Installation/Removal

The pump shall be installed in the tank so that it can be removed without entering the tank. This can be accomplished by: (1) looping the pipe up near the access manhole with a pipe union provided at the top of the loop, (2) using a quick disconnect sliding coupler, or (3) using a pitless adapter. Chains, cable, or piping can be used to lift the pump out of the tank if designed for this loading. Setting the pump on an eight (8) inch block minimizes the transfer of any solids that may enter the pump tank.

(3) Electrical Controls

The electrical control system for the wastewater pump shall consist of a "pump off" switch, a "pump on" switch, and a "high water alarm" switch which shall be located to provide the necessary volumes as stated in Table C. All electrical controls (pump electrical cord, switches, etc...) shall comply with the National Electrical Code - 1981 or most recent edition, Class 1,

Group D., Division 1 locations. All openings around the cables or cords entering the tank shall be sealed.

(4) Pressure Transfer Pipe

All pressure transfer piping shall be designed to withstand the anticipated pressures with a safety factor of two. The pressure transfer piping between the pump tank and the drainfield system shall be designed to drain after each pump cycle to prevent freezing. This can be accomplished by either eliminating the check valve at the pump or by providing a weep hole in the pipe in the tank. If the liquid capacity of the pressure transfer pipe is greater than, or equal to, five (5) percent of the required tank volume, the tank volume shall be enlarged by the volume of the pipe.

(5) Siphons

Where automatic siphons are used, they shall be designed to empty the siphon tank in less than twenty (20) minutes. The siphon tank shall be sized in accordance with Table C.

(6) Filters

Pump influent filters shall be utilized in all sand filter systems. Pump influent filters may be utilized in other systems. Pump influent filters must meet the following minimum criteria:

- (a) One-sixteenth (1/16) to one-quarter (1/4) inch mesh size. Mesh size shall not exceed the diameter of distribution pipe orifices.
- (b) Non corrosive material
- (c) Cannot interfere with switches or floats
- (d) Easily removable for cleaning

Section 4. Distribution Box.

a. When a disposal field of more than one distribution line is used with a septic tank, a distribution box provided with a removable lid shall be installed between the tank and disposal area. Distribution boxes shall be watertight and constructed of concrete or other durable material. They shall be designed to accommodate the necessary distribution piping leading therefrom and to provide equal distribution of sewage effluent liquids to all drainfield piping. A four (4) inch diameter riser to the surface shall be installed in the lid of the distribution box for

the purpose of inspection.

b. The distribution box shall be set on undisturbed soil, a concrete pad, or tamped rock to prevent misalignment. Distribution box inlet and outlet piping shall be affixed to the box through the use of a non-shrink grout coated with a waterproof material or other method approved by the Health Officer.

c. No distribution box shall be constructed or installed wherein the inlet invert is less than two (2) inches above the level of the outlet inverts, nor shall the outlet inverts be less than four (4) inches above the floor of the box.

d. No distribution box shall be installed which does not provide at least thirty-six (36) inches of four (4) inch diameter tightline from each outlet.

e. There shall be no driving, parking, paving, construction, or pasturing of livestock over the distribution box.

Section 5. Drainfield Specifications. Section 5. Drainfield Specifications. Section 5. Drainfield Specifications. Section 5. Drainfield Specifications.

a. No small wastewater system shall be constructed unless there has first been actual soil testing on the site, performed in the manner described in Chapter IV, Sections 3 and 4 to determine the required size of the subsurface treatment and disposal area.

b. Minimum Construction Requirements

(1) Minimum bottom width of trenches shall be twenty-four (24) inches.

(2) Minimum depth of soil cover over drainfield stone shall not be less than twelve (12) inches.

(3) Minimum depth of stone under drainfield lines shall not be less than twelve (12) inches nor greater than twenty-four (24) inches.

(4) The amount of stone over drainfield lines shall not be less than two (2) inches.

(5) Drainfield stone shall be washed gravel - size one-half (1/2) inch to two and one-half (2 1/2) inches.

(6) An undisturbed soil separation shall be maintained between trench sidewalls. The minimum separation distance shall be four (4) feet or 1.25 times the minimum vertical depth of the

trenches, whichever is greater.

(7) The distribution lines within an absorption bed or a pressure dosing mound shall be uniformly spaced no more than six (6) feet nor less than four (4) feet apart. The distribution lines shall be installed no more than three (3) feet nor less than one and one-half (1 1/2) feet from the side wall of the bed or dosing mound.

(8) All gravity absorption system perforated piping shall be plastic and have a minimum diameter of four (4) inches and shall conform to ASTM standard D2729 at a minimum. Piping in all gravity fed absorption systems shall be laid with the holes centered around the vertical axis at the bottom of the pipe. Piping in gravity fed absorption systems shall have a maximum slope of three (3) inches per one hundred (100) feet. Ends of drainfield pipe shall either be capped, or connected together to form a complete circuit.

(9) All pressure distribution piping shall be designed to withstand the anticipated pressures with a safety factor of two, provide uniform application of the wastewater, and have non-clogging orifices.

(10) Stakes shall be placed in the trench/bed to maintain grade and a transit level, laser, or equally accurate instrument must be used to assure that proper grade is maintained.

(11) No trench type drainfield shall be installed which requires a change in grade and earth cover unless terracing is accomplished by the construction of a suitable brick or concrete drop box, or by rigid plastic pipe with glued joints. Such installation shall have an earth dam of twenty-four (24) inches thick preceding terracing. Each dam shall consist of original undisturbed soil. If serial stepdowns are used, they shall be in accordance with the illustration in Figure 11.

(12) No disposal system shall be installed unless the pipe lines between the building and the septic tank, the septic tank and the distribution box, under paved areas, and within ten (10) feet of any building, shall be constructed of concrete, PVC (Schedule 40 minimum), or cast iron pipe laid with watertight joints which complies with current standards in the Natrona County Plumbing Code. Cleanouts shall be installed on the proximal end of all effluent lines exceeding fifty (50) feet in length. Additional cleanouts must be installed at intervals not to exceed one hundred (100) feet.

(13) A suitable cover such as untreated building paper, filter cloth, or straw shall be placed over the stone prior to backfilling the system. If straw is used, at least six (6)

inches is required. Use of waterproof material is prohibited.

(14) No drainfield shall be installed under driveways, roadways, parking areas, paved areas, areas subject to vehicular traffic, or areas subject to domestic livestock traffic.

c. Drainfields in Fill

Any drainfield proposed to be installed in a fill material must meet all requirements of these rules and regulations. In addition, the following requirements exist for fill material:

(1) Fill material must be of similar porosity and texture as underlying natural soil if less than six (6) feet of fill is put in place. Soils used for fill shall not be finer than sandy loam nor coarser than fine sand as defined by the United States Department of Agriculture Soil Conservation Service.

(2) Fill materials must be allowed to set undisturbed for twelve (12) months prior to installation of the subsurface absorption system. Mechanical compaction may be utilized in lieu of the twelve (12) month settling period.

(3) Subsurface drain fields will not be allowed in fill material placed in a flood plain or flood prone area. A drainfield will not be permitted where fill material was placed for the purpose of providing the required separation from groundwater except as prescribed in Chapter VI, Section 5 (Mound systems).

(4) Percolation rates of fill material shall be based on the texture of the fill material used as defined in Chapter IV, Section 4, b.

(5) At least two (2) soil profile holes (one at each end of the proposed site) shall be dug per site to a depth of four (4) feet below the bottom of the proposed drainfield after compliance with Section 5, c., (2), above, and evaluated in accordance with these rules and regulations.

(6) Sites to be filled shall be scarified to insure adequate contact between the fill and natural soil.

(7) Drainfields shall not be permitted over refuse disposal landfills.

Section 6. Closed Circuit Drainfield.

a. The bottom of the trenches/bed and the drain lines must be level within three (3) inches per one hundred (100) feet. No trench or bed shall exceed one hundred (100) linear feet in

length.

b. The drain lines must be continuous and interconnected with at least two (2) connections to the distribution box.

Section 7. Equal Distribution/Open Circuit Drainfields.

a. No individual perforated line of more than one hundred (100) linear feet shall be installed nor shall any lines be subdivided unless the effluent is forced into the lines by means of pumps or other devices.

b. The drainfield shall be provided with a distribution box or directed dosing device which provides equal flow of effluent to all lines.

c. All lines shall be the same approximate length. The longest line shall not exceed the shortest by more than ten (10) percent whenever practicable.

d. Maximum grade of the bottom of drainfield trenches and drainfield line shall not exceed three (3) inches per one hundred (100) feet.

Section 8. Serial Distribution Drainfield.

a. The bottom of the trenches and the drain lines shall be level within three (3) inches per one hundred (100) feet.

b. The trenches shall follow the ground surface contours.

c. Adjacent trenches shall be connected with tight line in such a manner that each trench is filled with effluent to the depth of the mid-point of the drainline before flowing to succeeding trenches.

d. The invert of the overflow line from the first trench must be at least four (4) inches lower than the outlet invert of the septic tank.

e. If more than three hundred (300) linear feet of drainfield trench is specified, the design shall divide the system into halves. The invert of the outlet of the distribution box must be at least one (1) inch higher than the invert of any overflow pipe in the drainfield. No serial trench section shall exceed one hundred (100) linear feet prior to stepping down to the next serial, overflow trench.

f. Drainfields with two (2) or more lines shall be provided

with a distribution box at the head of the system.

Section 9. Drainfields Using Dosing Systems.

a. No drainfield of more than two thousand (2000) square feet of absorptive area shall be installed which is not a part of a dosing-type system.

b. Dosing system drainfields shall comply with Chapter V, Section 5, Drainfield Specifications, in these rules and regulations or with Chapter VI, Section 5, Mound Systems (when applicable).

Section 10. Sand Filter System Drainfields.

a. Sand filter system effluent may be disposed of as delineated in Chapter V, Sections 5 through 9 of these rules and regulations.

b. Sand filter system effluent may be disposed of in trenches designed in accordance with Appendix C.

CHAPTER VI

ALTERNATIVE METHODS AND EXPERIMENTAL SYSTEMS

Section 1. Holding Tanks.

a. Sewage holding tanks may be permitted for temporary commercial use by the oil, gas, mining, or construction industries. Sewage holding tanks may not be permitted for residential/domestic usage without the expressed written approval of the Health Officer and provided that a small wastewater system management program, satisfactory to the Health Officer has been established to assure on-going maintenance. Use of holding tanks for new construction or to facilitate sewage disposal in previously unplumbed buildings without the expressed written approval of the Health Officer is prohibited. Where holding tanks are allowed, they shall be sized on the basis of seven days storage at the flow rate determined from Table B. Holding tank permits shall include the following:

- (1) Acceptance

A letter of verification from the receiving agency,

denoting acceptance of the wastewater generated shall be submitted with the plans.

(2) Soil Exploration

Soil exploration to a minimum depth of four (4) feet below the bottom of the proposed vault shall be made to provide information on subsoil conditions.

(3) Groundwater and Bedrock Separation

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

(4) Location

The location of holding tanks shall meet the set back requirements for septic tanks in Table A.

(5) Construction

(a) The holding tank shall be constructed and installed to resist breakage and damage imposed by frost heave, uplift pressures from a fluctuating water table, loads imposed by the soils, and damage that may be caused by vandalism or rough cleaning procedures. The holding tank shall be constructed to prevent accessibility to the public or to disease transmitting vectors.

(b) The holding tank shall be water tight. Materials used for construction shall be resistant to alkali attack, hydrogen sulfide gas, and other corrosive elements associated with decomposing waste. Metal holding tanks shall not be allowed.

(c) A clean-out manhole shall be installed and shall have a minimum opening of twenty (20) inches in the least dimension. The manhole shall be equipped with a tight fitting, locked, cover.

(6) Vent

Each holding tank shall be provided with a two (2) inch minimum diameter vent ending in a return elbow above final grade and provided with a screen. The vent shall terminate at least thirty (30) feet from any door, window, or fresh air inlet.

(7) Alarm

All holding tanks shall be equipped with a high water level alarm. The device shall be an audible alarm or an illuminated alarm. The alarm level shall be placed at three-quarters (3/4) the depth of the tank.

(8) Pump-out

A six (6) inch pump-out pipe which extends to the surface shall be provided. It shall be capped at all times.

b. Plans must be submitted to the Health Officer on small wastewater system permit applications for review. These applications shall include specifications on the anticipated daily sewage load, the tank capacity, the alarm device, the location of the tank, and any other information pertinent to the installation.

c. A small wastewater system permit must be obtained prior to installation of the holding tank.

d. Holding tank permits shall not be required when the tank(s) is leased, installed and maintained by a certified small wastewater system installer for commercial use by the oil, gas, mining or construction industries.

Section 2. Composting Toilets.

a. Graywater

If indoor plumbing is installed, a separate graywater disposal is required and shall meet all of the requirements of these rules and regulations. The minimum design flows for graywater shall be obtained from Table B with a reduction of thirty-three (33) percent allowed for the elimination of black water wastes.

b. The composting toilet must be constructed and operated in accordance with the manufacturer's specifications. However, overflows for composting toilets must be designed to meet all of the criteria of Chapters I through V of these rules and regulations.

c. Removal and disposal of composted materials shall be done in a manner which complies with guidelines established by the City of Casper, 201 Wastewater Facility.

Section 3. Privies.

a. General Requirements

All privies shall be designed and constructed to prevent access by flies and rodents.

The owner(s) of any structure determined by the Health Officer to have an indoor plumbing system not in compliance with these rules and regulations shall be notified in writing by the Health Officer of said non-compliance and that all requirements of these rules and regulations in regards to the permitting of a small wastewater system shall be complied with within ninety (90) days of said notification. If it can be demonstrated that the non-compliant indoor plumbing system will not have an adverse effect on public health the owner(s) may submit a compliance schedule for review by the Health Officer. However, all non-compliant indoor plumbing systems shall comply with these rules and regulations within one (1) year from violation notification.

If an indoor plumbing system is installed, the graywater disposal method shall meet the requirements of Chapters I through V of these rules and regulations. The minimum design flow for graywater shall be obtained from Table B with a reduction of thirty-three (33) percent allowed for the elimination of black water.

The privy shall consist of a vault and an outhouse building.

(1) Location

The setback requirement for privies shall comply with Table A for septic tanks.

(2) Soil Exploration

Soil exploration to a minimum depth of four (4) feet below the bottom of the proposed vault shall be made to provide information on subsoil conditions.

(3) Groundwater and Bedrock Separation

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

(4) Sizing

Vaults shall have a minimum capacity of five hundred (500) gallons per riser and shall be a minimum of four and one-half (4 1/2) feet deep.

(5) Construction

(a) The vault shall be constructed and installed to

resist breakage and damage imposed by frost heave, uplift pressures from a fluctuating water table, loads imposed by the outhouse building and soils, and damage that may be caused by vandalism or rough cleaning procedures. The vault shall be constructed to prevent access by flies.

(b) Vaults shall be water tight. Materials used for vault construction shall be resistant to alkali attack, hydrogen sulfide gas, and other corrosive elements associated with decomposing waste. Metal vaults shall not be allowed.

(c) A clean-out manhole shall be installed and shall have a minimum opening of twenty (20) inches in the least dimension.

The manhole shall be located outside of the outhouse building and be equipped with a tight-fitting, locked cover.

(d) The vault shall be ventilated to a point outside and above the outhouse building. The outhouse building shall have a set of vents installed near the floor on two (2) opposite sides of the building and a roof vent that has a rain cap. All vents shall be screened.

(6) Vault Additives

No chemical or biological additive shall be placed in the vault that may adversely affect the operation of a sewage treatment facility where the vault waste will ultimately be disposed.

Section 4. Chemical Toilets.

a. General Requirements

Chemical toilets shall only be used for the containment of body wastes. These requirements apply only to the use of chemical toilets for permanent structures.

b. Disposal

All chemical toilet wastes shall be disposed of at an approved sewage treatment facility. A letter of verification from the receiving agency, denoting acceptance of the wastewater generated shall be submitted with the plans. These wastes shall not be discharged into a small wastewater system.

c. Construction

Chemical toilets shall be constructed and installed to resist breakage or damage from routine usage. Outdoor chemical toilets shall be adequately stabilized and secured to prevent overturning. Construction materials shall be resistant to the sewage wastes and the chemicals encountered. The holding compartment of the toilet shall be constructed to prevent accessibility to the public and to disease transmitting vectors.

d. Additives

No chemical or biological additive shall be placed in the toilet that may adversely affect the operation of a sewage treatment facility where the toilet waste will ultimately be disposed.

Section 5. Mound Systems.

a. Mound systems shall be designed in accordance with the specifications contained in the Environmental Protection Agency's Design Manual, "On-site Wastewater Treatment and Disposal Systems," October, 1980. However, in no case shall a mound system be installed in areas with less than twenty-four (24) inches of original permeable soil.

b. Special Requirements for Mounded Systems

(1) Sizing

(a) The infiltrative surface between the stone and the fill material shall be sized based on the flow rate as determined by Table B and the allowable loading rate as determined by Figure 9 for the percolation rate of the fill. Percolation rate of fill shall be based on the texture of the fill material used as designated in Chapter IV, Section 4., b. The total infiltrative surface is the sum of the sidewall and bottom areas of the stone/soil interface below the distribution pipe.

(b) The interface area between the fill soil and the native soil shall be sized based on the percolation rate of the native soil, as determined by Figure 9, but shall not be smaller than a system designed to the requirements of subsection b., 2. below.

(2) Grade

The finished grade shall extend at least three (3) feet horizontally beyond the stone and then be sloped to the parent soil at a grade no steeper than four (4) horizontal to one (1) vertical.

(3) Topsoil

Topsoil shall be placed over the mound to promote vegetative cover.

(4) Preparation

All trees, roots, and other organic matter shall be removed from the area to be occupied by the mound.

c. Monitoring shall be in accordance with Chapter VIII, Section 1.

d. See Figures 12 A., 12 B., 12 C., for typical mound construction.

Section 6. Pressure Distribution Systems.

Pressure distribution systems may be authorized by these rules and regulations under the following conditions:

a. The design of the system must be in accordance with the methods specified in the Environmental Protection Agency Design Manual, "Onsite Wastewater Treatment and Disposal Systems," October 1980.

b. Total absorption area and replacement absorption area calculations will be the same as for a non-pressure distribution system.

c. Monitoring shall be in accordance with Chapter VIII, Section 1.

Section 7. Evapotranspiration Beds.

a. Sizing

The area of evapotranspiration beds shall be determined using the following formula:

$$\text{AREA} = 586 \frac{Q}{\text{PET-P}}$$

where:

Area = Area of the evapotranspiration bed at the ground surface in square feet

Q = Average daily sewage flow in gallons per day. (0.6 times the flow determined from Table B)

PET = Potential evapotranspiration rate in inches per year. (See Table D)

P = Annual precipitation rate in inches per year. (See Table D)

TABLE D
PRECIPITATION AND PAN EVAPORATION DATA

PAN EVAPORATION DATA (IN INCHES)

MAY- WYOMING APR	NOV- ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	OCT
Casper, WSO 15.73 42° 55', 106° 28' 25.0%	63.74 100.0%	1.85	1.92	3.03	4.73	6.92	8.76	10.64	9.85	6.65	5.18	2.38	1.82	48.01
		2.9%	3.0%	4.6%	7.4%	10.9%	13.7%	16.8%	15.8%	10.4%	8.1%	3.7%	2.9%	75.0%

PRECIPITATION AVERAGES FOR WATER YEARS 1965-1985 (IN INCHES)

Casper WSO AP SEP	YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
0.87	12.51	0.95	0.72	0.68	0.55	0.52	0.97	1.67	2.24	1.45	1.29	0.59

b. Construction

- (1) If an impervious barrier is necessary for the

protection of groundwater it shall be installed between the evapotranspiration bed and the native soil. It shall be a polyvinyl chloride sheet with a minimum thickness of twenty (20) mils or equivalent. A three (3) inch layer of sand shall be placed under and over the liner.

(2) The bottom twelve (12) inches of the bed shall be filled with clean stone one-half (1/2) to two and one-half (2 1/2) inches in diameter.

(3) Perforated pipe complying with Chapter V, Section 5, b., (8) and (9) shall be placed on the stone.

(4) Four (4) inches of pea gravel (less than one quarter (1/4) inch in diameter) or durable filter cloth shall be placed over the stone.

(5) A twenty-four (24) inch uniform sand layer in the size range of D50 (0.10mm) shall be placed on top of the pea gravel or filter cloth.

(6) A six (6) inch layer of sandy topsoil shall be placed on top of the evapotranspiration bed.

(7) The bed shall be vegetated with small shrubs and/or grasses such as fescue, brome, or alfalfa.

(8) The evapotranspiration bed shall be placed at an elevation sufficient to prevent surcharging of the septic tank.

Section 8. Conventional Sand Filter Systems.

a. For the Purpose of These Rules and Regulations

(1) "Conventional Sand Filter" means a filter with two (2) feet or more of medium sand designed to filter and biologically treat septic tank or other treatment unit effluent from a pressure distribution system at an application rate not to exceed one and twenty-three hundredths (1.230) gallons per square foot of sand surface area per day, applied at a dose not to exceed twenty (20) percent of the projected daily sewage flow.

(2) "Medium Sand" means a mixture of sand with 100 percent passing the 3/8 inch sieve, 90 percent to 100 percent passing the No. 4 sieve, 62 percent to 100 percent passing the No. 10 sieve, 45 percent to 82 percent passing the No. 16 sieve, 25 percent to 55 percent passing the No. 30 sieve, 5 percent to 20 percent passing the No. 50 sieve, 10 percent or less passing the No. 60 sieve, 2 percent or less passing the No. 100 sieve.

where a detailed hydrogeological study discloses that loading rates exceeding four hundred fifty (450) gallons per one-half (1/2) acre per day would not increase nitrate-nitrogen concentration in the groundwater beneath the site, or any down gradient location, above five (5) milligrams per liter.

(d) Soils with permeability greater than or equal to sixty (60) minutes per inch with a detailed hydrogeological study which discloses that effluent will be satisfactorily treated by the soils without degradation to the groundwater or system failure resulting in discharge to the surface. Surface discharge may be allowed with the obtainment of the appropriate Department of Environmental Quality NPDES permits.

d. Materials Design and Construction (Figures 13 and 14)

(1) All materials used in sand filter system construction shall be structurally sound, durable and capable of withstanding normal installation and operational stresses. Component parts subject to malfunction or excessive wear shall be readily accessible for repair and replacement.

(2) All filter containers shall be placed over a stable, level base.

(3) Piping and fittings for the sand filter distribution system shall be as required under pressure distribution systems, Chapter V, Section 5 of these rules and regulations.

(4) The specific requirements for septic tanks, dosing tanks, etc. are found in Chapter V, Sections 2 and 3 of these rules and regulations.

(5) Minimum filter area shall be as follows:

(a) A sand filter proposed to serve a single family dwelling shall have an effective medium sand surface area of not less than three hundred sixty-one (361) square feet. If the design sewage flow exceeds four hundred fifty (450) gallons per day, the medium sand surface area shall be determined with the following equation:

Area = (projected daily sewage flow) divided by (1.23)

(b) A sand filter proposed to serve a commercial facility shall be sized on the basis of projected peak daily

sewage flow and the strength of the wastewater, using the following equation:

Area = (projected peak daily sewage flow) x (R) divided by (1.23)

where R = BOD₅ of Wastewater divided by 200 mg/L, or TSS of Wastewater divided by 150 mg/L, whichever has the higher value. In no case, however, may the value of R be less than one (1).

(6) Sand filter container, piping, medium sand, gravel, gravel cover, and soil crown material for a sand filter system discharging to disposal trenches shall meet the minimum specifications indicated in Figures 11 and 12 unless otherwise authorized in writing by the Health Officer.

(7) Container design and construction shall be as follows:

(a) A reinforced concrete container consisting of floor and walls, as shown in Figures 13 and 14, is required.

(b) The container may be constructed of materials other than concrete where equivalent function, workmanship, watertightness and at least a twenty (20) year service life can be documented.

(c) Flexible membrane liner (FML) materials must have properties which are at least equivalent to thirty (30) mil unreinforced polyvinyl chloride (PVC) described in Table E. To be approved for filter installation, FML materials must:

(i) Have field repair instructions and materials which are provided to the purchaser with the liner; and

(ii) Have factory fabricated "boots" suitable for field bonding onto the liner to facilitate the passage of piping through the liner in a waterproof manner.

(d) Where accepted for use, flexible sheet membrane liners shall be placed against relatively smooth, regular surfaces. Surfaces shall be free of sharp edges, corners, roots, nails, wire, splinters and other projections which might puncture, tear, or cut the liner. Where a smooth, uniform surface cannot be assured in the field, filter system plans must include specifications for liner protection. When liner protection is necessary, a four (4) inch bed of clean sand or a non-degradable filter fabric acceptable to the Health Officer shall be used to Provide Liner Protection.

e. Other Sand Filter Designs

Other sand filters which vary in design from the conventional sand filter may be authorized by the Health Officer if they can be demonstrated to produce comparable effluent quality.

(1) Pre-application Submittal

Prior to applying for a construction permit for a non-conventional sand filter, the Health Officer must approve the design. To receive approval, the applicant shall agree in writing to submit the following required information to the Health Officer.

(a) Effluent quality data must be submitted following completion of the system. Filter effluent quality samples shall be collected and analyzed by a testing agency acceptable to the Health Officer using procedures identified in the latest edition of "Standard Methods for the Examination of Wastewater," published by the American Public Health Association, Inc. The duration of filter effluent testing shall be sufficient to ensure results are reliable and applicable to anticipated field operating conditions. The length of the evaluation period and number of data points shall be specified in the test report. The following parameters shall be addressed:

- (i) BOD₅
- (ii) TSS
- (iii) Fecal coliform
- (iv) Nitrogen (Ammonia, Nitrate and Total Kjeldahl Nitrogen)

- (b) A description of unique technical features and process advantages
- (c) Design criteria, loading rates, etc.
- (d) Filter media characteristics
- (e) A description of operation and maintenance details and requirements
- (f) Any additional information specifically requested by the Health Officer

(2) Construction Procedure

Following pre-application approval, a permit application shall be submitted in the usual manner. Applications shall include applicable drawings, details and written specifications to fully describe proposed construction and allow system

construction by contractors. Included must be the specific site details peculiar to that application, including soils data, groundwater type and depth, slope, setbacks, existing structures, wells, roads, streams, etc. Applications shall include a manual for homeowner operation and maintenance of the system.

(3) Failure of a non conventional sand filter to operate and produce effluent comparable to a standard sand filter shall be grounds for permit revocation and will require the immediate cessation of operation.

f. Sand Filter System Operation And Maintenance

(1) Sand filter operation and maintenance tasks and requirements shall be as specified on the Permit of Completion. Where a conventional sand filter system or other sand filter system with comparable operation and maintenance requirements is used, the system owner shall be responsible for the continuous operation and maintenance of the system.

(2) The owner of any sand filter system shall provide the Health Officer written verification that the system's septic tank has been pumped at least once each forty-eight (48) months by a sewage disposal service business. Service start date shall be assumed to be the date of issuance of the Permit of Completion. The owner shall provide the Health Officer certification of tank pumping within two (2) months of the date required for pumping.

(3) No permit shall be issued for the installation of any other sand filter which in the judgment of the Health Officer would require operation and maintenance significantly greater than the conventional sand filter unless arrangements for system operation and maintenance meeting the approval of the Health Officer have been made which will ensure adequate operation and maintenance of the system. Each permitted installation may be inspected by the Health Officer at least every twelve (12) months and checked for necessary corrective maintenance.

TABLE E

FLEXIBLE MEMBRANE LINERS FOR SAND
 FILTERS TREATING SEPTIC TANK EFFLUENT

Unsupported polyvinyl chloride (PVC) shall have the following properties:

Property	Test Method	
a) Thickness	ASTM D1593 Para 8.1.3.	30 mil min.
b) Specific Gravity (minimum)	ASTM D792 Method A	
c) Minimum Tensile Properties (each direction)	ASTM D882	
(i) Breaking Factor (pounds/inch width)	Method A or B (1 inch wide)	69
(ii) Elongation at Break (percent)	Method A or B	300
(iii) Modulus (force) at 100% Elongation (pounds/inch width)	Method A or B	27
d) Tear Resistance (pounds, minimum)	ASTM D1004 Die C	8
e) Low Temperature	ASTM D1790	-20°F
f) Dimensional Stability (each direction, percent change maximum)	ASTM D1204 212°F. 15 min	+5
g) Water Extraction	ASTM D1239	-0.35% max.
h) Volatile Loss	ASTM D1203 Method A4	0.7% max.
i) Resistance to Soil Burial (percent change maximum in original value)	ASTM D3083	
(i) Breaking Factor		-5
(ii) Elongation at Break		-20

TABLE F

SYSTEM LOADING RATES - SAND FILTERS

5 minutes per 1"	=	25.45	gallons per square foot per day
10 minutes per 1"	=	12.72	gallons per square foot per day
15 minutes per 1"	=	8.48	gallons per square foot per day
20 minutes per 1"	=	6.36	gallons per square foot per day
25 minutes per 1"	=	5.09	gallons per square foot per day
30 minutes per 1"	=	4.24	gallons per square foot per day
35 minutes per 1"	=	3.63	gallons per square foot per day
40 minutes per 1"	=	3.18	gallons per square foot per day
45 minutes per 1"	=	2.83	gallons per square foot per day
50 minutes per 1"	=	2.54	gallons per square foot per day
55 minutes per 1"	=	2.31	gallons per square foot per day
60 minutes per 1"	=	2.12	gallons per square foot per day
65 minutes per 1"	=	1.96	gallons per square foot per day
70 minutes per 1"	=	1.82	gallons per square foot per day
75 minutes per 1"	=	1.70	gallons per square foot per day
80 minutes per 1"	=	1.60	gallons per square foot per day
85 minutes per 1"	=	1.50	gallons per square foot per day
90 minutes per 1"	=	1.41	gallons per square foot per day
95 minutes per 1"	=	1.34	gallons per square foot per day
100 minutes per 1"	=	1.27	gallons per square foot per day
105 minutes per 1"	=	1.21	gallons per square foot per day
110 minutes per 1"	=	1.16	gallons per square foot per day
115 minutes per 1"	=	1.11	gallons per square foot per day
120 minutes per 1"	=	1.06	gallons per square foot per day

Sand filter drainfield absorptive area = Flow Rate (Table B) ÷ System Loading Rate (Table F)

Section 9. Small Non-discharging Waste Stabilization Ponds (Lagoons).

a. General Requirements

(1) The use of this section for small non-discharging waste stabilization ponds applies only to those systems defined as small wastewater systems.

(2) Non-discharging waste stabilization ponds shall only be constructed in soils with a permeability rate of less than or equal to 0.25 inches per day and the soil is at least one (1) foot thick on both the sides and bottom of the pond. If the 0.25 inches per day permeability rate cannot be obtained, a sufficient clay shall be incorporated into the top foot of soil until the 0.25 inches per day permeability rate is reached. An artificial liner of twenty (20) mils in thickness may be substituted.

b. Isolation

The setback distances shall meet the requirements for small wastewater system drainfields as specified in Table A.

c. Groundwater Protection and Bedrock or Impermeable Soil Separation

(1) For all small non-discharging waste stabilization ponds, a minimum of four (4) feet of unsaturated soil shall be maintained between the bottom of the pond and the estimated groundwater mound imposed on the seasonally high groundwater table. The height of the groundwater mound can be estimated from Figures 3-8 in conjunction with the calculated average daily sewage flow, as obtained from Table B.

d. Sizing

(1) The area of the lagoon pond shall be calculated based on the following formula:

$$A = \frac{584 \times Q}{(365 \times S) + (E - P)} \quad 1.3$$

Where:

A = Area of the lagoon at the five (5) foot water level in square feet

Q = Average daily sewage flow (0.6 times the flow determined from Table B)

S = Soil permeability in inches per day

"S" cannot be greater than 0.25 inches per day

"S" shall equal zero (0) for an artificial liner or for bedrock

E = Annual evaporation rate in inches per year (See Table D)

P = Annual precipitation rate in inches per year (See Table D)

(2) A minimum water level of at least two (2) feet shall be maintained in the pond at all times, including start-up.

(3) A minimum free board of two (2) feet shall be provided between the lowest embankment berm and the maximum water level.

The maximum water level shall not be less than five (5) feet.

e. Construction Requirements

(1) The slopes of the inside dikes shall not be steeper than three (3) horizontal to one (1) vertical nor flatter than four (4) horizontal to one (1) vertical. The slopes of the outside dikes shall not be steeper than three (3) horizontal to one (1) vertical and shall not allow surface runoff to enter the lagoon.

(2) All organic material and debris shall be removed from the pond site prior to construction. The stabilization pond and its dikes shall be maintained free of trees, shrubs, and emergent aquatic vegetation.

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

(4) The minimum top width of the dike shall be eight (8) feet.

(5) The pond area shall be enclosed with a four (4) foot high fence which has a maximum opening of six (6) inches. A lockable access gate of similar restraint shall be provided for maintenance equipment access and shall be kept secured.

Section 10. Experimental Systems - Facilities and Systems Not Specifically Covered by These Rules and Regulations.

a. This section is provided to encourage new technology and equipment in the area of wastewater treatment and disposal. The construction of facilities and processes not in compliance with these rules and regulations will be permitted, provided that the facility, when constructed, can operate meeting the intent of these rules and regulations.

b. Each application for a permit to construct an innovative facility shall be evaluated jointly by the Health Officer and the Department of Environmental Quality, Water Quality Division on a case-by-case basis, using the best available technology. The following information shall 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.

c. If an applicant wishes to construct a pilot plant to provide the data necessary to show the design will meet the intent of these rules and regulations, a permit to construct must be obtained.

d. Experimental systems must be designed by a licensed Professional Engineer.

e. All costs for monitoring and reporting shall be the responsibility of the applicant. The Health Officer may charge for such additional costs involved in monitoring and reporting on each experimental system installed as is necessary to recover reasonable expenses.

CHAPTER VII

INSTALLATION - INSPECTION AND APPROVAL

Section 1. Installation Requirements.

All small wastewater systems shall be constructed and installed in a manner that will accommodate all sewage from the buildings and premises to be served, and in accordance with these rules and regulations.

Section 2. Small Wastewater System Inspection.

a. The Health Officer may inspect, at any reasonable time, the proposed location of any small wastewater system, the work done, or the material used in a small wastewater system. If the Health Officer finds that the work done, or materials used, is not in accordance with these rules and regulations, the Health Officer shall revoke the installation permit if the specified changes are not made within a reasonable time, and it shall be unlawful to use the small wastewater disposal system. To

preclude the future use of any unlawfully installed systems, the Health Officer may require the installer to dismantle the small wastewater system. Any small wastewater systems installed without having first obtained a proper permit shall be subject to two (2) times the usual permit fee upon permit obtainment.

b. Once a new small wastewater system has been installed, but before it has been closed and covered, the installer shall notify the Health Officer and owner that the system is ready for inspection. The Department shall be given a minimum advance notice of twenty-four (24) hours so that the Health Officer may inspect the system. The entire system shall remain open and uncovered until closure authorization is given by the Health Officer. Inspections shall only be conducted during regular business hours.

c. In the event that the Health Officer is unable to conduct a final inspection during regular business hours following twenty-four (24) hour advance notification, (excluding Saturdays, Sundays and Holidays) the installer will be permitted to conduct the final inspection per the requirements of Chapter VII, Section 4 of these rules and regulations. In addition, photographic evidence consisting of views of the exposed septic tank, septic tank baffles, D-box, drainfield and a reference photo showing the small wastewater system with the house/building in the background will be required. "As-constructed" site plans shall be submitted to the Health Officer within five (5) working days of the completion of the small wastewater system. Photographic evidence must be submitted to the Health Officer within fifteen (15) working days of the completion of the small wastewater system.

d. If no final inspection is called for, and/or "As-constructed" site plans are not properly submitted, one or more of the following actions may be taken:

- (1) Digging up the system to show compliance with these rules and regulations
- (2) Revocation and/or suspension of installers certificate of competency
- (3) Legal action
- (4) All of the above

Section 3. Installation and Backfilling.

Care must be taken to avoid any damage to the system. Small wastewater systems shall not be installed under the following conditions, unless otherwise authorized by the Health Officer.

- a. Rainfall

- b. Snowfall
- c. Frozen ground
- d. Soils saturated with water

Drainfields shall be backfilled within ten (10) days after Health Officer approval of the installation. The backfill material shall be mounded above natural grade to allow for settling and to channel runoff away from the system.

Section 4. "As-constructed" Site Plans.

a. Final approval of a permit shall include a completely scaled and dimensioned site plan of the approved small wastewater system "as-constructed" on forms provided by the Health Officer.

These forms shall be signed by the installer and the Health Officer. One (1) copy shall be forwarded to the permit applicant and one (1) copy shall be placed on file with the Health Officer.

b. The following plan details are required:

(1) Location of the essential components of the small wastewater system including:

- (a) Septic tank pumpout riser(s)
- (b) Location and depth of septic tank(s) pump tank lid(s)
- (c) All building drain stub outlets
- (d) Building sewer
- (e) Effluent line
- (f) Distribution box
- (g) Distance between all drainfield lines. The length and width of each bed/trench shall be shown as well as the total number of lineal feet of drainfield line.
- (h) Location of any unusual construction features (e.g. drops in the drainfield lines, etc...) must be clearly indicated.
- (i) Distance between the edges of the drainfield stone and the edges of any cuts, banks, terraces, foundations, property lines, easements, lakes, streams, wells, driveways, water lines, walks or fills.
- (j) Location and depth of permeable cover added after installation
- (k) Depth of stone above and below drainfield lines
- (l) If a pump system, the pump size, model, pump cycle duration and dose in gallons/cycle.
- (m) Location, size, shape, and placement of all buildings on the building site showing their relation to the small wastewater system and to any easements, utility lines, and property lines.
- (n) Location, direction of flow, and discharge point of

all ground and/or surface water interceptor drains

(o) Orientation of drawing with true north direction by arrow.

(p) Location of private water supply (wells, springs, cisterns etc...)

(q) Ground slope

(2) Clearly indicate scale. Recommended scale of one (1) inch equals twenty (20) feet. Scales utilizing ratios in excess of one (1) inch equals thirty (30) feet are not acceptable.

Section 5. Approval.

a. The Health Officer's signature on the final inspection "as-constructed" site plan shall constitute approval of said system.

b. If the Health Officer shall disapprove such work or system, notification in writing shall be provided to the owner, designer and installer within ten (10) working days, stating the reasons for such disapproval, and it shall then remain unlawful to use said system.

c. Three (3) years following installation of a small wastewater system, the Health Officer should send a notice, together with a copy of the "as-constructed" drawing to the owner or occupant of the premises advising that it is now necessary to commence regular and routine maintenance of the system. The notice should stipulate that the septic tank should be checked immediately and pumped, if necessary.

d. The Health Officer should also provide a continuing educational program regarding the use and maintenance of small wastewater systems for long-term or permanent serviceability.

CHAPTER VIII

MONITORING AND PUBLIC MANAGEMENT REQUIREMENTS

Section 1. Monitoring of Alternative and/or Experimental Systems.

a. Monitoring of the performance of any alternative or experimental system installed may be required. The performance monitoring may consist of small wastewater system inspections, effluent sampling, monitoring wells, etc., as determined by the Health Officer.

b. The minimum frequency and duration of monitoring for alternative or experimental systems shall be determined at the time of permit issuance by the Health Officer.

c. Any additional costs incurred by monitoring shall be borne by the owner. An agreement to that effect shall be signed by the owner prior to approval of any alternative or experimental system.

CHAPTER IX

REPAIRS AND REMODELING

Section 1. Repairs for Failing Small Wastewater Systems.

a. These rules and regulations shall be applied to the maximum extent permitted by existing site conditions for any repair necessitated by the failure of an existing small wastewater system. To preclude condemnation of existing property, the Health Officer may waive compliance with specific requirements of these rules and regulations if it can be demonstrated that the repaired system will not have an adverse effect on public health. The owner(s) of any small wastewater system determined to be failing by the Health Officer, shall be notified in writing by the Health Officer that the system is failing and that all requirements of these rules and regulations in regards to system repairs shall be complied with within ninety (90) days of said notification. If it can be demonstrated that the failing small wastewater system will not have an adverse effect on public health, the owner(s) may submit a compliance schedule for review and approval by the Health Officer. However, all failing small wastewater systems shall be repaired within one (1) year from violation notification.

b. It is unlawful to repair a small wastewater system without obtaining a small wastewater system permit detailing the necessary repairs. The replacement of the building sewer and the effluent tight line between the tank and the D-box are excluded from the requirements of a permit.

c. All repairs must include the potential to utilize the existing drainfield, unless such a connection would be detrimental to public health or water quality.

d. When the work of repairing an existing small wastewater system has been completed, but before it is closed and covered, the Health Officer shall be given a minimum of twenty-four (24) hours notice to inspect the system as per Chapter VII, Section 2., b. of these rules and regulations.

e. The use of hydrogen peroxide (H₂O₂) or other chemical agents to repair/remediate failing small wastewater systems shall not be permitted without the expressed written approval of the Health Officer.

Section 2. Remodeling: Approval Required.

a. Existing buildings or structures to which additions, alterations, or improvements are made after the effective date of these rules and regulations shall be served by a small wastewater system complying with these rules and regulations. The Health Officer may waive compliance with these requirements for existing buildings or structures when the addition, alterations, repairs, or improvements to the building or structure are compatible with and do not adversely impact the existing small wastewater system and potential replacement area. Also, the small wastewater system must be adequate to treat the sewage over the remaining useful life of the building or structure, and the continued operation of the system must not adversely affect public health, surface water quality, or ground water quality.

b. The Health Officer shall review all Natrona County Planning and Zoning Certificates and permits to determine the compatibility of the proposed addition, alteration, repair, improvement, or use with the existing small wastewater system.

(1) Factors that must be considered shall include, but not be limited to, the following:

(a) Size of existing drainfield in relation to proposed use as determined by Table B; percolation test data; and square footage of existing drainfield absorption area as determined by existing permit data and/or on-site inspection. Existing small wastewater system size shall be one hundred (100) percent of any requirements necessitated by the construction of the proposed new addition(s) (See Table B). Any system failing to meet this one hundred (100) percent requirement, shall comply with the sizing requirements stipulated in these rules and regulations.

(b) Potential for reconstruction and repair of the existing small wastewater system.

(c) Ultimate purpose of the remodeling.

(2) The Health Officer may require the zoning certificate/permit holder to furnish such exhibits and information as may be deemed relevant and necessary for the evaluation of the existing small wastewater system.

c. Within ten (10) working days of receipt of the zoning certificate/permit and all required information, the Health

Officer shall notify the zoning certificate/permit holder of one of the following:

(1) Approval of the Zoning Certificate/Permit. Approval shall be based upon one or more of the following minimum requirements:

(a) Determination of no impact on the existing small wastewater system

(b) Completion of a small wastewater system permit application and payment of appropriate fees.

(c) Submission of percolation test data.

(d) Excavation of an inspection/slit trench to determine levels of seasonal high groundwater and/or impermeable layers.

(e) Completion of "As-built" for existing, non-permitted systems, per the Health Officer's requirements.

(2) Correction(s) needed to be made to accommodate the approval of the zoning certificate/permit.

(3) Disapprove the zoning certificate/permit and notify, in writing, the zoning certificate/permit holder of the action taken and the reasons therefore.

CHAPTER X

APPEALS

Section 1. Appeals Process.

a. Any person aggrieved by any decision or final order of the Health Officer made pursuant to these rules and regulations pertaining to land in which that person has an interest may appeal to the City of Casper-Natrona County Board of Health. The appeal shall be commenced by the filing of a written demand, citing with particularity, the order or decision appealed from and the reasons for the appeal. The applicant shall request a hearing within twenty (20) days of the receipt of the Health Officer's order. The Board of Health shall schedule a time and place for the hearing, to be held not later than thirty (30) days from the date of the request, unless a later date is requested by the applicant. In no event shall the hearing be held later than ninety (90) days from the date of the request. The applicant shall be notified of the time and place of the hearing at least seven (7) days before the date of the hearing. The Board of Health shall render a final decision within ninety (90) days after the date of the hearing.

b. The Health Officer may permit small wastewater systems

which are not in compliance with these rules and regulations where there are unusual circumstances or conditions such that the strict application of the requirements would cause undue and unnecessary hardship, provided that it can be demonstrated that the small wastewater systems will meet the intent of these rules and regulations. No deviation from these rules and regulations shall be granted which would in any way tend to interfere with or prejudice the rights of others to the comfortable enjoyment of life and property.

CHAPTER XI

PUBLIC SEWER CONNECTIONS

Section 1. Connection to Public Sewer.

a. The owner or occupant of lands or premises shall connect to a public sewer if any boundary of the land is within three hundred (300) feet of a public sewer within the 201 Facilities Planning Area boundary, provided that the existing small wastewater system permit was issued after the 201 Interagency Agreement (July 17, 1981), and the sewer utility permits such connections to its sewers. All failing small wastewater systems within three hundred (300) feet of a public sewer shall connect to the sewer regardless of the date the small wastewater system was installed. No small wastewater system repair permits shall be issued for property within three hundred (300) feet of a public sewer. Such property shall connect to the public sewer regardless of the original installation date of the small wastewater system. Such connection shall be made by connecting the building drain to an approved side sewer and the side sewer to the public sewer.

(1) The distances set forth in a. (above) shall be calculated along the shortest route in road rights-of-way and easements consistent with the comprehensive planning and sewer extension practices of the sewer utility involved from the existing sewer to the nearest point of the land to be served.

b. Abandoned small wastewater systems shall not be allowed to create a safety hazard to the public. Such systems shall be abandoned according to requirements within the latest edition of the Uniform Plumbing Code.

c. Every plumbing system not connected to a public sewer, or not required by law to be connected to a public sewer, shall be connected to a small wastewater system and/or to a sewage system, treatment works or disposal system as defined and regulated by

the Wyoming State Department of Environmental Quality.

CHAPTER XII

SUBDIVISION APPROVAL PROCESS

Section 1. Application for Subdivision Approval.

a. Application for subdivision approval shall be made to the Health Officer on forms provided for this purpose and shall be in sufficient detail to allow evaluation of the suitability of the proposed means of sewage disposal. Subdivision approval requirements are not intended to satisfy any of the specific requirements of a small wastewater system permit. If a community on-site system is proposed, the preliminary report, plans, and specifications shall be in accordance with Wyoming State Department of Environmental Quality rules and regulations regarding community on-site systems.

The preliminary plat shall include an engineered hydrogeological study documenting that each proposed lot is capable of supporting a small wastewater system as required by these rules and regulations. In lieu of an engineered hydrogeological study, applications shall include, but not be limited to the following:

(1) Soil Boring/Slit Trench

A minimum of two (2) soil borings or one (1) slit trench shall be completed per lot as designated by the Health Officer prior to percolation testing. The number of lots requiring soil borings/slit trenches within a proposed subdivision shall be determined by the Health Officer based upon topography, soil types, surface water occurrences, etc.... Boring(s) or trench shall be in the same specific area of one of more of the three proposed percolation test holes and shall be a minimum of ten (10) feet deep. Soil descriptions shall be recorded from borings or trench based on the United States Soil Conservation Service (SCS) soil classification system.

(2) Percolation Testing

A minimum of three (3) test holes per lot. Test holes shall be located on the long axis of the lot, with equidistant spacing between holes and from lot boundaries. Percolation tests shall be completed using the standard method for percolation tests as described in Appendix B, excluding (b) Location. Depth of percolation testing shall be determined by the Health Officer

following review of the soil boring/slit trench information.

(3) Seasonal High Groundwater (Water Table)

Seasonal high groundwater may vary from area to area based on geographical location, irrigation practices, etc.... The depth to seasonal high groundwater shall be determined utilizing the soil borings or slit trench. When groundwater is found to be present within the ten (10) foot minimum depth of the soil borings/slit trench, additional monitoring may be required based on local irrigation practices, the presence of canals, lakes, streams, rivers, or seasonal variations in moisture, i.e. snow pack on the mountain, etc. Monitoring for an extended period, not to exceed one (1) year, may be required.

(4) Estimated Rise in Water Table (Mounding)

The estimated distance the water table will rise at the center of the absorption system shall be determined when the water table and/or an impermeable layer is documented in soil borings/slit trench. The height of the wastewater mound may be estimated from Figures 3 through 8. The average daily flow should be used and may be estimated as 0.6 times the flow determined from Table B.

(5) Groundwater Monitoring

When groundwater is documented in soil borings/slit trench, groundwater shall be sampled and analyzed for pH, nitrates, and phosphates. Initial analysis results shall be utilized for baseline data for determining ground water contamination/septic failure at a later date.

(6) Contour Map

A contour map of the land to be subdivided shall be provided for review. Map shall be a 1:100 scale. Contour intervals shall not exceed twenty (20) feet.

(7) Flood Plain Map

A flood plain map or flood plain information of the land to be subdivided shall be provided for review.

(8) Water Well Logs

Copies of existing water well logs from wells on the property to be subdivided which are registered at the Wyoming State Engineer's Office shall be provided for review. Copies of well logs from a minimum of two wells bordering the land to be subdivided shall be provided for review when no wells exist on

the property to be subdivided.

(9) Plot Plan

A dimensioned plot plan showing sufficient room for a drainfield and one hundred (100) percent replacement area for each lot shall be submitted after road cut and drainage plans have been completed. Setbacks shall comply with these rules and regulations. Such a plot plan shall also include any wells, surface water features, or other features relevant to the design and installation of a small wastewater system.

(10) Pre-existing

If pre-existing buildings are on any of the proposed lots, then all of the following must be clearly demonstrated:

(a) The pre-existing small wastewater system is functioning properly.

(b) There is adequate replacement area available for repair or replacement of the pre-existing small wastewater system, if necessary.

(c) The continued operation of the pre-existing system does not pose a threat to public health or ground water quality.

(d) Non-permitted, pre-existing small wastewater systems shall comply with the Health Officer's "As-built" requirements.

The above requirements are minimum requirements. It shall be at the discretion of the Health Officer to require more extensive hydrogeological data based upon review of the subdivision application.

b. For subdivisions consisting of three (3) or more lots a base fee of one hundred (\$100.00) dollars plus twenty dollars (\$20.00) per proposed lot for submission of a subdivision report shall be required from the developer/owner at the time of initial submittal. For subdivisions proposed to be served by public sewer, the base fee shall be twenty-five (\$25.00) dollars with no additional fee and a letter from the sewer utility shall accompany each report certifying that sewer service is available. Health Officer review and fees are not required for those subdivisions inside incorporated cities where public water and sewer service will be used.

c. Approval for any development, including but not limited to, subdivisions, single family housing, mobile home parks, multi-family housing, and commercial establishments, shall be issued only if there is sufficient data submitted with the application to indicate the ability to comply with these rules and regulations. After review of the proposed development, the Health Officer shall either approve, deny, or hold the proposal pending submittal of additional information. Proposals held pending additional information shall be denied if adequate additional information is not received within ninety (90) days.

d. When an application is denied, the Health Officer shall give the applicant written notice of the intended action and the reasons for denial. In case of denial, the applicant has a right to a hearing before the City of Casper-Natrona County Board of Health. The applicant shall request a hearing within twenty (20) days of his/her receipt of the Health Officer's notice. The Board of Health shall schedule a time and place for the hearing, to be held not later than thirty (30) days from the date of the request unless a later date is requested by the applicant. In no event shall the hearing be held later than ninety (90) days from the date of the request. The applicant shall be notified of the time and place of the hearing at least seven (7) days before the date of the hearing. The Board of Health shall render a final decision within ninety (90) days after the date of the hearing.

Section 2. Determination of Minimum Lot Size for Newly Created Lots.

a. The minimum rectilinear lot size for all newly created lots shall be two hundred sixty (260') feet by two hundred fifty (250') feet based upon the minimum setback requirements of these rules and regulations. Said rectilinear dimensions must fit within the boundaries of any proposed lot. Where on-site conditions may require larger lots the minimum lot size shall be established by the Health Officer on the basis of the subdivision application submitted and any on-site inspections by the Health Officer. Factors that must be considered when determining minimum lot size area shall include, but not be limited to the following:

- (1) Availability of public sewers, as determined by the 201 Facilities Planning Area boundary
- (2) Soil type and depth
- (3) Area drainage, lot drainage
- (4) Protection of surface and ground water
- (5) Setbacks from property lines, water supplies, etc.
- (6) Source of domestic water
- (7) Topography, geology and ground cover
- (8) Climatic conditions

- (9) Activity or land use, present and anticipated
- (10) Growth patterns
- (11) Individual and accumulated gross effects on water quality
- (12) Replacement areas for additional subsurface disposal, or other alternative remedies in case of substantial failures
- (13) Anticipated sewage volume, as determined by number of lots and development
- (14) Compliance with zoning and other pertinent requirements
- (15) Minimum setback requirements as established by these rules and regulations

Section 3. Approval Process.

Natrona County Planning and Zoning Department's review must be completed and included with the submittal of the subdivision application to the Health Officer. The Health Officer's final approval must be obtained prior to final recording of the subdivision.

Section 4. Lot Line Revisions. **Section 4. Lot Line Revisions.** **Section 4. Lot Line Revisions.**

Lot line revisions where Health Officer review is requested by the Natrona County Planning Department shall include the following information at a minimum.

a. Copies of valid small wastewater system permits on the affected property delineating setbacks from the proposed lot line revision.

b. Health Officer small wastewater system "As-built" requirements.

CHAPTER XIII

ENACTMENT

Section 1. Enforcement.

The Health Officer may refer potential violations of these rules and regulations to the Wyoming Department of Environmental Quality for enforcement action through appropriate State Statutes and regulations. The Health Officer may also refer potential violations of these rules and regulations to the Natrona County District Attorney's office for prosecution as a misdemeanor as defined by State statutes and regulations.

Section 2. Severability.

Should any part of these rules and regulations be declared unconstitutional or invalid for any reason, such declaration shall not affect the validity of the remainder.

Section 3. Repealer.

Natrona County Plumbing Code exhibits B.C.D. and E adopted January 3, 1984 and as amended are hereby repealed.

Section 4. Effective Date.

These rules and regulations shall take effect on March 1, 1995.

APPENDIX A

TEXTURAL PROPERTIES OF MINERAL SOILS

SAND

As a textural class, sand is quite "clean" and will leave your hand relatively clean after handling a moist sample. When dry, sand is loose single grains that can easily be seen and felt and when moist it will not form a ball that can withstand any handling.

SILT

Silt does not ribbon well and does not have a gritty feel to it at all. It feels like flour when wet or dry and shows dilatancy.

CLAY

Clay forms very hard clumps when dry. One should be sure that the soil sample is completely moistened before texturing because small dry clumps will sometimes give a clay soil a gritty feel. Clay forms a strong ribbon (5 cm), is plastic and sticky when wet and lacks any grittiness. The amount of plasticity and stickiness in a clay soil will differ depending on its mineralogy. Montmorillonitic clays will show more stickiness, are more plastic and have a higher shrink-swell potential than illitic clays.

LOAMY SAND

"Sand with few fines" or "dirty sand" are names that have been used for this textural class. It will form weak easily broken clods upon drying and when moistened will form a weak ball that can withstand very careful handling but will not form a ribbon when squeezed between the thumb and forefinger. As opposed to a sand, the fines that are found in a Loamy sand will leave a clean hand looking dirty after handling the moistened sample.

SANDY LOAM

When moistened, a Sandy loam soil will form a ball that can be handled without breaking and the sample will often begin to ribbon but readily breaks. Sandy loam is distinguished from Loam and Silt loam by its dominant sandy or gritty feel. Dry samples are usually easily crushed and will feel gritty when rubbed.

LOAM

Loam will form a weak ribbon (2.5 cm) when moist and when

saturated and rubbed between the fingers it will not feel excessively gritty or smooth. Dry soil will form clods that are firm.

SILT LOAM

This soil forms a weak ribbon (2.5 cm) when moist and has a very smooth feeling when rubbed between the fingers. When pulverized, the smooth flour-like feeling of silt predominates. Dry soil forms clods that are firm to hard. Soil aggregates are firm but can be crushed with the hand.

SANDY CLAY LOAM

This soil will form a medium ribbon (2.5 to 5.0 cm) when moist and when a saturated sample is rubbed between the fingers, the sand fraction can be felt and the grittiness feel will distinguish it from Clay loam. When dry, the clods are usually quite hard.

CLAY LOAM

Clay loam forms a medium length ribbon (2.5 to 5.0 cm) when moist, and does not have excessive smoothness or grittiness when rubbed between the fingers. When dry the clods are very hard.

SILTY CLAY LOAM

This soil forms a medium length ribbon (2.5 to 5.0 cm) when moist as does Sandy clay loam and Clay loam. Silty clay loam is distinguished from the other two by its smooth or greasy feel when moistened and rubbed between the fingers.

SANDY CLAY

This soil type is very uncommon because the geomorphic processes that lead to the formation of sands and clays are quite different. The soil forms a strong ribbon (5.0 cm or longer) and because it has a high percentage of sand it will feel quite gritty when rubbed between the fingers.

SILTY CLAY

Silty clay will form a strong ribbon (5 cm or longer) when moist and forms very hard clods when dry. When moistened and rubbed between the fingers the soil will feel very smooth.

APPENDIX B

PERCOLATION TEST PROCEDURE

a. Percolation tests shall not be conducted when the ambient air temperature is less than thirty-two (32) degrees fahrenheit and/or when frost is present in the percolation test zone unless otherwise authorized by the Health Officer.

b. Location. The percolation test holes shall be spaced uniformly over the proposed absorption field site. A minimum of three test holes are required. If only three (3) to five (5) percolation test holes are utilized, the design percolation rate for the absorption system is the slowest rate from all of the holes tested with the exception that any values less than or equal to one (1) minute per inch shall be the definitive design rate. When six (6) or more percolation tests are performed, the design percolation rate for the absorption system is the mean average of all the holes tested.

c. Preparation. A four (4) inch to eight (8) inch diameter hole shall be dug or bored to the proposed depth of the bottom of the absorption field. 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. Place about two (2) inches of coarse sand or fine gravel in the bottom to prevent scouring.

d. 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.

(1) Place a reference marker such as a nail or steel pin into the side of the hole twelve (12) inches above the gravel/sand layer.

(2) Fill the hole to the marker level or above with clear water, and refill as necessary so that the twelve (12) inch column of water is maintained for a period of four (4) hours or overnight, if possible. A reservoir of water may be used to provide constant refilling with an automatic siphon for purposes of overnight saturation.

(3) After a minimum of four (4) hours of water contact the soil must be allowed to swell for an additional twelve (12) hours. The percolation rate measurement shall be conducted immediately upon the conclusion of the twelve (12) hour swelling period.

e. Percolation rate measurement.

(1) Adjust the water depth to the marker and record the water level drop to the nearest 1/16 of an inch after a thirty (30) minute interval. If the water has fallen below the gravel or close to the gravel, it may be necessary to change the interval to either ten (10) or fifteen (15) minutes. If so, refill to the marker and remeasure after that interval.

(2) Refill and repeat this measurement until a minimum of five (5) separate measurements have been made using the same time interval. In many cases the measured drop will decrease on each successive interval as the soil gradually becomes saturated. When the measured drop becomes uniform for three successive time intervals (refilling to the marker each time) that measurement, in inches, and the length of the interval in minutes may be used to calculate the percolation rate. It should be expressed in minutes per inch (See following).

Time interval = thirty (30) minutes
Measured drop for three (3) successive time intervals = 2", 2"
and 2" respectively (stabilized rate)
Percolation rate = Time interval (in minutes) ÷ stabilized rate
→ 30 ÷ 2 = 15
Percolation rate for this test hole would be fifteen (15) minutes
per one (1) inch.

(3) In some sandy or silty soils, some minor slumping may occur, causing a misleading measurement. If this does happen, reclean the hole, replace the sand bottom and repeat from d.,1. If the soil continually and repeatedly slumps in, the soil should be reevaluated by the Health Officer.

(4) If the twelve (12) inch column of water repeatedly seeps away before the completion of a ten (10) minute interval, the percolation rate of the hole shall be recorded as less than one (1) minute per inch and the testing for that hole may be terminated.

f. Percolation tests may be conducted by the following individuals:

- (1) Property owner
- (2) Professional Engineer
- (3) Individuals possessing a four (4) year college degree

in one (1) or more of the following disciplines:

(a) Geology

(b) Hydrology

(c) Soils Science

(4) Environmental Health Specialist/Sanitarian (by profession)

APPENDIX C

INFILTRATION TEST

METHOD FOR DETERMINING INFILTRATION RATE INTO SOILS RECEIVING SAND FILTER EFFLUENT

- a. Hand dig a trench that is six (6) inches wide, twelve (12) inches deep and five (5) feet long. The base area is two and one-half (2.5) square feet.
- b. In the bottom of the trench place a four and one-half (4.5) foot length of one (1) inch diameter PVC pipe with five (5) orifices, 1/16 inch in diameter on twelve (12) inch centers. Position the pressure pipe in the center of the trench with the orifices pointing upward.
- c. Place over the one (1) inch diameter pressure pipe a half section of six (6) inch diameter PVC pipe. When the one (1) inch line is pressurized, the upwards pointing orifices will direct the water against the soffit of the six (6) inch diameter half pipe. The water will then run down the side walls of the pipe onto the soil. (See end view of trench).
- d. Connect the one (1) inch diameter pressure pipe, by means of a flexible PVC pipe, to a small pump that is controlled by a programmable timer to dose the trench in increments similar to the way a full size drainfield trench is dosed. Example: if the soil hydraulic loading rate is expected to be five (5) gallons /foot²/day, then a trench having a bottom area of two and one-half (2.5) square feet would be dosed at the rate of twelve and one-half (12.5) gallons per day. Set pump to dose one and one-tenth (1.1) gallons every two (2) hours for a total of thirteen and two-tenths (13 2/10) gallons per day. With residual pressure of five (5) feet, the flow rate through each orifice will be 0.108 gpm; the total flow for five (5) orifices will be 0.54 gpm. Therefore, program the timer so the pump runs two (2) minutes per dose. If there is no continuous ponding after twenty-four (24) hours or more of loading at the expected rate, it can be assumed that the loading rate is acceptable.
- e. Sand filter effluent disposal trenches shall be designed

with the same cross-sectional dimensions and construction materials as utilized in the infiltration test. Infiltration test trenches utilizing gravel substrates shall be filled with water up to the level of the invert of the pressure pipe immediately prior to conducting the infiltration test.

PUBLIC NOTICE

Public notice of intent to adopt rules pertaining to requirements for Regulations for Permit To Construct, Install or Modify Small Wastewater Facilities in Natrona County, Wyoming which will become effective on the 1st day of March, 1995, time 8:00 a.m. Pursuant to the Wyoming Administrative Procedures Act, notice is hereby given of the intent to adopt Rules and Regulations for Small Wastewater Facilities located in Natrona County, Wyoming in accordance with 16-3-101 through 16-3-115, W.S. 1977. These rules shall include, but are not limited to rules and regulations requiring contractor certification; permit application fee and issuance; construction and maintenance standards for systems and final inspection; subdivision requirements; and penalty for non-compliance. Prior to adoption, these intended rules shall be available for public inspection at the Natrona County Clerk's Office, Natrona County Courthouse, 200 North Center, and at the City of Casper-Natrona County Health Department, located at 1200 East Third, Casper, Wyoming during normal business hours.

Interested persons may present their views on the intended rules in writing and submit such writing to the City of Casper-Natrona County Board of Health at 1200 East Third, Casper, Wyoming 82601.

Any interested persons may appear before the City of Casper-Natrona County Board of Health in order to present their views at a hearing to be held on the 8th day of February, 1995, at 12:00 noon at 1200 East Third, Casper, Wyoming prior to adoption in meeting room (A) of the City-County Health Department Building located at 1200 East Third Street, Casper, Wyoming.

Joyce Lyford, Chairperson

City of Casper-Natrona County Board of Health