CHAPTER 4720
DEPARTMENT OF HEALTH
PUBLIC WATER SUPPLIES

4720.0010 WATER SUPPLY AND SEWERAGE SYSTEMS.

No system of water supply or system for the on-site disposal of sewage where such system is for public use or for the use of any considerable number of persons, or in case any such system affects or tends to affect the public health in any manner, shall be installed by any public agency or by any person or corporation, nor shall any such existing system be materially altered or extended, until complete plans and specifications for the installation, alteration, or extension, together with such information as the commissioner of health may require, have been submitted in duplicate and approved by the commissioner of health insofar as any features thereof affect or tend to affect the public health, and no construction shall take place except in accordance with the approved plans. A well installed or materially altered for the purpose of providing water to a noncommunity or nontransient noncommunity water supply is exempt from this part.

Statutory Authority: *MS s 144.12; 144.122; 144.383*

History: *L 1977 c 305 s 39; 18 SR 1222*

4720.0012 NEW SYSTEM CAPACITY REQUIREMENTS.

Subpart 1. **Requirements generally.** New water systems shall not commence operation until the commissioner approves plans and specifications as required in part 4720.0010 and approves documentation submitted under this part that demonstrates a system's technical, managerial, and financial capacities.

Subp. 2. **Technical capacity.** Technical capacity must be demonstrated by:

A. the system meeting the plan and specification requirements in part 4720.0010; and

B. the system employing or contracting with a water operator certified according to Minnesota Statutes, chapter 115, effective the first day of system operation.

Subp. 3. **Managerial capacity.** Managerial capacity must be demonstrated by:

A. the system providing the identification, location, and contact method for the system's owner, manager, or chief executive officer; and

B. the system employing or contracting with a water operator certified according to Minnesota Statutes, chapter 115, effective the first day of system operation.

Subp. 4. **Financial capacity.** Financial capacity must be demonstrated by the water system's owner, chief financial officer, or chief executive officer certifying that responsible individuals in the system have reviewed the potential and actual costs of operating and maintaining a public water system and the system has the financial capability to meet the following actual and potential costs:

A. Actual costs to be considered include:

(1) construction and other capital costs;

(2) operator training and salary costs;

(3) current treatment costs;

(4) routine maintenance and equipment-replacement costs; and

(5) the costs of compliance with state rules and federal regulations.

B. Potential costs to be considered include:

(1) the costs of compliance with proposed regulations of the Environmental Protection Agency;

(2) the costs of treatment or remediation for contamination; and

(3) the costs of emergency repairs.

Statutory Authority: *MS s 144.383*

History: *24 SR 301*

4720.0015 FEES FOR REVIEW OF PLANS.

All plans for water supply system construction, alteration, or extension submitted for review and approval to the Department of Health as required in part 4720.0010 shall be accompanied by the appropriate fees, as prescribed below:

A. Watermains, $150;

B. Wells, $250;

C. Pumphouses, $150;

D. Chemical feed, $150;

E. Treatment plants (new), $1,000;

F. Treatment plants (renovation), $250;

G. Storage (installation), $300;

H. Storage (coating), $100; and

I. Booster stations, $150.

The appropriate fees shall be paid by check made payable to "Minnesota Department of Health."

Statutory Authority: *MS s 144.383*

History: *10 SR 1687*

4720.0020 [Repealed, 15 SR 1842]

4720.0025 UNSAFE WATER CONNECTIONS.

There shall be no physical connection between any public water supply system intended for potable or domestic use and any system, equipment, or device that may serve as a source of contamination, unless protected by a properly maintained backflow preventer approved by the commissioner. Backflow prevention for fire sprinkler systems must comply with American Water Works Association Standard M14, section 6.3, as referenced in part 4715.2110.

Statutory Authority: *MS s 144.383*

History: *18 SR 1960*

4720.0030 FLUORIDATION.

Subpart 1. **Application.** This part shall be applicable to all municipal water supplies, as required by Minnesota Statutes, section 144.145.

Subp. 2. **Fluoride content.** The fluoride content of the water shall be controlled to maintain an average concentration of 1.2 milligrams per liter; the concentration shall be neither less than 0.9 milligrams per liter nor more than 1.5 milligrams per liter.

Subp. 3. **Chemical feeder.** The chemical feeder apparatus for introducing fluoride to the water supply shall conform to the standards of the commissioner of health.

Subp. 4. **Testing.** Equipment for the adequate and reliable testing of the fluoride content shall be furnished for each installation. The method of testing the fluoride content of the water shall be approved by the commissioner of health. Approval shall require either a photometric colorimetric procedure, preceded when necessary by distillation or other treatment to remove interfering materials, or a fluoride-specific electrode and an associated potential measuring device. Continuous monitoring systems shall be approved when they can be installed to monitor a representative portion of the entire supply.

Subp. 5. **Samples collected daily.** Samples shall be collected daily at a point(s) in the distribution system representative of the entire supply. Sampling point(s) shall be located downstream sufficiently distant from the point(s) at which fluoride is fed into the water supply to ensure that the distance traversed and the time elapsed since the introduction of the fluoride concentrate is adequate to allow its complete mixing with the water. At least once each three months, at a time designated by the commissioner of health, a duplicate of the usual daily sample(s) shall be collected in containers

furnished by the commissioner of health and sent to the Department of Health for comparative analysis.

Subp. 6. **Records of fluoridation.** Daily records of water fluoridation plant operations shall be maintained by the owners, officials, or their representatives. These records shall show the amount of water pumped, amount of fluoride chemical fed, fluoride test results, and any other pertinent information required by the commissioner of health. A report of the operation of each water fluoridation plant shall be submitted monthly to the commissioner of health on forms furnished by them.

Statutory Authority: *MS s 144.12 subd 1; 144.145; 144.383*

History: *L 1977 c 305 s 39*

4720.0040 MUNICIPALITY APPROVAL OF WATER SUPPLY CONTRACTS.

No governing body of any municipality shall enter into any contract or agreement or renewal thereof for the furnishing and distribution, either or both, of water to be used for domestic purposes within the municipality until the approval of the commissioner of health, insofar as the sanitary features of the water supply system are concerned, has been obtained.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

History: *L 1977 c 305 s 39*

4720.0100 [Repealed, 15 SR 1842]

4720.0200 JUSTIFICATION.

Parts 4720.0200 to 4720.3970 are adopted pursuant to the Safe Drinking Water Act, Minnesota Statutes, sections 144.381 to 144.388, which requires that the commissioner of health adopt for all public water supplies rules which are at least as stringent as the federal regulations dealing with public water supplies adopted by the United States Environmental Protection Agency, in order for the commissioner to be able to assume the primary responsibility for enforcing the federal act.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.0300 SCOPE AND COVERAGE.

Parts 4720.0200 to 4720.3970 prescribe standards for water supply siting and construction, set maximum contaminant levels for turbidity, microbiological constituents, organic and inorganic chemicals, and radioactivity, prescribe a frequency for monitoring the levels of these constituents and sodium and corrosivity, and prescribe the procedures for reporting results, notifying the public and for maintaining records.

The standards and procedures adopted in parts 4720.0200 to 4720.3970 inclusive shall apply to all public drinking water supplies, pursuant to authority granted by existing statutes and amendments thereto, notwithstanding any other water quality standards or regulations.

A water supply which meets all of the following requirements shall not be a public supply for the purpose of parts 4720.0200 to 4720.3970:

A. consists only of distribution and storage facilities and does not have any collection and treatment facilities;

B. obtains all of its water from, but is not owned or operated by a public water supply to which the regulations apply;

C. does not sell water to any person; and

D. is not a carrier which conveys passengers in interstate commerce.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.0350 RULES AND STANDARDS ADOPTED BY REFERENCE.

The National Primary Drinking Water Regulations in Code of Federal Regulations, title 40, part 141, and sections 142.40 to 142.64, are incorporated by reference in parts 4720.0200 to 4720.3970 and are subject to the alterations and amendments contained in parts 4720.0200 to 4720.3970.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 18 SR 1960; 24 SR 301*

4720.0400 [Repealed, 15 SR 1842]

4720.0450 DEFINITIONS; SECTION 141.2 OF THE NATIONAL PRIMARY DRINKING WATER REGULATIONS.

Subpart 1. [Renumbered subp. 1b]

Subp. 1a. **Capacity defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Capacity" means the overall capability of a public water system to reliably produce and deliver water meeting all national primary drinking water regulations in effect, or likely to be in effect, on the date of commencement of operation. Capacity encompasses the technical, managerial, and financial capabilities that enable the water system to plan for, achieve, and maintain compliance with drinking water standards found in Code of Federal Regulations, title 40, section 141.

Subp. 1b. **Central water treatment defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Central water treatment" means providing treatment at a common location or facility and subsequently delivering it to the consumer of the public water supply.

Subp. 2. **Commissioner of health defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Commissioner of health" means the authority established by Minnesota Statutes, sections 144.381 to 144.387, for enforcement in the state of the National Primary Drinking Water Regulations and parts 4720.0200 to 4720.3970. For purposes of enforcing the National Primary Drinking Water Regulations, title 40, part 141, the term "state" contained in those regulations means the commissioner of health.

Subp. 3. **Composite defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Composite" means a sampling technique in which two or more samples are combined before an analysis is performed.

Subp. 4. **Distribution system defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Distribution system" means a network of pipes, valves, storage reservoirs, and pumping stations that delivers water to homes, businesses, and industries for drinking and other uses.

Subp. 5. **Entry point samples defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Entry point samples" means water samples collected at a location after any application of treatment but before the water is delivered to any consumer.

Subp. 6. **Environmental Protection Agency methods defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Environmental Protection Agency methods" means methods contained in Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water, September 1986. These methods are issued by the Environmental Monitoring and Support Laboratory (EMSL) of the United States Environmental Protection Agency, Cincinnati, Ohio 45268. These methods are incorporated by

reference and are not subject to frequent change. The methods are available through the Minitex interlibrary loan system.

Subp. 7. **Federal act defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Federal act" means the Safe Drinking Water Act of 1974, Public Law 93-523, title 42, United States Code, section 300f to 300j-11.

Subp. 8. **Federal regulations defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Federal regulations" means regulations dealing with public water supplies and drinking water quality, adopted by the Administrator of the United States Environmental Protection Agency pursuant to the federal act.

Subp. 8a. **Financial capacity defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Financial capacity" means a public water system's ability to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with drinking water standards found in Code of Federal Regulations, title 40, section 141.

Subp. 9. **Groundwater defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Groundwater" means the water in the zone of saturation in which all of the pore spaces of the subsurface material are filled with water. The water that supplies a well is groundwater.

Subp. 9a. **Managerial capacity defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Managerial capacity" means a public water system's institutional and administrative capabilities to allow the system to achieve and maintain compliance with drinking water standards found in Code of Federal Regulations, title 40, section 141.

Subp. 9b. **New water system defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

For purposes of capacity development, "new water system" means a community water system (CWS) or nontransient noncommunity water system (NTNCWS) in which either there was no previously existing physical water system or the existing water system has undergone an infrastructure expansion that causes the system to satisfy the criteria for a CWS or NTNCWS as defined in Code of Federal Regulations, title 40, section 141.

Subp. 9c. **Technical capacity defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Technical capacity" means a public water system's physical and operational capabilities to allow the system to achieve and maintain compliance with drinking water standards found in Code of Federal Regulations, title 40, section 141.

Subp. 10. **Turbidity unit defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Turbidity unit" means an amount of turbidity equivalent to that in a solution composed of 0.000125 percent hydrazine sulfate and 0.00125 percent hexamethylenetetramine in distilled and filtered (100 μ pore size membrane) water, as measured by a nephelometric turbidimeter.

Subp. 11. **Year round resident defined.** In section 141.2 of the National Primary Drinking Water Regulations, the following definition is added:

"Year round resident" means a person who resides in the area served by the public water supply for more than six months of the year.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 18 SR 1960; 24 SR 301*

4720.0500 [Repealed, 15 SR 1842]

4720.0550 MICROBIOLOGICAL CONTAMINANT SAMPLING AND ANALYTICAL REQUIREMENTS; SECTION 141.21 OF THE NATIONAL PRIMARY DRINKING WATER REGULATIONS.

Subpart 1. **Section 141.21, paragraph (b), clause (1).** Section 141.21, paragraph (b), clause (1), of the National Primary Drinking Water Regulations is amended to read:

If a routine sample is total coliform-positive, the public water supplier must collect a set of repeat samples within 24 hours of being notified of the positive result. A supplier must collect no fewer than four repeat samples for each total coliform-positive sample found. The commissioner of health may extend the 24-hour limit on a case-by-case basis if the supplier has a logistical problem in collecting the repeat samples within 24 hours and the problem is beyond the supplier's control. In the case of an extension, the commissioner of health shall specify how much time the supplier has to collect the repeat samples.

Subp. 2. **Section 141.21, paragraph (d), clause (2).** Section 141.21, paragraph (d), clause (2), of the National Primary Drinking Water Regulations is replaced with the sentence:"Sanitary surveys will be conducted by the department."

Subp. 3. **Section 141.21, paragraph (e), clause (2).** Section 141.21, paragraph (e), clause (2), of the National Primary Drinking Water Regulations is deleted.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 18 SR 1960*

4720.0600 [Repealed, 15 SR 1842]

4720.0700 [Repealed, 15 SR 1842]

4720.0800 [Repealed, 15 SR 1842]

4720.0900 [Repealed, 15 SR 1842]

4720.1000 [Repealed, 15 SR 1842]

4720.1100 [Repealed, 15 SR 1842]

4720.1200 [Repealed, 15 SR 1842]

4720.1300 [Repealed, 15 SR 1842]

4720.1400 [Repealed, 15 SR 1842]

4720.1500 [Repealed, 15 SR 1842]

4720.1510 [Repealed, 15 SR 1842]

4720.1600 [Repealed, 15 SR 1842]

4720.1700 [Repealed, 15 SR 1842]

4720.1800 [Repealed, 15 SR 1842]

4720.1900 [Repealed, 15 SR 1842]

4720.2000 [Repealed, 15 SR 1842]

4720.2100 [Repealed, 15 SR 1842]

4720.2200 [Repealed, 15 SR 1842]

4720.2300 ADDITIONAL MONITORING REQUIREMENTS.

The commissioner may impose additional monitoring requirements if the results of a sanitary survey indicate that a public health risk may exist. The commissioner may impose a requirement for more frequent sampling if the analytical results of water tests show that a previously measured contaminant is approaching a maximum contaminant level prescribed in Code of Federal Regulations, title 40, part 141.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 18 SR 1960; 24 SR 301*

4720.2400 [Repealed, 15 SR 1842]

4720.2500 [Repealed, 15 SR 1842]

4720.2600 [Repealed, 15 SR 1842]

4720.2700 APPLICATION PROCEDURE FOR VARIANCE FROM PARTS 4720.0200 TO 4720.2300.

A request for a variance from parts 4720.0200 to 4720.2300 shall be submitted to the commissioner in writing and shall follow the procedures and requirements for a variance specified in Code of Federal Regulations, title 40, part 142.20.

Statutory Authority: *MS s 144.383*

History: *18 SR 1960*

4720.2800 [Repealed, 18 SR 1960]

4720.2900 [Repealed, 18 SR 1960]

4720.3000 [Repealed, 18 SR 1960]

4720.3100 [Repealed, 15 SR 1842]

4720.3200 [Repealed, 15 SR 1842]

4720.3300 [Repealed, 15 SR 1842]

4720.3400 [Repealed, 15 SR 1842]

4720.3500 [Repealed, 15 SR 1842]

4720.3510 [Repealed, 15 SR 1842]

4720.3600 [Repealed, 15 SR 1842]

4720.3700 [Repealed, 15 SR 1842]

4720.3800 RIGHT OF INSPECTION.

The commissioner, or one of its authorized representatives, upon presenting appropriate credentials to any water supplier, is authorized to enter and inspect any establishment, facility, or other property of such supplier, in order to determine whether such supplier has acted or is acting in compliance with the rules of the commissioner relating to water supplies, including for this purpose the inspection of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water supply, including its raw water source.

Statutory Authority: *MS s 144.383*

4720.3900 [Repealed, 15 SR 1842]

4720.3910 [Repealed, 18 SR 1960]

4720.3920 GENERAL REQUIREMENTS FOR CONSTRUCTION OF SURFACE WATER AND GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER TREATMENT FACILITIES.

Groundwater systems determined to be under the direct influence of surface water must meet all applicable requirements contained in parts 4720.3920 to 4720.3965. The source of surface water and groundwater under the direct influence of surface water selected for a public water supply must provide the highest quality water reasonably available which, with appropriate treatment and adequate safeguards, meets the requirements specified in Code of Federal Regulations, title 40, sections 141.72(b) and 141.73. The design of the treatment processes, equipment, and structures shall depend on an evaluation of the nature and quality of the particular water to be treated. Variations from the design criteria may be approved by the commissioner in cases where experimental, pilot, or full scale studies have demonstrated that acceptable results can be obtained. Any unfiltered surface water or groundwater under the direct influence of a surface water system that experiences a waterborne disease outbreak must comply with the appropriate treatment requirements contained in parts 4720.3920 to 4720.3965.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 18 SR 1960; 24 SR 301*

4720.3922 INTAKES.

Intake structures must provide:

A. a velocity of flow 0.25 to 0.50 feet per second through the inlet structure so frazil ice is held to a minimum;

B. for the withdrawal of water from the depth of the best water quality;

C. inspection manholes every 1,000 feet for pipe sizes large enough to permit visual inspection;

D. protection against rupture by dragging anchors, ice, and other activity; and

E. permanent monuments to reference locations.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3925 SHORE WELLS.

Shore well structures must:

A. have motors and electrical controls located above grade and flood level;

B. be accessible for operation and service;

C. be designed to prevent flotation;

D. be equipped with removable or traveling screens before the pump suction well;

E. provide chlorination or other chemical addition facilities for raw water transmission mains;

F. have the intake valved with provisions for backflushing and testing for leaks; and

G. have provisions for controlling surges.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3927 PUMPING STATIONS; DESIGN REQUIREMENTS.

Subpart 1. **General.** Pumping stations must be designed to maintain the sanitary quality of the water being pumped. All raw or finished water pump stations must:

A. provide space to access and service all equipment;

B. have outward opening doors;

C. have a floor elevation at least six inches above the finished grade and at least 24 inches above the regional flood level. Below grade installations shall be permitted only if the terrain at the site is such that a gravity drain system can be provided;

D. have all floors drained without impairing the quality of water being handled; and

E. provide a suitable outlet for drainage from pump glands without discharging onto the floor.

Subp. 2. **Pumping station suction well.** Suction wells, including installations where the pumps are installed on top of a reservoir, must:

A. be watertight;

B. have bottoms sloped to permit removal of water and entrained solids;

C. be vented by means of a pipe or other device terminating in a screened U-bend at least 24 inches above the floor; and

D. have curbs a minimum of four inches around all access openings, pipes, and other equipment which extend through the top of the suction well. Access openings must have covers which overlap at least two inches.

Subp. 3. **Pumping station pumps.** Pumping stations must:

A. have at least two pumping units except where additional pumping stations which can meet the peak demand are available or where the commissioner determines that ample time will be available between pumping periods for necessary repairs. If only two units are provided, each must be capable of carrying the peak demand. If more than two units are installed, each must have sufficient capacity so that any one pump can be taken out of service with the remaining pump capable of carrying the peak demand.

B. have controls for proper alternation where two or more pumps are installed. Provision must be made to prevent operation of the pump during the backspin cycle. All electrical controls must be located above grade.

C. provide a power supply from at least two independent sources or from a standby, auxiliary power source.

D. provide a prelubrication line with a valved bypass around the automatic control and backflow protection where required, whenever automatic prelubrication of pump bearings is necessary and an auxiliary power supply is provided.

Subp. 4. **Pumping station suction lift.** A suction lift shall be allowed only for distances of less than 15 feet and where provision is made for priming the pumps. A suction lift shall not be permitted if used with buried piping carrying finished water.

Subp. 5. **Pumping station priming.** Prime water must not be of lesser sanitary quality than that of the water being pumped. Means must be provided to prevent backflow. When an air-operated ejector is used, the screened intake must draw clean air from a point at least ten feet above the ground or other source of contamination, unless the air is filtered by apparatus approved by the commissioner. Vacuum priming may be used.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3930 WATER CLARIFICATION PROCEDURES.

Subpart 1. **Duplicate systems.** Facilities designed to process surface water must provide duplicate systems for flocculation and sedimentation and be constructed to permit a system to be taken out of service without disrupting operation.

Subp. 2. **Pretreatment.** Water containing high turbidity or having unusual treatment requirements shall be pretreated, usually by sedimentation or detention either with or without the addition of chemicals.

A. Sedimentation basins must have a means for sludge removal.

B. Inlets for incoming water must disperse water across the full width of the line of travel as quickly as possible; short circuiting must be prevented.

C. Means for bypassing sedimentation basins must be provided.

D. Three hours detention is the minimum period required for sedimentation. In individual cases where chemical pretreatment is required because of unusual water quality characteristics, a greater detention time shall be required.

Subp. 3. **Flash or rapid mixing.** Mixing means the rapid dispersion of chemicals throughout the water to be treated, usually by vigorous agitation.

A. Basins must be equipped with mechanical mixing devices unless other methods, such as baffling or injection of chemicals at a point of high velocity, are approved by the commissioner after determining that the other requirements of this chapter are met.

B. The detention period for mechanical mixing must be as short as possible depending on the velocity gradient provided by the mixing units.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3932 FLOCCULATION (SLOW MIXING).

Subpart 1. **Basin design.** Inlet and outlet design must prevent short circuiting and destruction of floc. A drain must be provided.

Subp. 2. **Detention.** Minimum flow-through velocity must be not less than 0.5 feet or greater than 1.5 feet per minute with a detention time for floc formation of at least 30 minutes.

Subp. 3. **Equipment.** Agitators must be driven by variable speed drives or other means which vary the peripheral speed of paddles in the range of 0.5 to 3.0 feet per second. Uniform mixing must be provided to prevent settling in the flocculation basin.

Subp. 4. **Piping.** Flocculation and sedimentation basins must be as close together as possible to avoid settling out. The velocity of flocculated water through pipes or conduits to settling basins must be no less than 0.5 feet nor greater than 1.5 feet per second.

Subp. 5. **Baffling; other designs.** Baffling may be used to provide flocculation only after the supplier consults with the commissioner and receives the commissioner's approval. The design must maintain the velocities and flows set forth in this subpart.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3935 SEDIMENTATION.

Subpart 1. **General.** Sedimentation must follow flocculation. The detention time for effective water clarification shall depend on basin design and the nature of the raw water, such as turbidity, color, colloidal matter, taste, and odor causing compounds.

Subp. 2. **Detention time.** Facilities with a conventional sedimentation system must provide a minimum of four hours of settling time.

Subp. 3. **Inlet devices.** Inlets must be designed to distribute the water equally and at uniform velocities. A baffle must be constructed across the basin, close to the inlet end. The baffle must project far enough below the water surface to dissipate inlet velocities and provide uniform flow across the basin.

Subp. 4. **Outlet devices.** Outlet devices must maintain velocities suitable for settling in the basin and must minimize short circuiting.

Subp. 5. **Weir overflow rate.** The rate of flow over the outlet weir must not exceed 20,000 gallons a day per foot of weir length. If submerged ports are used as an alternate for overflow weirs, they must not be lower than three feet below the flow line.

Subp. 6. **Drainage.** Basins must be provided with a means for dewatering. Basin bottoms must slope toward the drain.

Subp. 7. **Covers.** Covers or superstructures are required at all facilities. Where covers are used, manholes must be provided, as well as drop light connections, so the flow can be observed at the inlet midpoint and outlet of the basin.

Subp. 8. **Velocity.** The velocity through settling basins must not exceed one foot a minute. The basins must be designed to minimize short circuiting. Baffles must be provided if the commissioner determines the flow through time cannot be met.

Subp. 9. **Overflow.** An overflow weir or pipe must be installed which establishes the maximum water level on top of the filters. The overflow weir must discharge with a free fall at a location where the discharge is visible.

Subp. 10. **Safety.** Guard rails must be installed around openings hazardous to maintenance personnel.

Subp. 11. **Sludge disposal.** A facility must provide for sludge disposal. Provisions must be made for the operator to observe and sample sludge being withdrawn from the unit.

Subp. 12. **Cross connection control.** Protection must be provided for all potable water lines used to backflush sludge lines and basins or for other purposes if potable water could become contaminated by nonpotable water.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3940 SOLIDS CONTACT UNIT.

Subpart 1. **General.** A unit designed for combined water softening and sedimentation shall be permitted only if the unit is:

A. designed for the maximum uniform flow rate;

B. adjustable to changes in flow which are less than the design rate; and

C. designed for changes in water quality characteristics.

Subp. 2. **Installation supervision.** Supervision by a representative of the manufacturer must be provided whenever mechanical equipment is installed at the facility and, also, at the time of initial operation.

Subp. 3. **Sampling taps.** Sampling taps must be located to permit the collection of water samples from the solids contact unit.

Subp. 4. **Chemical feed.** Chemicals must be applied at points and by means which ensure satisfactory mixing of the chemicals with the water.

Subp. 5. **Mixing devices.** Mixing devices must be constructed to adequately mix raw water with previously formed sludge particles, and to prevent the deposit of solids in the mixing zone.

Subp. 6. **Flocculation.** Flocculation equipment must be adjustable so that coagulation occurs in a separate chamber or baffled zone within the unit and so that there is a flocculation and mixing period of not less than 30 minutes.

Subp. 7. **Sludge concentrators.** The solids contact unit must provide either internal or external concentrators which concentrate sludge and minimize wastewater.

Subp. 8. **Sludge removal.** Design of the sludge removal system must provide:

A. sludge pipes not less than three inches in diameter, arranged to facilitate cleaning;

B. an entrance to sludge withdrawal piping to prevent clogging;

C. accessible valves located outside the tank; and

D. a means for an operator to observe or sample sludge being withdrawn from the solids contact unit.

Subp. 9. **Cross connections.** Blow-off outlets and drains must terminate and discharge at places so backflow is prevented. Cross connection control must be included for all potable water lines including those used to backflush sludge lines and flush basins if potable water could become contaminated by nonpotable water.

Subp. 10. **Detention period.** The detention time must be established on the basis of the raw water characteristics and local conditions that affect the operation of the unit. Based on design flow rates, the minimum detention time must be two hours for suspended solids contact clarifiers, and one hour for the suspended solids contact softeners.

Subp. 11. **Suspended slurry concentrate.** Softening units must be designed so continuous slurry concentrates of one percent or more, by weight, are maintained.

Subp. 12. **Weirs or orifices.** Units must be equipped with either overflow weirs or orifices. Weirs must be adjustable, must be at least equivalent in length to the perimeter of the tank, and must be constructed so surface water does not travel over ten feet horizontally to the collection trough.

Subp. 13. **Weir; orifice loading.** Weir loading must not exceed 20 gallons a minute per foot of weir length for units used for softeners, or ten gallons a minute per foot of weir length for units used for clarifiers. Orifices must produce uniform rising rates over the entire area of the tank.

Subp. 14. **Upflow rates.** The upflow rates in the solid contact unit must not exceed:

A. 1.75 gallons a minute per square foot of area at the slurry separation line if units are used for softeners; and

B. 1.0 gallon a minute per square foot of area at the sludge separation line if units are used for clarifiers.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3942 FILTRATION.

The application of any type of filter and media must be supported by water quality data for the period of use sufficient to characterize any variation in water quality. All public systems using surface water or groundwater under the direct influence of surface water must have filtration systems that meet the minimum requirements of parts 4720.3945 to 4720.3955. Filtration systems must meet the requirements in parts 4720.3945 to 4720.3955.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 18 SR 1960*

4720.3945 RAPID RATE GRAVITY FILTERS.

Subpart 1. **Pretreatment.** Rapid rate gravity filters must only be used after coagulation, flocculation, and sedimentation.

Subp. 2. **Number.** At least two filter units must be provided. Provisions must be made to meet the maximum day demand at the approved filtration rate if one filter is out of service.

Subp. 3. **Rate of filtration.** The permissible rate of filtration shall be determined after consideration of factors such as raw water quality, the degree of pretreatment provided, the filter media, and water quality control parameters. In all cases the filtration rate must be reviewed and approved by a registered engineer and approved by the commissioner before the preparation of final plans.

Subp. 4. **Structural details and hydraulics.** The filter structure must be designed to:

A. provide vertical walls within the filter;

B. prevent protrusion of the filter walls or other structures into the filter media or the area between the top of the media and the high water line during backwashing;

C. provide cover by superstructure;

D. provide head room to permit normal inspection and operation;

E. provide a minimum filter depth of 8-1/2 feet;

F. provide a minimum water depth three feet over the surface of the media;

G. provide a trap on the effluent pipe or conduit to prevent backflow of air to the bottom of the filter;

H. prevent drainage from the floor to the filter with a minimum four-inch curb around the filter;

I. prevent flooding by providing overflow if this is not provided in a pretreatment unit;

J. provide a maximum velocity of treated water in the pipe and conduits to the filter of two feet per second;

K. provide cleanouts and straight alignment for influent pipes or conduits where solids loading is heavy or following lime-soda softening;

L. provide wash water drain capacity to carry maximum backwash flow;

M. provide walkways around filters not less than 24 inches wide; and

N. provide safety handrails or walls around the filter areas adjacent to the walkways.

Subp. 5. **Wash water troughs.** Wash water troughs must be designed to provide:

A. a bottom elevation above the maximum level of expanded media during washing;

B. a top elevation not exceeding 30 inches above the filter surface;

C. a two-inch freeboard at the maximum rate of wash;

D. a top or edge which is level;

E. spacing so each trough serves the same number of square feet of filter area; and

F. a maximum horizontal travel of suspended particles not exceeding three feet in reaching the trough.

Subp. 6. **Filter media.** Filter media must meet the standards specified in this subpart.

A. Sand must be:

(1) clean silica sand having a depth no less than 24 inches and no more than 30 inches;

(2) an effective size from 0.45 millimeter to 0.55 millimeter, depending upon the quality of the raw water; and

(3) have a uniformity coefficient no greater than 1.65 millimeters.

B. Clean crushed anthracite, or sand and anthracite may be used as a filter media if supported by experimental data obtained from the project. Anthracite used as the only media must have an effective size from 0.45 millimeter to 0.8 millimeter and a uniformity coefficient no greater than 1.6 millimeters. Anthracite used to cap sand filters must have an effective size from 0.7 millimeter to 1.2 millimeters and a uniformity coefficient no greater than 1.85 millimeters.

C. Granular activated carbon may be used as a filter material only if approved by the commissioner. A request for approval must:

(1) include a report from a registered engineer detailing raw water quality, the results of pilot plant studies, proposed flow rates, process controls to be provided, proposed operational adjustments, and justification for the project proposals;

(2) specify criteria for the media;

(3) provide for a chlorine residual in the water following filtering and before distribution;

(4) provide for periodic treatment of the filter bed to control possible bacterial and other growths; and

(5) include plans showing any proposed modification of facilities.

D. Other media may be approved by the commissioner, but only on the basis of pilot tests and experience which demonstrate that the requirements of this part will be met.

E. Except as provided in item F, sand and gravel must be provided as supporting media according to subitems (1) and (2).

(1) A three-inch layer of sand must be used as a supporting media for the filter sand. The sand must have an effective size from 0.8 millimeter to 2.0 millimeters, and a uniformity coefficient no greater than 1.7 millimeters.

(2) Gravel, when used as the supporting media, must consist of hard, rounded particles and must not include flat or elongated particles. The coarsest gravel shall be no more than 2-1/2 inches in diameter in any direction when the gravel rests directly on the strainer system, and must extend above the top of the perforated laterals or strainer nozzles. No less than four layers of gravel shall be provided according to the following size and depth distribution when used with perforated laterals or strainer nozzles:

(a) 2-1/2 to 1-1/2 inches, five to eight inches deep;

(b) 1-1/2 to 1/4 inches, three to five inches deep;

(c) 1/4 to 1/2 inches; three to five inches deep;

(d) 1/2 to 3/16 inches, two to three inches deep; and

(e) 3/16 to 3/32 inches, two to three inches deep.

F. If the supplier submits substantiation to the commissioner that proprietary filter bottoms are used, the commissioner may allow elimination of certain layers of supporting media or a reduction in the depth of the layers of supporting media that are required in item E.

Subp. 7. **Filter bottoms and strainer systems.** Departures from the standards in this subpart by using proprietary bottoms may be approved by the commissioner on a case-by-case basis if the effectiveness of the method is demonstrated by the supplier. Porous plate bottoms must not be used where iron or manganese may clog them or with water softened with lime. The design of a manifold-type collection system must:

A. minimize loss of head in the manifold and laterals;

B. assure even distribution of wash water and an even rate of filtration over the entire area of the filter;

C. provide a ratio of the area of the final openings of the strainer system to the area of the filter of not more than 0.003;

D. provide a total cross-sectional area of the laterals at least twice the total area of the final openings of the strainer system; and

E. provide a cross-sectional area of the manifold at 1-1/2 to two times the total cross-sectional area of the laterals.

Subp. 8. **Surface wash.** Surface wash facilities consisting of either fixed nozzles or a revolving mechanism are required. All devices must be designed for:

A. water pressures of at least 45 pounds per square inch;

B. a volume of flow of 2.0 gallons per minute per square foot of filter area with fixed nozzles and 0.5 gallons per minute per square foot with revolving arms; and

C. a vacuum breaker installed above the high water elevation in the filter or other device approved by the commissioner to prevent back siphonage.

Subp. 9. **Appurtenances.** The following shall be provided for every filter:

A. a sampling tap on the effluent line;

B. a loss-of-head gauge;

C. controls to indicate flow rate;

D. a drain to waste with appropriate measures for backflow prevention;

E. a means of monitoring the effluent from each filter for turbidity on a continuous basis or on a selective basis where one turbidimeter would monitor more

than one filter on a rotating cycle. The turbidimeter must have a recorder. Access to the filter interior through wall sleeves must be provided in several locations to allow the installation of sampling lines, pressure sensors, and other devices, at different depths in the filter media; and

F. a one to 1-1/2 inch pressure hose and rack at the operating floor for washing the filter walls.

Subp. 10. **Backwash.** Facilities must provide for the washing of filters as follows:

A. by filtered water at a rate no less than 15 gallons per square foot per minute from wash water tanks, a wash water pump from a reservoir, or a high service main, or a combination of these;

B. by wash water pumps in duplicate unless an alternate means of obtaining wash water is available;

C. by no less than 15 minutes wash of one filter at the design rate of wash;

D. by a wash water regulator or valve on the wash water line to obtain the desired rate of filter wash;

E. by a rate-of-flow indicator and totalizer on the main wash water line, located for convenient reading by the operator during the washing process; and

F. by a method which prevents rapid changes in the backwash water flow.

Subp. 11. **Roof drains.** Roof drains must not discharge into the filters and basins or the conduits preceding the filters.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3947 SLOW RATE GRAVITY FILTERS.

Subpart 1. **Demonstration study.** The use of slow rate gravity filters shall require an engineering study to demonstrate the adequacy and suitability of this filtration method for a specific raw water supply. The standards in this part shall be applied to determine the adequacy and suitability of this filtration method.

Subp. 2. **Quality of raw water.** Slow rate gravity filtration must be limited to water with a maximum turbidity of 50 units and maximum color of 30 units. The turbidity must not be attributable to colloidal clay. Raw water quality data must include an examination for algae.

Subp. 3. **Structural details and hydraulics.** A slow rate gravity filter must be designed to provide:

A. no less than two filter units;

B. a cover or superstructure;

C. headroom to permit normal movement by operating personnel for scraping and sand removal operations;

D. manholes and access ports for handling sand; and

E. filtration to waste and overflow at the maximum filter water levels.

Subp. 4. **Rates of filtration.** The permissible rates of filtration must be based on the quality of the raw water as determined from experimental data. Proposed rates must be submitted to the commissioner for approval. The design rate shall be 45 to 150 gallons a day per square foot of sand area. However, rates of 150 to 230 gallons a day per square foot shall be approved when effectiveness is demonstrated by the supplier to the satisfaction of the commissioner.

Subp. 5. **Under drains.** Each filter unit must be equipped with a main drain and lateral drains under the filter media to collect the filtered water. The under drains must be spaced so the maximum velocity of the water flow in a lateral under drain does not exceed 0.75 feet per second. The maximum spacing of lateral under drains shall not exceed 12 feet.

Subp. 6. **Filtering material.** A minimum depth of 30 inches of filter sand, clean and free of foreign matter, must be placed on graded gravel layers. The effective size of

the filter media must be between 0.35 and 0.50 millimeter, and the uniformity coefficient must not exceed 2.5.

Subp. 7. **Filter gravel.** The supporting gravel must conform to the size and depth distribution provided for rapid rate gravity filters.

Subp. 8. **Depth of water on filter beds.** The design must provide a depth of at least three feet of water over the sand. Influent water must be distributed in a manner which does not scour the sand surfaces.

Subp. 9. **Control appurtenances.** Each filter must be equipped with:

A. a loss-of-head gauge;

B. an orifice, Venturi meter, or other suitable metering device installed on each filter to enable control of the rate of filtration; and

C. an effluent pipe located at an elevation which maintains the water level in the filter above the top of the sand.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3950 DIATOMACEOUS EARTH FILTRATION.

Subpart 1. **Applicability.** The use of diatomaceous earth filters may be considered for application to surface water with low turbidity and low bacterial contamination. Diatomaceous earth filters must not be used for bacterial removal, color removal, or turbidity removal where either the gross quantity of turbidity exceeds 40 turbidity units or the turbidity exhibits poor filterability characteristics.

Subp. 2. **Pilot plant study.** Installation of a diatomaceous earth filtration system must be preceded by a pilot plant study on the water to be treated.

A. Conditions of the study such as duration, filter rates, head loss accumulation, slurry feed rates, turbidity removal, and bacteria removal, must be approved by the commissioner before the study.

B. The pilot plant study must demonstrate the ability of the system to meet the requirements of Code of Federal Regulations, title 40, part 141.73(c).

Subp. 3. **Treated water storage capacity.** Treated water storage capacity in excess of normal requirements must be provided to allow operation of the filters at a uniform rate during all conditions of system demand at or below the approved filtration rate, and to guarantee continuity of service during adverse raw water conditions without bypassing the system.

Subp. 4. **Number of filters.** There must be at least two filters provided. Where only two filters are provided, they must each be capable of meeting the plant's design capacity at the approved filtration rate.

Subp. 5. **Precoat.** A uniform precoat of diatomaceous earth must be applied hydraulically to each septum by introducing a slurry to the tank influent line and employing a filter-to-waste or recirculation system. Diatomaceous earth in the amount of 0.1 pound per square foot of filter area or an amount sufficient to apply a 1/16 inch coating must be used with recirculation. When precoating is accomplished with a filter-to-waste system, 0.15 to 0.2 of a pound per square foot of filter area must be provided.

Subp. 6. **Body feed.** A body feed system must apply additional amounts of diatomaceous earth slurry during the filter run to avoid short filter runs or excessive head loss.

A. The rate of body feed shall depend on raw water quality and characteristics and must be determined in the pilot plant study in subpart 2.

B. The feed systems and slurry lines must be accessible.

C. The body feed slurry must be continuously mixed.

Subp. 7. **Rate of filtration.** The minimum rate of filtration is 1.0 gallon a minute per square foot of filter area with a maximum of 1.5 gallons a minute per square foot. The filtration rate must be mechanically controlled.

Subp. 8. **Recirculation.** A recirculation or holding pump must be used to maintain differential pressure across the filter when the unit is not in operation to prevent the filter cake from dropping off the filter elements. A minimum recirculation rate of 0.1 gallon a minute per square foot of filter area must be provided.

Subp. 9. **Septum or filter element.** The filter elements must be structurally capable of withstanding maximum pressure and velocity variations during filtration and backwash cycles, and must be spaced so no less than one inch is provided between elements or between any element and a wall.

Subp. 10. **Inlet design.** The filter influent must be designed to prevent scour of the diatomaceous earth from the filter element.

Subp. 11. **Backwash.** A satisfactory method to thoroughly remove and dispose of spent filter cake must be provided.

Subp. 12. **Appurtenances.** The following must be provided for every filter:

A. sampling taps for raw and filtered water;

B. a loss of head or differential pressure gauge;

C. rate-of-flow indicator, preferable with totalizer; and

D. a throttling valve to reduce rates below normal during adverse raw water conditions.

Subp. 13. **Monitoring turbidimeter.** A continuous monitoring turbidimeter with recorder is required on the filter effluent for plants treating surface water.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842; 24 SR 301*

4720.3955 DIRECT FILTRATION PLANTS.

Subpart 1. **Studies.** A full scale direct filtration plant must not be constructed without a pilot study acceptable to the commissioner. An in-plant demonstration study shall be appropriate where conventional treatment plants are converted to direct filtration. Where direct filtration is proposed, the supplier must submit an engineering report to the commissioner. The commissioner must approve the report before the supplier conducts a pilot plant or in-plant demonstration study.

Subp. 2. **Engineering report.** The engineering report must include a historical summary of meteorological conditions and of raw water quality with special reference to fluctuations in quality and possible sources of contamination. The following raw water parameters must be evaluated in the report:

A. color;

B. turbidity;

C. bacterial concentration;

D. microscopic biological organisms;

E. temperature;

F. total solids;

G. general inorganic chemical characteristics; and

H. additional parameters as required by the reviewing authority.

The report must also include a description of methods and work to be done during a pilot plant study or where appropriate, an in-plant demonstration study.

Subp. 3. **Pilot plant or in-plant demonstration studies.** After approval of the engineering report, a pilot study or, for existing plants where conventional treatment is being converted to direct filtration, an in-plant demonstration study, shall be conducted. The study must be conducted over a sufficient time to treat all expected raw water conditions throughout the year. The pilot plant filter must be of a similar type and operated in the same manner as proposed for full scale operation. The study shall emphasize but not be limited to, the following items:

A. chemical mixing conditions including shear gradients and detention periods;

B. chemical feed rates;

C. use of various coagulants and coagulant aids;

D. flocculation conditions;

E. filtration rates;

F. filter gradation, types of media, and depth of media;

G. filter breakthrough conditions; and

H. a description of the adverse impact of recycling backwash water due to solids, algae, trihalomethane formation and similar problems.

Before initiation of design plans and specifications, the supplier shall submit a final report including the engineer's design recommendations. The study must demonstrate the minimum contact time necessary for optimum filtration for each coagulant proposed.

Subp. 4. **Pretreatment - rapid mix and flocculation.** The final rapid mix and flocculation basin design shall be based on the pilot plant or in-plant demonstration studies augmented with applicable portions of parts 4720.3930, subpart 3, and 4720.3932.

Subp. 5. **Filtration.** Filters must be rapid rate gravity filters, with dual or mixed media. The final filter design must be based on the pilot plant or in-plant demonstration studies augmented by applicable portions of part 4720.3945, subparts 1 to 7. Pressure filters or single media sand filters must not be used.

A. Surface wash, subsurface wash, or air scour must be provided for the filters according to part 4720.3945, subpart 8.

B. Provisions for filtration to waste must be provided with measures for backflow prevention according to chapter 4715.

Subp. 6. **Siting requirements.** The plant design and land ownership surrounding the plant must allow for the installation of conventional sedimentation basins should the commissioner find that the installation of the direct filtration methods specified in this part do not achieve the water quality standard indicated in Code of Federal Regulations, title 40, part 141.73(a)(1), as amended through June 29, 1989.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3957 CHEMICAL ADDITION.

Subpart 1. **Feed equipment required.** If chemical feed such as chlorination, coagulation, or other processes are necessary for the protection of the water supply, a minimum of two feeders must be provided so a standby unit or combination of units is available to replace the largest unit during shutdowns. Spare parts must be available for all feeders to replace parts subject to wear and damage.

Subp. 2. **Design and capacity.** The design of the facility must ensure that:

A. a separate feed system is provided for each chemical;

B. feeders supply, at all times, the necessary amounts of chemical at an accurate rate, throughout the range of feed. To allow for changes in pumping or application rates, the feeder must be designed to operate between 30 and 70 percent of the feeder range on initial start-up. If this is not possible with stock chemical solution, the chemical must be diluted;

C. proportioning of chemical feed to rate of flow is provided;

D. positive displacement-type solution feeders are used to feed liquid chemicals;

E. chemical solutions are prevented from being siphoned into the water supply by assuring discharge at points of positive pressure and by providing antisiphon

devices, or through a suitable air gap or other effective means approved by the commissioner;

F. the service water supply is protected from contamination by chemical solutions either by equipping the supply line with backflow or backsiphonage prevention devices, or by providing an air gap of two pipe diameters, but not less than three inches, between the supply line and top of the solution tank;

G. materials and surfaces in contact with chemicals are resistant to the chemical solution;

H. dry chemical feeders:

(1) measure chemicals volumetrically or gravimetrically;

(2) effectively dissolve the chemical in the solution pot;

(3) provide gravity feed from solution pots, if possible; and

(4) completely enclose chemicals to prevent emission of dust to the operating room; and

I. no direct connection exists between any sewer and a drain or overflow from the feeder or solution chamber or tank.

Subp. 3. **Location of feed equipment.** Chemical feed equipment must be:

A. readily accessible for servicing, repair, and observation of operation;

B. located and have protective curbings to prevent chemicals from equipment failure, spillage, or accidental drainage from entering the water in conduits, and treatment or storage basins; and

C. located above grade.

Subp. 4. **Controls.** Feeders must be manually or automatically controlled if the water supply pumps are manually controlled. Where pumps are automatically controlled, the feeders must be automatically controlled. In all cases, automatic control shall be capable of reverting to manual control when necessary.

A. Feeders must be designed and controlled to provide rates proportional to flow.

B. Automatic chemical feed rate control may be used in combination with residual analyzers which have alarms for critical values and recording charts.

Subp. 5. **Weighing scales.** Weighing scales:

A. must be provided to weigh cylinders at all plants using chlorine gas;

B. are required for solution feed unless a comparable means for determining use is approved by the commissioner;

C. are required for volumetric dry chemical feeders; and

D. must be accurate enough to measure increments of 0.5 percent of load.

Subp. 6. **Feed lines.** Feed lines must:

A. be as short as possible in length of run; of durable, corrosion resistant material; easily accessible throughout entire length; protected against freezing; and readily cleanable;

B. slope upward from chemical source to feeder when conveying gases;

C. introduce corrosive chemicals so as to minimize the potential for corrosion;

D. be designed consistent with the scale-forming or solids-depositing properties of the water, chemical, solution, or mixture conveyed;

E. not carry chlorine gas under pressure beyond the chlorine feeder room; and

F. include an injection nozzle when application is into a pipeline.

Subp. 7. **Service water supply.** Water used for dissolving dry chemicals, diluting liquid chemicals, or operating chemical feeders must be from a safe, approved source with appropriate backflow prevention provided. The commissioner may grant an

exception in cases where the finished water quality is not affected by addition of the chemical mixed with untreated water.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3960 CHEMICAL STORAGE.

Subpart 1. **Storage space.** Storage space must provide for:

A. storage of at least 30 days of chemical supply;

B. convenient and efficient handling of chemicals;

C. dry storage conditions; and

D. a minimum of 1-1/2 truckloads storage volume where purchase is by truckload.

Subp. 2. **Containers.** Covered or unopened shipping containers must be provided for storage unless the chemical is transferred into an approved covered storage unit. Solution tanks must have overlapping covers.

Subp. 3. **Capacity.** Solution storage or day tanks supplying feeders directly must have sufficient capacity for one day of operation. When the chemical solution is prepared from a powder or slurry, two solution tanks are required to assure continuity of feed.

Subp. 4. **Storage containers.** Storage must be constructed of or lined with materials compatible with the chemical being handled.

Subp. 5. **Mixing equipment.** Mixing equipment must be provided where necessary to assure a uniform chemical solution strength.

Subp. 6. **Measurements.** Means must be provided to accurately determine the amount of chemical applied either by measurement of the solution level in the tank or by weighing scales. A meter must be provided on the water fill line to a fluoride saturator. Liquid chemical storage tanks must have a liquid level indicator.

Subp. 7. **Drainage.** Means to drain tanks must be provided in the storage space, but there must be no direct connection between any drain piping and a sewer. Drain piping must terminate at least two pipe diameters, but not less than three inches, above the overflow rim of a receiving sump, conduit, or waste receptacle.

Subp. 8. **Overflow pipes.** Overflow pipes must be turned downward, be screened, have a free discharge, and be in a conspicuous location.

Subp. 9. **Subsurface storage.** Where subsurface locations for solution or storage tanks are provided, the tanks must be free from sources of possible contamination and located to assure drainage for groundwater, accumulated water, chemical spills, and overflows.

Subp. 10. **Compatibility of chemicals.** Incompatible chemicals must not be stored or handled in common areas.

Subp. 11. **Venting.** Gases from feeders, storage, and equipment exhausts must be conveyed to the outside atmosphere above grade and remote from air intakes. Acid storage tanks must be vented to the outside but not through vents in common with day tanks.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3962 CHEMICAL HANDLING.

Subpart 1. **Measuring equipment.** Equipment must be provided in the handling facility to measure the chemicals used to prepare feed solutions.

Subp. 2. **Piping.** Piping for chemicals must be compatible with the chemical being conveyed.

Subp. 3. **Dust control.** Provision must be made for the transfer of dry chemicals from shipping containers to storage bins or hoppers in a way that minimizes dust. Control must be provided by use of one of the following:

A. vacuum pneumatic equipment or closed conveyor systems;

B. facilities for emptying shipping containers in special containers; or

C. exhaust fans and dust filters which place the hoppers or bins under negative pressure.

Subp. 4. **Acids.** Acids must be kept in closed, acid-resistant shipping containers or storage units. Transfer from shipping containers to solution or day tanks must be through suitable hose or pipe by means of a transfer pump.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3965 DISINFECTION.

Subpart 1. **Chlorine.** Chlorine must be the principal agent used to disinfect the water supply. Other agents may be approved by the commissioner on a case-by-case basis provided reliable feeding equipment is available and testing procedures for a residual are recognized in the 16th edition of Standard Methods for the Examination of Water and Wastewater (1985). This edition is incorporated by reference, is not subject to frequent change, and is available through the Minitex interlibrary loan system.

Subp. 2. **Equipment.** A gas chlorinator or a positive displacement hypochlorite feeder must be provided by the supplier.

Subp. 3. **Capacity.** The chlorinator capacity must provide that a free chlorine residual of at least two mg/l is attained in the water after a contact time of at least 30 minutes when maximum flow rates coincide with anticipated maximum chlorine demands. The equipment must be designed to operate accurately over the desired feed range.

Subp. 4. **Standby equipment.** Where chlorination is needed to protect the water supply, standby equipment of sufficient capacity must be available to replace the largest unit during shutdowns.

Subp. 5. **Automatic proportioning.** Automatic proportioning chlorinators are required where the rate of flow is not reasonably constant or where the rate of flow of the water is not manually controlled.

Subp. 6. **Contact time and point of application.** To determine the contact time of the chlorine in water, ammonia, taste-producing substances, temperature, bacterial quality, trihalomethane formation potential and other pertinent factors must be considered. All basins used for disinfection must be designed to minimize short circuiting.

A. At plants treating surface water, provisions must be made for applying chlorine to the raw water, settled water, filtered water, and water entering the distribution system. The contact time required in item B must be provided after filtration.

B. Surface water supplies using free residual chlorination must provide a minimum contact time of two hours. When combined residual chlorination is used for surface water supplies, a minimum of three hours contact time must be provided.

Subp. 7. **Residual testing equipment.** Residual testing equipment must measure residuals to the nearest 0.1 mg/l in the range below 0.5 mg/l and to the nearest 0.2 mg/l between 0.5 mg/l to 2.0 mg/l.

Subp. 8. **Chlorinator piping.** The water supply piping must be designed to prevent contamination of the treated water supply by water sources of impure or unknown quality.

Subp. 9. **Housing.** Chlorine gas feed and storage must be:

A. separated from other operating areas by gas-tight enclosures to prevent injury to personnel and damage to equipment;

B. provided with an inspection window installed in an interior wall or exterior door to permit viewing of the interior of the room and the equipment;

C. provided with doors having emergency or panic hardware and opening outward to the building exterior;

D. heated to prevent freezing and insure proper operation of the equipment;

E. provided with restraints to prevent movement of the chlorine cylinders; and

F. designed so the ejector for mixing chlorine gas and water is located in the chlorine room where chlorine gas under pressure is used.

Subp. 10. **Ventilation of chlorine rooms.** One complete air change a minute must be provided when the chlorine room is occupied. In addition:

A. the exhaust fan suction must be near the floor with the point of discharge located to avoid contamination of air inlets to other rooms and structures or blockage by snow or other obstructions;

B. air inlets must be located near the ceiling and controlled to prevent adverse temperature variation;

C. the exhaust fan switch must be located at the entrance to the chlorine room with a signal light indicating fan operation when the fan is controlled from more than one point; and

D. vents from feeder and storage units must discharge to the outside atmosphere, above grade as indicated in item A.

Subp. 11. **Ammoniation.** Housing and ventilation for ammoniation must be provided as specified in subparts 9 and 10. Ammonia storage and feed facilities must be separate from chlorine facilities because of the combustion hazard. A plastic bottle of hydrochloric acid must be available and used for leak detection.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

4720.3970 VARIANCE PROCEDURES AND CRITERIA FOR SURFACE WATER CONSTRUCTION STANDARDS.

The commissioner of health shall grant a variance to parts 4720.3920 to 4720.3965 according to the procedures and criteria in parts 4717.7000 to 4717.7050.

Statutory Authority: *MS s 144.383*

History: *15 SR 1842*

WATER HAULERS

4720.4000 PURPOSE.

Parts 4720.4000 to 4720.4600 are adopted for the purpose of assuring that sanitary procedures are followed by those who distribute drinking water by tank truck and that the public health is thereby preserved. The authority for adopting parts 4720.4000 to 4720.4600 may be found in Minnesota Statutes 1976, section 144.12, subdivision 1, clause (5) as amended by Laws of Minnesota 1977, chapter 66, section 10 which states that the commissioner of health may regulate the "distribution of water by persons."

Statutory Authority: *MS s 144.12 subd 1; 144.383*

4720.4100 DEFINITIONS.

Subpart 1. **Accessible.** "Accessible" means capable of being exposed for cleaning and inspection.

Subp. 2. **Approved source.** "Approved source" means a public water supply which is in compliance with state rules relating to water supplies, and is equipped with a permanent overhead delivery system designed to prevent the introduction of biological or chemical contaminants.

Subp. 3. **Commissioner.** "Commissioner" means the commissioner of health or his or her authorized representative.

Subp. 4. **Corrosion-resistant.** "Corrosion-resistant" means capable of maintaining original surface characteristics under the prolonged influence of the use environment, including the expected water contact and normal use of cleaning compounds and sanitizing solutions.

Subp. 5. **Easily cleanable.** "Easily cleanable" means readily accessible, and of such material and finish and so fabricated that cleaning can be accomplished by hand scrubbing.

Subp. 6. **Sanitize.** "Sanitize" means the bactericidal treatment of the interior surfaces of the tank by a process which has proven effective and does not leave a toxic residue.

Subp. 7. **Smooth.** "Smooth" means a surface free of pits and inclusions.

Subp. 8. **Toxic.** "Toxic" means having an adverse physiological effect on humans.

Subp. 9. **Water hauler.** "Water hauler" or "hauler" means a person engaged in bulk vehicular transportation of water to other than the hauler's household, which is intended for use or used for drinking or domestic purposes.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

History: *17 SR 1279*

4720.4200 WATER HAULER.

A water hauler shall be free of any infectious or communicable disease.

The water hauler shall consult with regional district personnel of the Minnesota Department of Health before implementing any questionable procedures.

Dipping into the filled tank is prohibited.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

4720.4300 TANK REQUIREMENTS.

The tank shall be constructed of stainless steel or be lined with glass or other acceptable, corrosion resistant and nontoxic material, with rounded corners and a smooth surface so that the interior may be thoroughly cleaned and sanitized.

The system shall be completely closed except for vents which are properly constructed and screened.

Caps on inlets and outlets shall be hinged or chained to provide a permanent attachment.

The inlets and outlets shall be easy to clean and so located and protected as to minimize the hazard of contamination.

Filters shall not be used.

The tank shall be filled only from the top.

The outlet hose from the tank shall be maintained in a sanitary condition at all times, shall be flushed clean prior to every delivery, and shall not impart any taste or odor to the water.

The tank shall be accessible internally, for proper cleaning, disinfection, and inspection.

The tank shall never have been used to haul any materials which might have a deleterious effect on health or on the quality of the water being transported. If the tank has been used for transporting any materials other than water, the hauler shall obtain the approval of the commissioner before using the tank to haul water for drinking or domestic use.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

4720.4400 CLEANING AND DISINFECTION.

The tank and all fittings shall be cleaned and sanitized according to the following procedures before they can be used to haul water, and thereafter once per week: the tank shall be cleaned by scrubbing manually with brushes and noncorrosive detergents, or by automation using a spray ball within the tank which provides cleaning solution with sufficient velocity to remove all soil from the tank interior; the tank and fittings shall then be rinsed.

The tank and fittings shall be sanitized by any of the following methods:

A. filling with water from an approved source to which 50 parts per million chlorine has been added, mixing and allowing it to stand for three to four hours; or 100 parts per million chlorine for not less than 20 minutes; or

B. the commissioner may approve the use of an alternate sanitizing method if the supplier can show that the use of the alternate method assures a level of biocidal activity comparable to that provided by the use of chlorine.

The tank may be cleaned and sanitized in a single step by using a commercial detergent sanitizer according to the manufacturer's directions.

After sanitizing, the tank shall be drained, and the tank and fittings shall be rinsed with water from an approved source.

The sanitized tank shall be filled with water from an approved source.

The hauler shall add sufficient chlorine to assure that there is one part per million free chlorine residual when the last remaining quantity of water is delivered to a user. The hauler shall test the chlorine residual in each tankful of water using the DPD method.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

4720.4500 TESTING.

Once each month the hauler shall collect a sample of water from each tank and shall submit the water sample to the state Department of Health laboratory for a bacteriological analysis. Sample collecting bottles for this purpose may be obtained from any Minnesota Department of Health regional district office or by writing to the Minnesota Department of Health, Section of Analytical Services, 717 Delaware Street SE, Minneapolis, Minnesota 55440.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

4720.4600 RECORDS.

The hauler shall retain a written log for each tank and shall record therein:

A. the date when the tank is sanitized;

B. the date on which the tank is filled and the name of the approved source from which the water is obtained;

C. the chlorine residual and date on which it is measured;

D. date on which water samples are sent for analysis; and

E. customer's name, address, date, and quantity delivered.

Statutory Authority: *MS s 144.12 subd 1; 144.383*

4720.5000 [Repealed, 17 SR 2715]

WELLHEAD PROTECTION

4720.5100 DEFINITIONS.

Subpart 1. **Scope.** The terms used in parts 4720.5100 to 4720.5590 have the meanings given them in Minnesota Statutes, section 103I.005 and in this part.

Subp. 2. **Angle of ambient groundwater flow.** "Angle of ambient groundwater flow" means the direction of groundwater flow through an aquifer undisturbed by pumping

or human-caused activities. The angle of ambient groundwater flow is expressed in degrees, ranging from 0 to 360 degrees, and is measured in a clockwise direction from geographical north, not magnetic north.

Subp. 3. **Aquifer.** "Aquifer" has the meaning given in part 4725.0100, subpart 21.

Subp. 4. **Aquifer test plan.** "Aquifer test plan" means the document containing the plan by which the aquifer transmissivity value will be calculated for a public water supply well, as required under part 4720.5540.

Subp. 5. **Casing.** "Casing" has the meaning given in part 4725.0100, subpart 22.

Subp. 6. **Commissioner.** "Commissioner" means the commissioner of health.

Subp. 7. **Community water supply.** "Community water supply" has the meaning given to "community water system" in Code of Federal Regulations, title 40, section 141.2 (1992 and as subsequently amended).

Subp. 8. **Confined aquifer.** "Confined aquifer" has the meaning given in part 7045.0020, subpart 10.

Subp. 9. **Confining layer.** "Confining layer" has the meaning given in part 4725.0100, subpart 24a.

Subp. 10. **Contamination.** "Contamination" has the meaning given in part 4725.0100, subpart 34.

Subp. 11. **Contingency strategy.** "Contingency strategy" means the part of a wellhead protection plan that describes an organized, planned, and coordinated course of action that identifies the location and provision of an alternate drinking water supply if the public water supply is disrupted by mechanical failure or contamination.

Subp. 12. **Department.** "Department" means the Minnesota Department of Health.

Subp. 13. **Drinking water supply management area.** "Drinking water supply management area" means the surface and subsurface area surrounding a public water supply well, including the wellhead protection area, that must be managed by the entity identified in a wellhead protection plan. The boundaries of the drinking water supply management area are:

A. center lines of highways, streets, roads, or railroad rights-of-way;

B. section, half-section, quarter-section, quarter-quarter-section, or other fractional section lines of the United States public land survey;

C. property or fence lines;

D. the center of public drainage systems;

E. public utility service lines; or

F. political boundaries.

Subp. 14. **Drinking water supply management area vulnerability.** "Drinking water supply management area vulnerability" means an assessment of the likelihood for a potential contaminant source within the drinking water supply management area to contaminate a public water supply well based on:

A. the aquifer's inherent geologic sensitivity; and

B. the chemical and isotopic composition of the groundwater.

Subp. 15. **Flow boundaries.** "Flow boundaries" means hydrologic or geologic boundaries, including:

A. the physical limits of an aquifer;

B. lakes, rivers, streams, drainage ditches, or other surface hydrologic features;

C. areas of contrasting geologic materials; or

D. the pumping influence of other wells.

Subp. 16. **Geographic reference point.** "Geographic reference point" means a location on the earth's surface that is referenced in:

A. latitude and longitude;

B. a universal transverse mercator projection;

C. the public land survey system; or

D. the state plane coordinate system.

Subp. 17. **Groundwater.** "Groundwater" has the meaning given in Minnesota Statutes, section 115.01, subdivision 6.

Subp. 18. **Hydraulic gradient.** "Hydraulic gradient" means the slope of the water table or potentiometric surface.

Subp. 19. **Inner wellhead management zone.** "Inner wellhead management zone" means the land within a 200-foot radius of a public water supply well.

Subp. 20. **Isolation distance.** "Isolation distance" means the distance from a contamination source as described in parts 4725.4450 and 4725.5850.

Subp. 21. **Local unit of government.** "Local unit of government" has the meaning given in part 8405.0110, subpart 5.

Subp. 22. **Municipal public water supply well.** "Municipal public water supply well" means a public water supply well owned, managed, or operated by a municipality as defined in Minnesota Statutes, section 103B.305, subdivision 6.

Subp. 23. **Noncommunity water supply.** "Noncommunity water supply" has the meaning given to "noncommunity water system" in Code of Federal Regulations, title 40, section 141.2 (1992 and as subsequently amended).

Subp. 24. **Nontransient noncommunity water supply.** "Nontransient noncommunity water supply" has the meaning given to "nontransient noncommunity water system" in Code of Federal Regulations, title 40, section 141.2 (1992 and as subsequently amended).

Subp. 25. **Official controls.** "Official controls" has the meaning given in part 8405.0110, subpart 7.

Subp. 26. **Potential contaminant source.** "Potential contaminant source" means any human-related activity that presents a risk to groundwater quality.

Subp. 27. **Public water supplier or supplier.** "Public water supplier" or "supplier" has the meaning given to "supplier of water" in Code of Federal Regulations, title 40, section 141.2 (1992 and as subsequently amended).

Subp. 28. **Public water supply or supply.** "Public water supply" or "supply" has the meaning given to "public water system" in Code of Federal Regulations, title 40, section 141.2 (1992 and as subsequently amended).

Subp. 29. **Public water supply well.** "Public water supply well" means a well as defined in Minnesota Statutes, section 103I.005, subdivision 21, that serves a public water supply and is not a dewatering well or a monitoring well serving a public water supply.

Subp. 30. **Pumping discharge rate.** "Pumping discharge rate" means the volume of water discharged by a well per unit of time.

Subp. 31. **Pumping test.** "Pumping test" means a test, as described in parts 4720.5520 and 4720.5530, that is used to determine the aquifer transmissivity.

Subp. 32. **Related land resources.** "Related land resources" has the meaning given in Minnesota Statutes, section 103B.305, subdivision 8.

Subp. 33. **Remaining portion of the wellhead protection plan.** "Remaining portion of the wellhead protection plan" means that portion of the wellhead protection plan that remains to be completed after the public water supplier has fulfilled the requirements of parts 4720.5320 and 4720.5330.

Subp. 34. **Specific capacity test.** "Specific capacity test" means the productivity of a well obtained by dividing the gallons of water pumped per unit time by the number of feet the water level in the well is lowered due to its pumping.

Subp. 35. **State identifier.** "State identifier" means the unique number assigned by the department to a well or the number assigned by a state agency responsible for a potential source of contamination.

Subp. 36. **Time of travel.** "Time of travel" means the amount of time over which groundwater will move through a portion of an aquifer and the overlying geologic materials to recharge a well in use.

Subp. 37. **Transient noncommunity water supply.** "Transient noncommunity water supply" means a public water supply that is not a community water supply or a nontransient noncommunity water supply.

Subp. 38. **Transmissivity.** "Transmissivity" means the product of the average hydraulic conductivity and the saturated thickness of the aquifer. Hydraulic conductivity means the volume of water that will move through a porous medium in unit time under a unit hydraulic gradient through a unit area measured at right angles to groundwater flow.

Subp. 39. **Unconfined aquifer.** "Unconfined aquifer" has the meaning given in part 6115.0630, subpart 17.

Subp. 40. **Watershed district.** "Watershed district" means a district established under Minnesota Statutes, chapter 103D.

Subp. 41. **Watershed management organization.** "Watershed management organization" has the meaning given in Minnesota Statutes, section 103B.205, subdivision 13.

Subp. 42. **Well vulnerability.** "Well vulnerability" means an assessment of the likelihood of contamination entering a public water supply well based on the criteria specified in part 4720.5550, subpart 2.

Subp. 43. **Wellhead protection.** "Wellhead protection" means a method of preventing well contamination by effectively managing potential contaminant sources in all or a portion of the well's recharge area.

Subp. 44. **Wellhead protection measure.** "Wellhead protection measure" means a method adopted and implemented by a public water supplier to prevent contamination of a public water supply, and approved by the department under parts 4720.5110 to 4720.5590.

Subp. 45. **Wellhead protection plan or plan.** "Wellhead protection plan" or "plan" means a document that provides for the protection of a public water supply, is submitted to the department, is implemented by the public water supplier, and complies with:

A. the wellhead protection elements specified in the 1986 amendments to the federal Safe Drinking Water Act, United States Code, title 42, chapter 6A, subchapter XII, part C, section 300h-7 (1986 and as subsequently amended); and

B. parts 4720.5200 to 4720.5290.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5110 APPLICABILITY.

Subpart 1. **Inner wellhead management zone.** A public water supplier must:

A. maintain the isolation distances for new contaminant sources specified in parts 4725.4450 and 4725.5850 for potential contamination sources located around the public water supply well following the schedule specified in part 4720.5120;

B. monitor potential contaminant sources that were in existence, recorded, or authorized before May 10, 1993, and that are not in compliance with parts 4725.4450 and 4725.5850; and

C. implement wellhead protection measures for potential contaminant sources within the inner wellhead management zone.

Subp. 2. **Wellhead protection area.** For a community public water supply well and a nontransient noncommunity public water supply well, the public water supplier must:

A. delineate the wellhead protection area and the drinking water supply management area;

B. prepare a wellhead protection plan for the drinking water supply management area; and

C. implement a wellhead protection plan for the drinking water supply management area.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5120 SCHEDULE; INNER WELLHEAD MANAGEMENT ZONE.

Wellhead protection measures for the inner wellhead management zone of a public water supply well must be initiated:

A. at the time a new public water supply well is constructed;

B. before June 1, 1999, for an existing community water supply well;

C. before June 1, 1999, for an existing nontransient noncommunity water supply well serving a child care center regulated under chapter 9503 or a school;

D. before June 1, 2000, for any other existing nontransient noncommunity water supply well;

E. before June 1, 2001, for an existing transient noncommunity water supply well serving a facility licensed by the department;

F. before June 1, 2002, for an existing transient noncommunity water supply well serving a facility licensed by the department that is covered by a community health service delegation agreement entered under Minnesota Statutes, section 145A.07; and

G. before June 1, 2003, for any other existing transient noncommunity water supply well.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5130 WELLHEAD PROTECTION PLAN; PRELIMINARY REQUIREMENTS; SCHEDULE.

Subpart 1. **New municipal public water supply well.** In addition to the requirements of part 4720.0010, a well construction plan for a new municipal public water supply well must have:

A. a preliminary delineation of a wellhead protection area based on available information; and

B. an assessment of the impacts that existing land use and existing water use in the preliminary wellhead protection area, as described in subpart 2, may have on the movement of contaminants resulting from human activity to the aquifer serving the proposed municipal public water supply well.

Subp. 2. **Criteria; preliminary wellhead protection area delineation.** A preliminary wellhead protection area must be delineated using the criteria in this subpart.

A. The criteria described in part 4720.5510, subparts 2 and 4, must be identified.

B. For a well to be constructed in an unconfined aquifer, the preliminary wellhead protection area must be extended one-half mile in an upgradient direction from the proposed well site, if the delineation method used does not incorporate the criteria specified in part 4720.5510, subpart 5.

Subp. 3. **Schedule.** An initial wellhead protection plan must be completed and submitted by the public water supplier for all the wells in a public water supply system within two years after:

A. an additional well is connected to a municipal public water supply system; or

B. the public water supplier receives notification from the department as specified in part 4720.5550 for:

(1) a community well not included under item A; or

(2) a nontransient noncommunity public water supply.

Subp. 4. **Additional time.** In addition to the two years allowed in subpart 3, the public water supplier has an additional six months to submit the plan:

A. for each two existing or new wells, up to six wells;

B. if the public water supply is not owned by a federal, state, or local unit of government;

C. if funds are not available to support plan development or implementation;

D. if the wellhead protection area lies in more than two governmental jurisdictions; or

E. if pumping of a well that is not a part of the water supply system influences the boundaries of the wellhead protection area being delineated.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

CONTENT OF WELLHEAD PROTECTION PLAN

4720.5200 DATA ELEMENTS; ASSESSMENT.

Subpart 1. **Required data elements.** The data elements identified in the scoping decision notice under parts 4720.5310, subpart 2, and 4720.5340, subpart 2, must be assessed by the public water supplier.

Subp. 2. **Assessment of data elements.** A wellhead protection plan must assess the present and future implications of the data elements required in subpart 1 on:

A. the use of the well;

B. the wellhead protection area delineation criteria specified in part 4720.5510;

C. the quality and quantity of water supplying the public water supply well; and

D. the land and groundwater uses in the drinking water supply management area.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5205 WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA DELINEATION.

Subpart 1. **Boundaries; wellhead protection area.** A wellhead protection plan must have a map showing the boundaries of the wellhead protection area that were determined using the criteria in part 4720.5510.

Subp. 2. **Documentation.** A wellhead protection plan must document the delineation of the wellhead protection area. The documentation must:

A. describe the hydrogeologic setting used to characterize the aquifer;

B. identify the five delineation criteria described in part 4720.5510, subparts 2 to 6;

C. describe the delineation method used, including assumptions, and the supporting documentation for the assumptions;

D. describe all parameters, other than the delineation criteria described in part 4720.5510, used for the delineation;

E. describe the delineation results, including:

(1) the results of model calibrations, when a groundwater flow model is used; and

(2) a narrative describing the uncertainties relating to the accuracy of the calculated wellhead protection area boundaries;

F. specify the data elements used, including data sources; and

G. contain a copy of the calculations performed or, when a computer model is used, the electronic data input and solution file.

Subp. 3. **Boundaries; drinking water supply management area.** A wellhead protection plan must have a map showing the boundaries of the drinking water supply management area. The boundary of the drinking water supply management area must follow the wellhead protection area as closely as possible.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5210 VULNERABILITY ASSESSMENT.

Subpart 1. **Well vulnerability.** A wellhead protection plan must describe the results of the well vulnerability assessment conducted according to part 4720.5550.

Subp. 2. **Drinking water supply management area vulnerability.** A wellhead protection plan must have an assessment of the drinking water supply management area vulnerability.

Subp. 3. **Documentation; drinking water supply management area vulnerability assessment.** A wellhead protection plan must document the vulnerability assessment of the drinking water supply management area. The documentation must:

A. identify the method used to assess vulnerability;

B. describe the geologic conditions throughout the drinking water supply management area from the land surface to the aquifer used by the public water supply well;

C. contain copies of the data elements used, including data sources; and

D. contain maps, diagrams, reports, studies, and tables that were prepared to support the drinking water supply management area vulnerability assessment.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5220 IMPACT OF CHANGES ON PUBLIC WATER SUPPLY WELL.

Subpart 1. **Changes identified.** A wellhead protection plan must identify and describe expected changes that may occur during the next ten years to:

A. the physical environment;

B. land use;

C. surface water; and

D. groundwater.

Subp. 2. **Impact of changes.** A wellhead protection plan must list, describe, and assess the possible impact on the aquifer serving the public water supply well resulting from:

A. the expected changes identified in subpart 1;

B. the influence of existing water and land government programs and regulations; and

C. the administrative, technical, and financial considerations of the public water supplier and the property owners within the drinking water supply management area.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5230 ISSUES, PROBLEMS, AND OPPORTUNITIES.

Subpart 1. **Requirement.** A wellhead protection plan must identify water use and land use issues, problems, and opportunities related to:

A. the aquifer serving the public water supply well;

B. the well water; and

C. the drinking water supply management area.

Subp. 2. **Identification.** To identify water use and land use issues, problems, and opportunities, the public water supplier must assess:

A. those problems and opportunities disclosed at public meetings and in written comment;

B. the data elements identified by the department in parts 4720.5310, subpart 2, and 4720.5340, subpart 2; and

C. the status and adequacy of official controls, plans, and other local, state, and federal programs on water use and land use.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5240 WELLHEAD PROTECTION GOALS.

A wellhead protection plan must state goals for present and future water use and land use to provide a framework for determining plan objectives and related actions.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5250 OBJECTIVES AND PLAN OF ACTION.

Subpart 1. **Objectives.** A wellhead protection plan must have measurable objectives for the well and drinking water supply management area.

Subp. 2. **Plan of action.** A wellhead protection plan must state a plan of action. A plan of action must:

A. address the problems and opportunities identified in the wellhead protection plan;

B. identify and prioritize the wellhead protection measures that will be used;

C. identify proposed changes in well construction, maintenance, and use; and

D. identify a time frame for the implementation of the action identified in the plan.

Subp. 3. **Establishing priorities.** A public water supplier must establish priorities in the plan of action that:

A. address:

(1) any substance that exceeds the maximum contaminant level specified in Code of Federal Regulations, title 40, part 141 (1995 and as subsequently amended); and

(2) a quantifiable level of a contaminant in the well water resulting from human activity; and

B. reflect:

(1) the number of each potential contaminant source identified and the nature of the potential contamination associated with each source;

(2) the location of each potential contaminant source in relation to:

(a) the public water supply well;

(b) the isolation distances; and

(c) a one-year time of travel emergency response time;

(3) the capability of the geologic material to absorb a contaminant;

(4) the effectiveness of existing controls;

(5) the time required to obtain cooperation from other public water suppliers, and local, state, and federal agencies and programs; and

(6) the administrative, legal, technical, and public and private financial resources needed.

Subp. 4. **Implementation responsibilities.** A plan of action must:

A. describe those actions that will be taken by the public water supplier alone;

B. describe those actions that will require the cooperation of a local unit of government or state and federal agencies; and

C. state whether the public water supplier has received commitments for the cooperation described in item B.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5270 EVALUATION PROGRAM.

Subpart 1. **Program required.** A wellhead protection plan must identify a strategy for evaluating the progress of the plan of action and the impact of a contaminant release on the aquifer supplying the public water supply well.

Subp. 2. **Strategy requirements.** The evaluation strategy must:

A. be conducted throughout the drinking water supply management area;

B. be based on the health risk the specific potential contaminant source presents to the public water supply well; and

C. specify the evaluation approach used for specific potential contaminant sources.

Subp. 3. **Evaluation approaches.** Evaluation approaches are:

A. sampling the quality of the groundwater throughout the drinking water supply management area;

B. documenting inventory control of potential contaminants;

C. documenting the implementation of wellhead protection measures; and

D. using monitoring data already required by existing laws and rules in effect at the time of plan adoption.

Subp. 4. **Evaluation frequency.** An evaluation must be conducted:

A. every 2.5 years or less; and

B. when a wellhead protection plan is amended as required in part 4720.5570, subpart 1.

Subp. 5. **Evaluation submittal.** An evaluation conducted in accordance with subpart 4, item B, must be submitted to the department at the first scoping meeting held to amend an existing plan.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5280 ALTERNATE WATER SUPPLY; CONTINGENCY STRATEGY.

Subpart 1. **Contingency strategy required.** A wellhead protection plan must have a contingency strategy that addresses disruptions of the water supply caused by contamination or mechanical failures of the public water supply system.

Subp. 2. **Requirements.** The contingency strategy must:

A. identify the water supply replacement alternatives, including the location of the replacement supply that will be available during a disruption;

B. be based on:

(1) the location and capacity of individual wells and storage tanks;

(2) the location, type, and capacity of the water treatment facility;

(3) the location and capacity of major distribution lines; and

(4) the location of key points for isolating parts of the water supply system;

C. be based on water use and demand;

D. prioritize water uses and demands into low, medium, and high categories;

E. have:

(1) the response coordinator's name, telephone number, address, and response assignments;

(2) the names, addresses, telephone numbers, and response assignments of personnel for public health, water supply operations, and public relations;

(3) an alternate for each of the individuals identified in subitems (1) and (2);

(4) a list of services, equipment, and supplies available to respond to a disruption;

(5) a list of services, equipment, and supplies not available but needed to respond to a disruption; and

(6) a plan of action and time frame for obtaining the services, equipment, and supplies identified in subitem (5);

F. have a procedure to:

(1) identify the disruption;

(2) notify response personnel;

(3) identify incident direction and control;

(4) identify internal communication;

(5) inform the public;

(6) assess the incident on a continual basis;

(7) assess a contamination disruption;

(8) assess a mechanical disruption;

(9) provide an alternative water supply; and

(10) impose water use restrictions; and

G. identify ways to reduce the vulnerability of the water supply system to disruption and to improve the community's response capabilities.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5290 DATA ELEMENTS; INCLUSION.

A wellhead protection plan must have a copy of the data elements identified in the scoping decision notices described in parts 4720.5310, subpart 2, and 4720.5340, subpart 2.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

PROCEDURES FOR WELLHEAD PROTECTION PLAN DEVELOPMENT AND REVIEW

4720.5300 WELLHEAD PROTECTION PLAN DEVELOPMENT; PROCEDURES.

Subpart 1. **Applicability.** The procedures specified in parts 4720.5300 to 4720.5360 must be used by a public water supplier to develop and review a wellhead protection plan.

Subp. 2. **Plan manager.** A public water supplier must identify a person to manage and coordinate plan development and implementation.

Subp. 3. **Plan development; notice.** Before the development of a wellhead protection plan begins, a public water supplier must send notice of its decision to develop a plan to:

A. the governing bodies of counties, townships, municipalities, watershed districts, and watershed management organizations that may have jurisdiction wholly or partly within the estimated drinking water supply management area;

B. the regional development commission, if any; and

C. the department.

Subp. 4. **Notice content.** The notice must contain:

A. the name, address, and telephone number of the wellhead protection plan manager;

B. the state identifier of each well to be addressed in the wellhead protection plan;

C. the date the wellhead protection plan must be completed;

D. a workplan for plan development;

E. a list of the data elements identified by the department in the scoping decision notice that the public water supplier does not have but needs to:

(1) delineate the wellhead protection area and the drinking water supply management area; and

(2) assess the vulnerability of the well, the wellhead protection area, and the drinking water supply management area;

F. a request that the data elements identified in item E be shared, if available; and

G. a request for:

(1) existing water and related land resource plans and official controls; and

(2) a description of conflicts, problems, or opportunities that local units want examined and addressed in the wellhead protection plan.

Subp. 5. **Local units of government; meetings.** During the time the plan is being developed, a public water supplier must conduct at least one meeting with local units of government that may have jurisdiction in water and related land resources management within the drinking water supply management area.

Subp. 6. **Public participation.** A public water supplier developing a wellhead protection plan must ensure that there is a process for public participation during plan development and implementation.

Subp. 7. **Record keeping.** A public water supplier must maintain a record of each public meeting held.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5310 FIRST SCOPING MEETING PROCEDURES.

Subpart 1. **Scoping meeting; delineation and vulnerability assessments.** A public water supplier and the department shall meet to discuss the data elements specified in part 4720.5400 that the department determines must be contained in the wellhead protection plan and be used to:

A. delineate the wellhead protection area and the drinking water supply management area; and

B. assess the vulnerability of the well and the drinking water supply management area.

Subp. 2. **Scoping decision; notice.** No later than 30 days after the scoping meeting specified in subpart 1, the department shall notify the public water supplier in writing of the data elements specified in part 4720.5400 that must be:

A. used to perform the delineation and vulnerability assessments;

B. contained in the wellhead protection plan; and

C. submitted to the department.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5320 AQUIFER TEST PLAN; PROCEDURES.

Subpart 1. **Submittal.** An aquifer test plan as specified in part 4720.5540 must be submitted to the department by a public water supplier for department approval:

A. before the selection of the aquifer test method; and

B. before the delineation of the wellhead protection area.

Subp. 2. **Review; notice.** No later than 30 days after receipt of an aquifer test plan, the department shall:

A. approve or disapprove the aquifer test plan based on the criteria specified in part 4720.5555; and

B. provide the public water supplier notice of approval or disapproval of the aquifer test plan.

Subp. 3. **Disapproval notice.** If an aquifer test plan is disapproved, the department shall, as part of the notice of disapproval, provide the public water supplier with:

A. a written statement that identifies those portions of the disapproved aquifer test plan that require revision; and

B. the reasons for disapproval.

Subp. 4. **Resubmittal.** A disapproved aquifer test plan must be revised by the public water supplier and resubmitted to the department within 45 days after receiving notice of disapproval.

Subp. 5. **Revised aquifer test plan; review.** On receipt of a revised aquifer test plan, the department shall follow the same review process as for an original submittal.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5330 DELINEATION AND VULNERABILITY ASSESSMENT REVIEW; PROCEDURES.

Subpart 1. **Delineation and vulnerability assessment; submittal.** Before the remaining portion of the wellhead protection plan is prepared, a public water supplier must submit to the department:

A. the maps and documentation required in part 4720.5205;

B. the vulnerability assessment required in part 4720.5210; and

C. the data elements required under part 4720.5310, subpart 2.

Subp. 2. **Review; notice.** No later than 60 days after the filing of the information specified in subpart 1, the department shall:

A. approve or disapprove, based on the criteria in part 4720.5555, the following:

(1) the wellhead protection area delineation;

(2) the drinking water supply management area boundary; and

(3) the well and drinking water supply management area vulnerability assessment; and

B. provide the public water supplier notice of approval or disapproval of the delineation.

Subp. 3. **Disapproval notice.** If a wellhead protection area delineation, a drinking water supply management area boundary, or a vulnerability assessment is disapproved, the department shall, as part of its notice of disapproval, provide the public water supplier with:

A. a written statement that identifies those portions of the disapproved document that require revision; and

B. reasons for disapproval.

Subp. 4. **Resubmittal.** A public water supplier must revise a disapproved wellhead protection area delineation, drinking water supply management area boundary, or vulnerability assessment and submit the revision to the department within 45 days after receiving notice of disapproval.

Subp. 5. **Revised information; review.** On receipt of a revised wellhead protection area delineation, drinking water supply management area boundary, or vulnerability assessment, the department shall follow the same review process as for an original submittal.

Subp. 6. **Submittal to local units of government.** Within 30 days of department approval, the public water supplier must submit a copy of the wellhead protection area delineation, the drinking water supply management area boundary, and the vulnerability assessments approved by the department to:

A. local units of government wholly or partly within the drinking water supply management area;

B. the regional development commission, if any; and

C. watershed districts and watershed management organizations wholly or partly within the drinking water supply management area.

Subp. 7. **Public information meeting.** Within 60 days of the receipt of the notice of approval from the department, a public water supplier must hold one public information meeting for the general public about the approved:

A. wellhead protection area delineation;

B. drinking water supply management area boundary; and

C. vulnerability assessments.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5340 SECOND SCOPING MEETING PROCEDURES.

Subpart 1. **Scoping meeting; remaining portion of wellhead protection plan.** A public water supplier and the department shall meet to discuss the data elements specified in part 4720.5400 that the department determines must be contained in the wellhead protection plan and used to prepare the remaining portion of the wellhead protection plan.

Subp. 2. **Scoping decision; notice.** No later than 30 days after the scoping meeting specified in subpart 1, the department shall notify the public water supplier in writing of the data elements specified in part 4720.5400 that must be:

A. used to prepare the remaining portion of the wellhead protection plan;

B. contained in the wellhead protection plan; and

C. submitted to the department.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5350 LOCAL REVIEW; PUBLIC HEARING.

Subpart 1. **Submittal to local units of government.** The public water supplier must submit a copy of the remaining portion of the wellhead protection plan to:

A. local units of government wholly or partly within the wellhead protection area;

B. the regional development commission, if any; and

C. watershed districts and watershed management organizations wholly or partly within the wellhead protection area.

Subp. 2. **Local review.** A public water supplier must allow 60 days for the governmental units identified in subpart 1 to comment in writing on the remaining portion of the wellhead protection plan.

Subp. 3. **Comments; consideration.** A public water supplier must consider comments of a local unit of government, regional development commission, watershed district, or water management organization, if any, that:

A. identify and describe any conflict the commenting party has with the plan, when the conflict is not already identified in the remaining portion of the wellhead protection plan; and

B. state the commenting party's position on a conflict identified by the public water supplier for consideration by the department during the department's review of the plan.

Subp. 4. **Public hearing.** A public water supplier must conduct a public hearing on the wellhead protection plan after the 60-day period for local review and comment is completed and before submitting the plan to the department.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5360 DEPARTMENTAL REVIEW; REMAINING PORTION OF PLAN.

Subpart 1. **Submittal to department.** After conducting a public hearing, a public water supplier must submit to the department six copies of:

A. the remaining portion of the wellhead protection plan, including the data elements to be submitted to the department as specified in part 4720.5340, subpart 2;

B. written comments received on the entire plan; and

C. a summary of changes made to the entire plan as a result of the local review process.

Subp. 2. **Department consultation.** On receipt of the items specified in subpart 1, the department shall transmit a copy of the items, along with a map of the wellhead protection area, a map of the drinking water supply management area, and the vulnerability assessment of the drinking water supply management area to:

A. the Minnesota Department of Agriculture;

B. the Minnesota Department of Natural Resources;

C. the Minnesota Pollution Control Agency;

D. the Board of Water and Soil Resources; and

E. any other state or federal agency the department determines could assist the department with the review of the plan.

Subp. 3. **Comment review.** The department shall:

A. evaluate a wellhead protection plan based on written comments from an entity specified in subpart 2 received no later than 60 days after the plan is transmitted to the entity; and

B. consider comments from an entity specified in subpart 2 that identifies any part of the remaining portion of a wellhead protection plan that is:

(1) contrary to a state or federal law or rule administered by the entity; or

(2) contradictory to the review criteria specified in part 4720.5555.

Subp. 4. **Review; notice; resubmittal.** No later than 90 days after a public water supplier files the remaining portion of a wellhead protection plan, the department shall approve or disapprove the remaining portion of the wellhead protection plan based on the criteria specified in part 4720.5555, and shall provide the public water supplier notice of approval or disapproval of the wellhead protection plan.

A. If the remaining portion of a wellhead protection plan is disapproved, the department shall, as part of its notice of disapproval, provide the public water supplier with:

(1) a written statement that identifies those portions of the disapproved wellhead protection plan that require revision; and

(2) the reasons for disapproval.

B. A public water supplier must revise a disapproved wellhead protection plan and submit the revision to the department within 120 days after receiving notice of disapproval.

C. On receipt of a revised plan, the department shall follow the same review process as for an originally submitted wellhead protection plan.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

DATA ELEMENTS FOR A WELLHEAD PROTECTION PLAN

4720.5400 DATA ELEMENTS.

Subpart 1. **Selection.** The department shall select data elements to be used in a wellhead protection plan in accordance with parts 4720.5310 and 4720.5340 based on the hydrogeological setting and vulnerability of the well and the drinking water supply management area known at both the time the scoping meeting is held and the scoping decision notice is mailed.

Subp. 2. **Physical environment.** The department shall select data elements about the physical environment from the areas described in items A to D.

A. Information about precipitation must include:

(1) an existing map or list of local precipitation gaging stations; and

(2) an existing table showing the average monthly and annual precipitation in inches for the preceding five years.

B. Information about the geology of the area must include:

(1) an existing geologic map and a description of the geology, including aquifers, confining layers, recharge areas, discharge areas, sensitive areas as defined in Minnesota Statutes, section 103H.005, subdivision 13, and groundwater flow characteristics;

(2) existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department;

(3) existing borehole geophysical records from wells, borings, and exploration test holes; and

(4) existing surface geophysical studies.

C. Information about the soil conditions must include:

(1) existing maps of the soils and a description of soil infiltration characteristics; and

(2) a description or an existing map of known eroding lands that are causing sedimentation problems.

D. Information about water resources must include:

(1) an existing map of the boundaries and flow directions of major watershed units and minor watershed units;

(2) an existing map and a list of public waters as defined in Minnesota Statutes, section 103G.005, subdivision 15, and public drainage ditches;

(3) the shoreland classifications of the public waters listed under subitem (2), pursuant to part 6120.3000 and Minnesota Statutes, sections 103F.201 to 103F.221;

(4) an existing map of wetlands regulated under chapter 8420 and Minnesota Statutes, sections 103G.221 to 103G.2373; and

(5) an existing map showing those areas delineated as floodplain by existing local ordinances.

Subp. 3. **Land use.** The department shall select data elements about land use from the areas described in items A and B.

A. Information about land use must include:

(1) an existing map of parcel boundaries;

(2) an existing map of political boundaries;

(3) an existing map of public land surveys including township, range, and section;

(4) a map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources;

(5) an existing comprehensive land-use map; and

(6) an existing zoning map.

B. Information about public utility services must include an existing:

(1) map of transportation routes or corridors;

(2) map of storm sewers, sanitary sewers, and public water supply systems;

(3) map of the gas and oil pipelines used by gas and oil suppliers;

(4) map or list of public drainage systems; and

(5) record of the construction, maintenance, and use of the public water supply well and other wells within the drinking water supply management area.

Subp. 4. **Water quantity.** The department shall select data elements about water quantity from the areas described in items A and B.

A. Information about surface water quantity must include an existing:

(1) description of high, mean, and low flows on streams;

(2) list of lakes where the state has established ordinary high water marks;

(3) list of permitted withdrawals from lakes and streams, including source, use, and amounts withdrawn;

(4) list of lakes and streams for which state protected levels or flows have been established; and

(5) description of known water-use conflicts, including those caused by groundwater pumping.

B. Information about groundwater quantity must include an existing:

(1) list of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source;

(2) description of known well interference problems and water use conflicts; and

(3) list of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.

Subp. 5. **Water quality.** The department shall select data elements about water quality from the areas described in items A and B.

A. Information about surface water quality must include an existing:

(1) map or list of the state water quality management classification for each stream and lake; and

(2) summary of lake and stream water quality monitoring data, including:

(a) bacteriological contamination indicators;

(b) inorganic chemicals;

(c) organic chemicals;

(d) sedimentation;

(e) dissolved oxygen; and

(f) excessive growth or deficiency of aquatic plants.

B. Information about groundwater quality must include an existing:

(1) summary of water quality data, including:

(a) bacteriological contamination indicators;

(b) inorganic chemicals; and

(c) organic chemicals;

(2) list of water chemistry and isotopic data from wells, springs, or other groundwater sampling points;

(3) report of groundwater tracer studies;

(4) site study and well water analysis of known areas of groundwater contamination;

(5) property audit identifying contamination; and

(6) report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

GENERAL WELLHEAD PROTECTION REQUIREMENTS AND CRITERIA

4720.5500 DATA REPORTING REQUIREMENTS.

Subpart 1. **Data requirements.** Data collected for a wellhead protection plan must:

A. have one geographic reference point for point information;

B. in the case of parcels, be identified with a parcel identification number assigned by the county auditor pursuant to Minnesota Statutes, section 272.193;

C. be identified with a state identifier, if available; and

D. be recorded and reported to the department on:

(1) forms and software provided by the department; or

(2) other software when a data dictionary and an electronic cross-reference table are provided by the public water supplier for translating the data into department data management format.

Subp. 2. **Maps.** When information is presented in map form and the map is newly created for plan purposes, the map:

A. must be presented at a one to 24,000 scale or greater detail;

B. must be presented in an electronic format or on a stable base material;

C. must have four geographic reference points with x and y coordinates, located at the extremes of the map;

D. must be presented in a consistent map scale; and

E. may be combined on multiple maps or map overlays.

Subp. 3. **Laboratory methods.** The laboratory methods used to analyze a well water sample must be at least as precise as those used by the department in part 4720.0350.

Subp. 4. **Geographic reference point documentation.** The coordinate system used to define a geographic reference point must be documented, including a description of:

A. the units of measurement used;

B. the applicable zone;

C. the applicable reference datum; and

D. the map projection method used.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5510 CRITERIA FOR WELLHEAD PROTECTION AREA DELINEATION.

Subpart 1. **Criteria.** A method selected to delineate a wellhead protection area must incorporate the criteria specified in subparts 2 to 6.

Subp. 2. **Time of travel.** The time of travel must be at least ten years.

Subp. 3. **Flow boundaries.** The location and influence of flow boundaries must be identified using existing information.

Subp. 4. **Daily volume.** The daily volume of water pumped must be calculated for each well in the public water supply system.

A. The daily volume calculation must be:

(1) determined by dividing the annual volume of water pumped by 365; and

(2) based on the greatest annual volume of water used during the previous five years or the greatest annual volume of water projected over the next five years, whichever is greater.

B. The daily volume of water pumped must be expressed in gallons per day.

Subp. 5. **Groundwater flow field.** The groundwater flow field must be identified for the aquifer used by the public water supply well.

A. The ambient hydraulic gradient must be measured in a location:

(1) upgradient of the public water supply well; and

(2) beyond the pumping influence of the public water supply well.

B. Except as provided in item C, when a wellhead protection area is delineated for a public water supply well, an analytical method:

(1) may use a single value for the ambient hydraulic gradient; and

(2) must delineate a composite wellhead protection area that uses the angles of ambient groundwater flow that are ten degrees less and ten degrees greater than the measured angle of ambient groundwater flow.

C. When the ambient groundwater flow field cannot be determined due to transient hydraulic conditions, seasonal differences in the hydraulic gradient and the angle of groundwater flow must be accounted for when delineating the wellhead protection area. The ambient groundwater flow field is the two dimensional representation of equipotentials and flowlines created by groundwater movement through an aquifer undisturbed by pumping or other human-caused activities.

D. The hydraulic gradient must be expressed as the ratio of vertical feet divided by the distance in horizontal feet.

Subp. 6. **Aquifer transmissivity.** The aquifer transmissivity must be calculated.

A. The aquifer transmissivity must be expressed in feet squared per day.

B. The aquifer transmissivity must be based on the first of the following methods that is applicable to the public water supply system:

(1) an existing pumping test that meets the requirements of part 4720.5520 and that was previously conducted on a well in the public water supply system;

(2) an existing pumping test that meets the requirements of part 4720.5520 and that was previously conducted on another well in a hydrogeologic setting determined by the department to be equivalent;

(3) a pumping test that meets the requirements of part 4720.5520 and that was conducted to determine the aquifer transmissivity for a new or existing public water supply well specified in part 4720.5520, subpart 1;

(4) a pumping test that meets the requirements of part 4720.5530 and that was conducted to determine the aquifer transmissivity for a new or an existing public water supply well specified in part 4720.5530, subpart 1;

(5) an existing pumping test that does not meet the requirements of part 4720.5520 and that was previously conducted on:

(a) the public water supply well; or

(b) another well in a hydrogeologic setting determined by the department to be equivalent;

(6) an existing specific capacity test or a specific capacity test for the public water supply well; or

(7) an existing published transmissivity value.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5520 PUMPING TEST STANDARDS FOR LARGER SIZED WATER SUPPLY SYSTEMS.

Subpart 1. **Applicability.** A pumping test must be conducted as specified in this part if:

A. the public water supply system consists of two or more wells;

B. a well is accessible for measuring the water level in the aquifer used by the public water supply system;

C. the pump or the water distribution system can maintain a ten percent or less variation in the discharge rate;

D. the water storage facility of the public water supply system can hold enough water to meet the water needs for the length of the pumping test specified in subpart 5; or

E. the water storage facility of the public water supply system can hold the discharge water or the water disposal method is not a public safety hazard.

Subp. 2. **Pumping capacity.** When a pumping test is conducted, the public water supply well must be pumped at its maximum obtainable capacity.

Subp. 3. **Water level measurement.** The water level measurements must be recorded in units of one-hundredths of a foot.

Subp. 4. **Total volume of water measurement.** The total volume of water pumped during the pumping phase of the test must be recorded as the total gallons pumped.

Subp. 5. **Pumping test length.** The length of the pumping test for a public water supply well must be no less than:

A. 24-continuous hours pumping, followed by a 24-continuous hour recovery period, in a confined aquifer; or

B. 72-continuous hours pumping, followed by a 72-continuous hour recovery period, in an unconfined aquifer.

Subp. 6. **Recording; start and finish.** The date and time of the start and the finish of the pumping test must be recorded to the second.

Subp. 7. **Groundwater level monitoring.** For a public water supply well completed in geological materials specified in part 4720.5550, subpart 2, item D, subitem (2), at least one well or environmental bore hole must be used to monitor groundwater levels before, during, and after the pumping test.

A. The well or environmental bore hole used to monitor groundwater levels must be located where it is influenced by the pumping well.

B. The public water supplier is responsible for the construction of one well or environmental bore hole to monitor groundwater levels if an existing well or environmental bore hole cannot be used for the test requirements specified in this subpart.

Subp. 8. **Frequency of readings; confined aquifer.** During the pumping phase and recovery phase of the test for a confined aquifer, water levels in the pumping well and any well or environmental bore hole used to monitor groundwater levels must be measured with sufficient frequency to characterize the drawdown versus time response in each of the following time intervals:

A. prepumping condition;

B. 0 to 5 minutes;

C. 5 to 10 minutes;

D. 10 to 20 minutes;

E. 20 to 60 minutes;

F. 60 to 120 minutes;

G. 120 to 180 minutes;

H. 180 to 360 minutes;

I. 360 to 720 minutes; and

J. 720 to 1,440 minutes.

Subp. 9. **Frequency of readings; unconfined aquifer.** During the pumping phase and recovery phase of the test for an unconfined aquifer, water levels in the pumping well and any well or environmental bore hole used to monitor groundwater levels must be measured with sufficient frequency to characterize the drawdown versus time response in each of the following time intervals:

A. prepumping condition;

B. 0 to 5 minutes;

C. 5 to 10 minutes;

D. 10 to 20 minutes;

E. 20 to 60 minutes;

F. 60 to 120 minutes;

G. 120 to 180 minutes;

H. 180 to 360 minutes;

I. 360 to 720 minutes;

J. 720 to 1,440 minutes;

K. 1,440 to 2,880 minutes; and

L. 2,880 to 4,320 minutes.

Subp. 10. **Readings; discontinuation.** The readings during the recovery phase of the test may be discontinued when the water levels in the pumping well and the well or environmental bore hole used to monitor groundwater level reach 95 percent recovery of the prepumping condition.

Subp. 11. **Recording; pumping rate.** The pumping rate for a public water supply well must be recorded during the pumping phase of the test:

A. every five minutes during the first hour of the pumping phase of the test;

B. at hours 2, 3, 6, and 12 for a confined aquifer; and

C. at hours 2, 3, 6, 12, 24, and daily following the 24-hour reading for an unconfined aquifer.

Subp. 12. **Final recording.** The final recording of the pumping rate for a public water supply well must be recorded five minutes before shutting off the pump.

Subp. 13. **Pumping rate variation.** When the pumping rate of a public water supply well varies by ten percent or greater from the previous reading, except for the final recording specified in subpart 12, new readings must be recorded at five-minute intervals for either the next hour or until a variation of less than ten percent is observed, whichever is the greater length of time.

Subp. 14. **Failure to record pumping rate.** Failure to record the pumping rate for a public water supply well at the times specified in subparts 11 and 12 requires the pump test to be redone.

Subp. 15. **Pumping rate measurement.** The pumping rate must be expressed in gallons per minute.

Subp. 16. **Recording and submittal requirements.** Pumping test data must be recorded and submitted to the department on forms or electronic data file templates provided by the department.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5530 PUMPING TEST STANDARDS FOR SMALLER SIZED WATER SUPPLY SYSTEMS.

Subpart 1. **Applicability.** A pumping test must be conducted as specified in this part for public water supply systems not included under part 4720.5520, subpart 1.

Subp. 2. **Pumping capacity.** When a pumping test is conducted, the public water supply well must be pumped at its maximum obtainable capacity.

Subp. 3. **Pumping discharge rate.** The pumping discharge rate must be held to within ten percent of the discharge rate selected for the test.

Subp. 4. **Water level measurement.** The water level measurements must be recorded in units of one-hundredths of a foot.

Subp. 5. **Total volume of water measurement.** The total volume of water pumped during the pumping phase of the test must be recorded as the total gallons pumped.

Subp. 6. **Pumping test length.** The length of the pumping test must be as long as allowed by the:

A. capability of the pump;

B. capacity of the water reservoirs;

C. capacity of the water distribution system; and

D. capability to dispose of excess discharge water.

Subp. 7. **Frequency of readings.** Water levels must be measured for the duration of the test, and with sufficient frequency to characterize the drawdown versus time response in each of the time intervals specified in part 4720.5520, subpart 8 for a confined aquifer setting, or subpart 9 for an unconfined aquifer setting.

Subp. 8. **Recording; start and finish.** The date and time of the start and the finish of the pumping test must be recorded to the second.

Subp. 9. **Recording and submittal requirements.** Pumping test data must be recorded and submitted to the department on forms or electronic data file templates provided by the department.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5540 AQUIFER TEST PLAN CONTENT.

An aquifer test plan must be prepared for the wells in a public water supply system and submitted to the department for approval. The aquifer test plan must contain:

A. the state identifier;

B. a map showing the location of the pumping well and the monitoring well or environmental bore hole;

C. the name and address of the public water supplier;

D. the name and address of the person preparing the aquifer test plan;

E. specification of the method used from part 4720.5510, subpart 6;

F. a description of why the method was selected;

G. the existing data and the calculated transmissivity value, if the method selected is one of those specified in part 4710.5510, subpart 6, item B, subitem (1), (2), (5), (6), or (7).

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5550 CRITERIA FOR ASSESSING WELL VULNERABILITY.

Subpart 1. **Department determination.** The department shall use the criteria specified in this part to assign priority and notify a public water supplier in writing that a wellhead protection plan must be prepared for an existing well.

Subp. 2. **Well vulnerability criteria.** A public water supply well is vulnerable if:

A. the well water contains ten milligrams per liter or more nitrate plus nitrite nitrogen;

B. the well water contains quantifiable levels of pathogens as defined in part 7040.0100, subpart 26, or chemical compounds that indicate groundwater degradation as defined in Minnesota Statutes, section 103H.005, subdivision 6;

C. the well water contains one tritium unit or more when measured with an enriched tritium detection method; or

D. an enriched tritium analysis of the well water has not been performed within the past ten years; and

(1) information on the well construction is not available; or

(2) the geological material from the land surface to where the groundwater enters the public water supply well is:

(a) fractured bedrock;

(b) solution weathered bedrock;

(c) sandstone bedrock;

(d) unconsolidated material 0.062 millimeters (fine sand) or larger; or

(e) a combination of the materials specified in subitems (a) to (d).

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5555 CRITERIA FOR PLAN REVIEW.

Subpart 1. **Compliance with rules.** The department shall review:

A. an aquifer test plan for compliance with parts 4720.5320 and 4720.5510 to 4720.5540; and

B. a wellhead protection plan for compliance with parts 4720.5100 to 4720.5590.

Subp. 2. **Principles of review.** In addition to verifying compliance with rules, the department shall determine if the plan is based on:

A. hydrologic management of water criteria, including:

(1) upgradient and downgradient effects on groundwater by actions impacting water and related land resources;

(2) data and complete documentation of technical analysis;

(3) the interrelationships between surface water and groundwater, land and water use, and quality and quantity of water; and

(4) the effects of potential variations in precipitation;

B. health and environmental protection criteria, including:

(1) prevention of potential water and related land resource problems;

(2) anticipated improvements in the overall quality of the environment;

(3) public health and safety; and

(4) potential cumulative effects of past, present, and future actions; and

C. management criteria, including:

(1) estimated cost of implementing the wellhead protection plan;

(2) methods used to fund the wellhead protection plan;

(3) ways that wellhead protection planning is coordinated with other related planning programs;

(4) approaches used to identify problems and opportunities; and

(5) use of water conservation practices.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5560 IMPLEMENTATION OF APPROVED WELLHEAD PROTECTION PLAN.

Subpart 1. **Plan implementation.** A public water supplier must begin implementation of a plan no later than 60 days after the public water supplier has received department approval of the plan or amendments to the plan.

Subp. 2. **Notification after plan adoption.** A public water supplier must notify local units of government within the drinking water supply management area of the adoption of a plan or amendments to a plan no later than 60 days after the public water supplier has received department approval of the plan or amendments to the plan.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5570 AMENDMENTS TO WELLHEAD PROTECTION PLAN.

Subpart 1. **Amendments required.** A public water supplier must review and amend a wellhead protection plan:

A. if a well is added to the public water supply system;

B. if the boundaries of a wellhead protection area being delineated overlaps the boundaries of a department approved wellhead protection area of another public water supply system; or

C. every ten years from the date of the last approval of a plan by the department.

Subp. 2. **Amendment procedure.** Amendments to a wellhead protection plan must be developed and reviewed in the same manner specified in parts 4720.5300 to 4720.5360 for an initial wellhead protection plan.

Subp. 3. **Amendment timing.** The process of amending a wellhead protection plan in compliance with subpart 1, item C, must begin eight years after the date of the last approval of a plan by the department.

Subp. 4. **Amendment criteria.** Amendments to a wellhead protection plan must comply with parts 4720.5200 to 4720.5290 and 4720.5500 to 4720.5540.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5580 VARIANCE PROCEDURES.

The commissioner shall grant a variance to parts 4720.5200 to 4720.5570 only according to the procedures and criteria in parts 4717.7000 to 4717.7050.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

4720.5590 INFORMAL RESOLUTION OF DISPUTES.

Subpart 1. **Applicability.** A public water supplier may use the procedures in this part to resolve any conflict between the public water supplier and the department about the development and implementation of a wellhead protection plan.

Subp. 2. **Request for meeting.** A public water supplier must request a meeting with the department by submitting a written request to the department that specifically identifies the provision of the wellhead protection plan in question and the issue

involved. No later than 60 days after the meeting, the department shall notify the public water supplier in writing of the results of the meeting.

Statutory Authority: *MS s 103I.101*

History: *22 SR 668*

DRINKING WATER REVOLVING FUND

4720.9000 PURPOSE.

The drinking water revolving fund provides financial assistance to eligible public drinking water suppliers for the planning, design, and construction of facilities to ensure safe and adequate drinking water. The program is jointly administered by the Minnesota Department of Health and the Minnesota Public Facilities Authority. The Minnesota Department of Health establishes priorities for the use of the drinking water revolving fund. All projects must be approved by the Minnesota Department of Health before they may be considered for funding by the Minnesota Public Facilities Authority. Parts 4720.9000 to 4720.9080 provide, for the Minnesota Department of Health, administration of its responsibilities under Minnesota Statutes, section 446A.081. Rules governing the Minnesota Public Facilities Authority's administration of its responsibilities under Minnesota Statutes, section 446A.081, are contained in chapter 7380.

The United States Environmental Protection Agency provides capitalization grants for this program to the state of Minnesota. Financial assistance projects must be in conformance with the requirements of the Public Health Service Act, United States Code, title 42, sections 300f et seq., Public Law 104-182, title XIV, section 1452, Part E.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9005 DEFINITIONS.

Subpart 1. **Scope.** The terms defined in this part, in Minnesota Statutes, section 446A.081, and in the Public Health Service Act, apply to parts 4720.9000 to 4720.9080.

Subp. 2. **Act.** "Act" means the Public Health Service Act, United States Code, title 42, sections 300f et seq., Public Law 104-184, title XIV, section 1452, Part E.

Subp. 3. **Authority.** "Authority" means the Minnesota Public Facilities Authority.

Subp. 4. **Commissioner.** "Commissioner" means the commissioner of the Minnesota Department of Health.

Subp. 5. **Project priority list.** "Project priority list" means the document prepared pursuant to section 1452(b)(3)(B) of the act. The list shall identify all projects eligible for funding and the points assigned to the project as provided in parts 4720.9020 to 4720.9040.

Subp. 6. **Treatment technique.** "Treatment technique" means an enforceable procedure developed by the United States Environmental Protection Agency when it is not economically or technologically feasible to ascertain the level of a contaminant and that public drinking water suppliers must follow to treat their drinking water.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9010 ELIGIBILITY.

The following entities are eligible to receive funds from the drinking water revolving fund for eligible activities listed in the act:

A. a community drinking water supply;

B. a nonprofit noncommunity drinking water supply;

C. a county, city, or town; or

D. any other governmental subdivision of the state responsible for the treatment and distribution of piped drinking water for human consumption, serving or

proposing to serve a minimum of 15 connections or 15 living units, or serving or proposing to serve an average of 25 people daily for 60 days of the year.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9015 PROJECT PRIORITY LIST.

Subpart 1. **General.** The commissioner must develop and maintain a project priority list for entities that have a need for a new or upgraded water supply system.

Subp. 2. **Notice.** At least once a year, the commissioner must provide notification to all eligible public drinking water suppliers that requests for placement on the project priority list are being accepted. The notice must include the schedule for submittal of the requirements listed in subparts 4 and 5, or subpart 6, in order to be placed on the project priority list.

Subp. 3. **Project priority list amendments.** As needed, but at least once per year, the commissioner must amend the project priority list to add or delete projects.

Subp. 4. **General requirements.** To be eligible for placement on the project priority list, a written request for placement on the project priority list must be submitted to the commissioner. The request must include:

A. the type of project (planning, design, or construction) for which financial assistance is being requested;

B. a current cost estimate and, if different, the amount of financial assistance being requested; and

C. a proposed project schedule in a form acceptable to the commissioner.

Subp. 5. **Additional requirements for applicants seeking financial assistance for planning activities and design.** The request for inclusion of a project under the planning or design section of the project priority list must include:

A. a description of the need for the project;

B. an estimate of the population and number of households to be served; and

C. a map showing the geographical area the project is expected to serve.

Subp. 6. **Additional requirements for applicants seeking financial assistance for construction.** The request for listing a construction project on the project priority list under this part must include:

A. a map of the geographical area;

B. the population and number of households to be served;

C. a description of the current drinking water supply system;

D. a discussion of any existing and potential problems or failures in the current drinking water system;

E. an analysis of possible alternatives for the correction of the problems or failures, including a cost estimate for each alternative;

F. the selection of an alternative, including the reasons for the selection of this alternative and a detailed cost estimate; and

G. for public water suppliers serving more than 1,000 persons, the status of the applicant's implementation of an approved emergency and water conservation plan required under Minnesota Statutes, section 103G.291.

Subp. 7. **Priority points.** A project must be assigned project priority points before being listed on the project priority list. The commissioner must review and approve the information submitted under subpart 4, 5, or 6 before assigning project priority points. Approval must be based on the determination that the information addresses the requirements under subpart 4, 5, or 6 and an evaluation that the selected alternative will provide a solution to the problems presented. A project's priority points must be the total number of priority points assigned under parts 4720.9020 to 4720.9040. The project priority points may be recalculated when new information becomes available until the project is placed on the intended use plan as provided in part 7380.0255.

Subp. 8. **Listing order.** Projects must be listed on the project priority list in descending order according to the number of total priority points assigned to each one. When two or more projects have the same priority point total, the project sponsored by the entity with the lowest median household income must receive the highest priority.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9020 PUBLIC HEALTH PRIORITY POINTS.

Subpart 1. **Existing eligible public drinking water supply.** Only existing eligible public drinking water supply projects can be assigned priority points under subparts 2 to 4.

Subp. 2. **Acute violations.** A maximum of 100 priority points may be assigned to a project as described in items A to E.

A. Twenty-five priority points must be assigned if there have been one or more violations defined as an acute violation in Code of Federal Regulations, title 40, section 141.32(a)(1)(iii)(A), within the past 36 calendar months.

B. Twenty-five priority points must be assigned if there have been one or more violations defined as an acute violation in Code of Federal Regulations, title 40, section 141.32(a)(1)(iii)(B), within the past 36 calendar months.

C. Twenty-five priority points must be assigned if there have been one or more occurrences defined as a waterborne disease outbreak in Code of Federal Regulations, title 40, section 141.2, within the past 36 calendar months.

D. Twenty-five priority points must be assigned if there have been one or more violations of the maximum contaminant level for total coliforms pursuant to Code of Federal Regulations, title 40, section 141.32(a)(1)(iii)(C), when total coliforms are determined to be present in the wells of a groundwater system or at the point of entry for a surface water system within the past 36 calendar months.

E. Fifteen priority points must be assigned if there have been one or more violations of the maximum contaminant level for total coliforms pursuant to Code of Federal Regulations, title 40, section 141.32(a)(1)(iii)(C), when total coliforms are determined to be present in a part of the system other than the wells of a groundwater system or at the point of entry for a surface water system within the past 36 calendar months. Points may not be assigned under this item if points have been assigned under item D.

Subp. 3. **Failure to comply with treatment technique requirements.**

A. Fifteen priority points must be assigned if there have been one or more failures to comply with a treatment technique requirement pursuant to Code of Federal Regulations, title 40, sections 141.70 to 141.74.

B. Thirteen priority points must be assigned if there have been one or more failures to comply with a treatment technique requirement, other than those referred to in item A, within the past 36 calendar months. Additional points must not be assigned for multiple failures to comply with the same requirement.

Subp. 4. **Violations of nonacute primary maximum contaminant levels.** Fifteen priority points must be assigned if there has been a violation of any nonacute primary maximum contaminant levels within the past 36 calendar months.

Subp. 5. **Contaminated private wells.** Only projects that will result in the creation of an eligible public water supply or connection to an eligible public water supply may be assigned points under this subpart. More than 50 percent of the private wells in the proposed project service area must meet a criterion in item A or B for priority points to be assigned under item A or B. If 50 percent or less of the private wells in the proposed project service area meet a criterion, one-half of the listed points must be assigned. Results of tests, done in accordance with the United States Environmental Protection Agency approved analytical methods, must be submitted.

A. Twenty-five priority points must be assigned if test results indicate that a condition exists that meets the criteria in subpart 2, item A, B, C, or D.

B. Ten priority points must be assigned if a drinking water advisory has been issued by the Minnesota Department of Health.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9025 INADEQUATE WATER SUPPLY PRIORITY POINTS.

Subpart 1. **Consistently provide.** For the purposes of this part, the term "consistently provide" means that, at all times, the minimum pressures and flow rates for plumbing fixtures, as defined in the Minnesota Plumbing Code, part 4715.1770, are maintained.

Subp. 2. **Existing public drinking water suppliers.** For existing public drinking water suppliers serving more than 1,000 people, evidence of the implementation of an emergency and water conservation plan approved by the Minnesota Department of Natural Resources pursuant to Minnesota Statutes, section 103G.291, subdivision 3, must be provided to the commissioner before priority points may be assigned under this subpart.

A. Fifteen priority points must be assigned if an existing public drinking water supply is unable to consistently provide for the domestic water demand, excluding industrial and commercial uses.

B. Seven priority points must be assigned if an existing public drinking water supply is able to consistently provide domestic water demand for the uses listed under item A, but is unable to consistently provide water for other uses, including industrial and commercial uses.

Subp. 3. **Inadequate supply from private wells.** Only projects that result in the creation of an eligible public water supply or connection to an eligible public water supply may be assigned points under this subpart.

A. Fifteen priority points must be assigned if more than 50 percent of the private wells in the proposed project service area are unable to consistently provide an adequate amount of water for general household purposes as demonstrated by an analysis of the aquifer supply and the demand for water in the area.

B. Five points must be assigned if 50 percent or less of the private wells in the proposed project service area meet the criteria in item A.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9030 PUBLIC DRINKING WATER INFRASTRUCTURE IMPROVEMENT PRIORITY POINTS.

Subpart 1. **Existing public drinking water suppliers.** Only existing eligible public drinking water supply projects may be assigned priority points under this part. A project may be assigned priority points under only one subpart. If it has been assigned points under part 4720.9020 or 4720.9025, it may not be assigned points under this part.

Subp. 2. **System reliability.** Seven priority points must be assigned to projects that will address a demonstrated need for a new backup well or interconnection with another public water supply.

Subp. 3. **Looping of water mains.** Seven priority points must be assigned to projects that will address a demonstrated need for looping of water mains.

Subp. 4. **Chlorine feed equipment.** Seven priority points must be assigned to projects that will address a demonstrated need for chlorine feed equipment.

Subp. 5. **One-day storage.** Six priority points must be assigned to projects that allow the supply to have one-day storage capacity equal to the average daily use.

Subp. 6. **Other infrastructure projects.** Five priority points must be assigned to projects that will address a demonstrated need for new or upgraded public drinking water facilities if priority points have not been assigned under subpart 2, 3, 4, or 5.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9035 ADDITIONAL PRIORITY POINTS CATEGORIES.

Subpart 1. **Natural disaster.** In order to be assigned priority points under this subpart, a description of the existing public drinking water supply, or portion thereof, damaged or destroyed by a natural disaster, must be submitted along with a statement that other state or federal disaster relief is not available.

A. Fifteen extra priority points must be assigned if more than 50 percent of the proposed project will replace or repair the existing public drinking water supply damaged or destroyed by a natural disaster.

B. Ten extra priority points must be assigned if 50 percent or less of the proposed project will replace or repair the existing public drinking water supply damaged or destroyed by a natural disaster.

Subp. 2. **Compliance.** Ten extra priority points must be assigned if the proposed project will enable an eligible public drinking water supply to comply with an administrative penalty order, bilateral compliance agreement, permit, or other enforceable document issued by the Minnesota Department of Health.

Subp. 3. **Consolidation.** Ten extra priority points must be assigned if the proposed project will result in the consolidation of existing public drinking water suppliers.

Subp. 4. **Source water protection.** Three extra priority points must be assigned if the proposed project, or any portion thereof, is needed in order to protect the drinking water source.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9040 FINANCIAL NEED.

Subpart 1. **General.** Only projects sponsored by community public drinking water suppliers can be assigned priority points under this part.

Subp. 2. **Median household income.** The median household income levels of the state must be determined from income data from the most recent census of the United States or from data from the state demographer.

A. A municipal community public water supply must use the median household income for the appropriate political subdivision or subdivisions encompassing its service area, except as provided in item C.

B. A nonmunicipal community drinking water supply must use the median household income for the smallest political subdivision encompassing the nonmunicipal community drinking water supply, except as provided in item C.

C. If there is reason to believe that the United States census data or the data from the state demographer is not a currently accurate representation of the median household income, documentation of the reasons why the data is not an accurate representation may be submitted. If the commissioner, after review, agrees, the applicant may submit additional information regarding median household income. The information must consist of reliable data from local, regional, state, or federal sources, or from a survey conducted by a reliable impartial source. The median household income level must be updated to reflect the most current and accurate figures.

Subp. 3. **Assignment of points.** A project sponsored by a community public drinking water supply with a median household income less than either the median

household income for a metropolitan or nonmetropolitan area, as applicable, must be assigned five priority points.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9045 PLAN AND SPECIFICATION REQUIREMENTS.

Subpart 1. **General.** An applicant seeking financial assistance from the drinking water revolving fund for a construction project must submit plans and specifications to the commissioner for review and approval. Plans and specifications must:

A. be signed by a professional engineer registered in Minnesota, except as provided in subpart 2;

B. be consistent with the selected alternative approved under part 4720.9015, subpart 6, item F;

C. describe the project in full and detail the construction requirements;

D. include the latest detailed cost estimate for the project prepared by the person preparing the plans and specifications for the project;

E. comply with applicable state statutes, rules, and requirements; and

F. for public water suppliers serving more than 1,000 persons, include the status of the applicant's implementation of an approved emergency and water conservation plan required under Minnesota Statutes, section 103G.291.

Subp. 2. **Exception to registered professional engineer requirement.** Plans and specifications for a nonmunicipal community or noncommunity public drinking water supply project may be signed by a licensed plumber, a licensed water conditioning contractor, or a licensed water well contractor if the scope of the project is totally within the field for which the person is licensed to practice in Minnesota.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9050 DEPARTMENT APPROVAL OF PROJECTS.

The commissioner must approve the project upon review of the documents submitted and a determination that the project meets the applicable requirements of the act, federal regulations, Minnesota Statutes, and parts 4720.9000 to 4720.9080.

If there is significant alteration to the project after the commissioner approves the project, the eligible applicant must request in writing an amended approval. The commissioner must review the request and project alteration and, upon a determination that the project meets the applicable requirements of the act, federal regulations, Minnesota Statutes, and parts 4720.9000 to 4720.9080, the commissioner must approve the project.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9055 EMERGENCY LOAN PROGRAM.

Subpart 1. **General.** An eligible public drinking water supply may apply for emergency assistance in the case of catastrophic failure of the drinking water supply or unforeseen threats of contamination to the drinking water supply. Emergency projects need not comply with parts 4720.9015 to 4720.9050, but must be eligible under part 4720.9010.

Subp. 2. **Notification.** An eligible public drinking water supply must notify the commissioner of the need for emergency remediation of threats of contamination or catastrophic failure of the drinking water supply. The notification must include the nature of the threat or failure, the proposed remediation, and estimated costs.

Subp. 3. **Approval.** Upon review of the information required by subpart 2 and a determination that the project meets the applicable requirements of the act, federal

regulations, Minnesota Statutes, and parts 4720.9000 to 4720.9010 and 4720.9055 to 4720.9080, the commissioner must approve the project. Approval must be based on the determination that the information demonstrates the need for emergency funding and that the proposed remediation will provide a solution to the problems presented.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9060 CERTIFICATION OF PROJECT TO AUTHORITY.

Upon approval of a project pursuant to part 4720.9050 or 4720.9055 and verification that the project is listed on the current project priority list, the commissioner must certify the project to the authority for review and consideration.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9065 CONSTRUCTION PHASE AND POSTCONSTRUCTION PHASE REQUIREMENTS.

Subpart 1. **Project completion and final inspection.** The financial assistance recipient must notify the commissioner of the estimated date on which the operation of the project's major components is initiated or is capable of being initiated. A final inspection of the project must be performed if the commissioner determines it is necessary to verify that construction conforms with approved plans and specifications and any change orders.

The commissioner must consider the following criteria when determining the necessity of conducting a final inspection: previous site visits or other field reports; the nature and scope of the project; the experience, training, and capability of the facility operators; and other information received about the conduct of the project.

Subp. 2. **Project performance.**

A. Three months after initiation of operation of the project, the financial assistance recipient must certify to the commissioner that the project is operating as planned and designed. This certification must be made in a form acceptable to the commissioner.

B. If the financial assistance recipient is unable to certify the project is operating as planned and designed, the recipient must submit a corrective action report to the commissioner for review and approval. The corrective action report must contain an analysis of the project's failure to operate as planned and designed; a discussion of the nature, scope, and cost of the action necessary to correct the failure; and a schedule for completing the corrective work.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9070 CERTIFIED OPERATOR.

Subpart 1. **General.** Except as provided in subpart 2, before the financial assistance recipient submits its final financial assistance payment request to the authority, it must submit to the commissioner the name, certification number, and certification expiration date of the operator certified under chapter 9400 and directly responsible for the operation of the facility.

Subp. 2. **Exception for transient noncommunity public drinking water supply.** A financial assistance recipient that is a transient noncommunity public drinking water supply is exempt from the requirement in subpart 1, but must perform monitoring of its drinking water supply as specified in the plans and specifications approval letter and have periodic inspections of the supply done by qualified personnel during the term of the loan.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9075 SANCTIONS.

If a project fails to conform to approved plans and specifications, or a financial assistance recipient fails to comply with the requirements of parts 4720.9000 to 4720.9080, the commissioner must request the authority to withhold or terminate either total or partial disbursements to the financial assistance recipient. Once an agreement for correcting the condition which led to the withholding of funds is reached between the commissioner and the financial assistance recipient, the commissioner must recommend to the authority that the retained funds be released according to the provisions of the agreement.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*

4720.9080 DISPUTES.

A person adversely affected by an action of department staff may request a review of the action. A request for review must be submitted in writing to the commissioner by the person within 45 days of the date of notification of the commissioner's final decision. The request must be reviewed under parts 4720.9000 to 4720.9080 by the commissioner.

Statutory Authority: *MS s 446A.081*

History: *22 SR 397*