

1.1 **Department of Agriculture**

1.2 **Adopted Permanent Rules Relating to Groundwater Protection**

1.3 **1573.0010 DEFINITIONS.**

1.4 Subpart 1. **Scope.** The terms used in this chapter have the meanings given them in
1.5 this part. Other terms used in this chapter are defined in the part in which the terms are used.
1.6 Terms used in this chapter that are not specifically defined in applicable federal or state law
1.7 shall be construed in conformance with the context and in relation to the applicable section
1.8 of the statutes pertaining to the matter and current professional usage.

1.9 Subp. 2. **Alternative management tools.** "Alternative management tools" means
1.10 specific practices and solutions as described in part 1573.0090, subpart 1, other than nitrogen
1.11 fertilizer best management practices, that are approved by the commissioner to address
1.12 groundwater nitrate problems. Alternative management tools include precision agricultural
1.13 methods that can be used for the precise, variable, and site-specific application of nitrogen
1.14 fertilizer.

1.15 Subp. 2a. **Capture zone.** "Capture zone" means the subsurface area surrounding a
1.16 well or well field through which water is likely to move toward and reach the well supplying
1.17 a public water system with water.

1.18 Subp. 3. **Coarse textured soils.** "Coarse textured soils" means soils that are sand,
1.19 loamy sand, fine sand, loamy fine sand, coarse sand, loamy coarse sand, very fine sand,
1.20 loamy very fine sand, single grained, or any of these textures with the following textural
1.21 modifiers: gravelly, cobbly, channery, and flaggy, based on the United States Department
1.22 of Agriculture, Natural Resources Conservation Service, Web Soil Survey.

1.23 Subp. 4. **Commissioner.** "Commissioner" means the commissioner of agriculture.

2.1 Subp. 5. **Cropland.** "Cropland" means land used primarily for the production or
2.2 harvest of annual or perennial field, forage, food, fiber, or energy crops. Cropland includes
2.3 pasture but does not include forestland.

2.4 Subp. 6. **Drinking water supply management area.** "Drinking water supply
2.5 management area" has the meaning given in part 4720.5100, subpart 13.

2.6 Subp. 7. **Fall application.** "Fall application" means the application of nitrogen fertilizer
2.7 to cropland after August 31 in each calendar year.

2.8 Subp. 8. **Frozen soil.** "Frozen soil" means soil frozen to a depth that does not allow
2.9 for the proper placement and incorporation of nitrogen fertilizer. For purposes of this subpart,
2.10 proper placement means that a responsible party is able to incorporate granular products
2.11 within three days of application at a minimum depth of three inches below the surface of
2.12 the soil.

2.13 Subp. 9. **Groundwater.** "Groundwater" has the meaning given in Minnesota Statutes,
2.14 section 115.01, subdivision 6.

2.15 Subp. 10. **Groundwater monitoring network.** "Groundwater monitoring network"
2.16 means a network of wells used by the commissioner to monitor and test nitrate-nitrogen
2.17 concentrations in groundwater.

2.18 Subp. 11. **Growing season.** "Growing season" means the period of time from planting
2.19 to physiological maturity of crops identified by the nitrogen fertilizer best management
2.20 practices.

2.21 Subp. 12. **Lag time.** "Lag time" means the period of time it takes for nitrate to travel
2.22 through an unsaturated zone to impact groundwater quality in an aquifer being monitored.

2.23 Subp. 13. **Leaching index.** "Leaching index" means the annual precipitation minus
2.24 evapotranspiration for the years 1981-2010 as calculated at daily intervals using the gridMet
2.25 dataset.

3.1 Subp. 14. **Local advisory team.** "Local advisory team" means a team of individuals
3.2 approved by the commissioner who advise the commissioner regarding appropriate response
3.3 activities for a specific local area.

3.4 Subp. 15. **Municipal public water supply well.** "Municipal public water supply well"
3.5 has the meaning given in part 4720.5100, subpart 22. For the purposes of this subpart,
3.6 municipal public water supply well also includes a rural water system.

3.7 Subp. 16. **Nitrogen fertilizer best management practices.** "Nitrogen fertilizer best
3.8 management practices" means practices associated with nitrogen use that are adopted by
3.9 the commissioner pursuant to Minnesota Statutes, section 103H.151, subdivision 2.

3.10 Subp. 17. **Nitrogen fertilizer.** "Nitrogen fertilizer" means a substance containing
3.11 nitrogen that is used for its plant nutrient content, is designed for use or claimed to have
3.12 value in promoting plant growth, and requires a guaranteed analysis under Minnesota
3.13 Statutes, section 18C.215. Nitrogen fertilizer does not include animal and vegetable manures
3.14 that are not manipulated, or marl, lime, limestone, biosolids, industrial by-product, industrial
3.15 wastewater, irrigation water, or other products exempted by the commissioner. Chemicals
3.16 or substances added to manure during storage to reduce odor or gas emissions or to prevent
3.17 foaming, or added to manure to extend the time the nitrogen component of manure remains
3.18 in the soil, are not considered a manipulation of manure.

3.19 Subp. 18. **Public well.** "Public well" means a community water system as defined in
3.20 part 4725.0100, subpart 23a.

3.21 Subp. 19. **Residual soil nitrate tests.** "Residual soil nitrate tests" means soil tests
3.22 conducted by or under the direction of the commissioner that are representative of changes
3.23 in soil nitrate levels in soil below the root zone for cropland within a drinking water supply
3.24 management area.

4.1 Subp. 20. **Responsible party.** "Responsible party" means the owner, operator, or
4.2 agent in charge of cropland.

4.3 Subp. 21. **Section.** "Section" means a subdivision of a township typically one square
4.4 mile in size as established under a public land survey system.

4.5 Subp. 22. **Spring frost-free date.** "Spring frost-free date" means the date where there
4.6 is a ten percent probability of observing a temperature of 32 degrees Fahrenheit or colder
4.7 based on the years 1981-2010 as published by the Minnesota State Climatology Office.

4.8 Subp. 23. **Vulnerable groundwater area.** "Vulnerable groundwater area" means land
4.9 with:

4.10 A. coarse textured soils;

4.11 B. soils that are shallow to bedrock as identified in the United States Department
4.12 of Agriculture, Natural Resources Conservation Service, Web Soil Survey; or

4.13 C. karst, as identified in the Department of Natural Resources Pollution Sensitivity
4.14 of Near-Surface Materials Report.

4.15 Vulnerable groundwater area does not include areas identified as ultra-low sensitivity in
4.16 the Department of Natural Resources Pollution Sensitivity of Near-Surface Materials Report.

4.17 **1573.0020 INCORPORATION BY REFERENCE.**

4.18 A. The documents in subitems (1) to ~~(4)~~ (5) and subsequent revisions are
4.19 incorporated by reference. The documents are not subject to frequent change and are available
4.20 as indicated:

4.21 (1) GridMET dataset, University of Idaho:

4.22 <http://www.climatologylab.org/gridmet.html>;

5.1 (2) United States Department of Agriculture, Natural Resources Conservation
5.2 Service, Web Soil Survey (various published dates):

5.3 <https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=MN>;

5.4 (3) Pollution Sensitivity of Near-Surface Materials Report, Minnesota
5.5 Department of Natural Resources (2016):

5.6 http://files.dnr.state.mn.us/waters/groundwater_section/mapping/mha/hg02_report.pdf; and

5.7 (4) Fertilizer Guidelines for Agronomic Crops in Minnesota, Lamb, John;
5.8 Kaiser, Daniel E.; Eliason, Roger; University of Minnesota Extension (2011):

5.9 [http://www.extension.umn.edu/agriculture/nutrient-management/nutrient-lime-](http://www.extension.umn.edu/agriculture/nutrient-management/nutrient-lime-guidelines/fertilizer-recommendations-for-agronomic-crops-in-minnesota/docs/BU-6240S-PUB.pdf)
5.10 [guidelines/fertilizer-recommendations-for-agronomic-crops-in-minnesota/docs/BU-6240S-PUB.pdf](http://www.extension.umn.edu/agriculture/nutrient-management/nutrient-lime-guidelines/fertilizer-recommendations-for-agronomic-crops-in-minnesota/docs/BU-6240S-PUB.pdf);

5.11 <https://conservancy.umn.edu/handle/11299/198924>;

5.12 (5) Farm Nutrient Management Assessment Program (FANMAP), Minnesota
5.13 Department of Agriculture:

5.14 <http://www.mda.state.mn.us/farm-nutrient-management-assessment-program-fanmap>.

5.15 B. The documents listed in item A can be found on the Department of Agriculture's
5.16 Web site.

5.17 **1573.0030 STATEWIDE WATER RESOURCE PROTECTION REQUIREMENTS.**

5.18 Subpart 1. **Prohibitions.**

5.19 A. A responsible party must not make:

5.20 (1) a fall application of nitrogen fertilizer to cropland located in a drinking
5.21 water supply management area from a municipal public water supply well with
5.22 nitrate-nitrogen levels greater than or equal to 5.4 mg/L at any point in the previous ten
5.23 years;

6.1 (2) a fall application of nitrogen fertilizer to cropland located in a quarter
6.2 section where vulnerable groundwater areas make up 50 percent or more of the quarter
6.3 section or government lot; or

6.4 (3) an application of nitrogen fertilizer to cropland with frozen soil located
6.5 in:

6.6 (a) a vulnerable groundwater area; or

6.7 (b) a drinking water supply management area that has nitrate-nitrogen
6.8 levels greater than or equal to 5.4 mg/L at any point in the previous ten years.

6.9 B. The commissioner shall annually develop a fall application restrictions map.
6.10 The commissioner shall post the fall restrictions map on the department's Web site by ~~March~~
6.11 January 15 of each year.

6.12 C. Any responsible party in charge of cropland in a vulnerable groundwater area
6.13 as depicted on the commissioner's vulnerable groundwater area map is subject to item A.

6.14 Subp. 2. **Exclusions.**

6.15 A. A responsible party in a county or a portion of a county is excluded from the
6.16 fall application restriction requirements under subpart 1 if the county or the portion of the
6.17 county meets one of the following conditions:

6.18 (1) the spring frost-free date in the county or a portion of the county is on or
6.19 after May 22 and has a leaching index less than or equal to -12 inches as determined by the
6.20 commissioner;

6.21 (2) the spring frost-free date in the county or a portion of the county is on or
6.22 after May 29 and the leaching index is less than or equal to -10 inches as determined by the
6.23 commissioner; or

7.1 (3) the spring frost-free date in the county or a portion of the county is on or
7.2 after June 5 and the leaching index is less than or equal to -6 inches as determined by the
7.3 commissioner.

7.4 B. The exclusion under this subpart applies to an entire county if a condition under
7.5 item A is represented on 50 percent or more of the land area of the county.

7.6 C. For purposes of determining the exclusion under item A, the commissioner
7.7 may subdivide a county by geographical boundary if there is a clear change in conditions
7.8 represented in a specific area of the county.

7.9 D. The exclusion under this subpart does not apply to a drinking water supply
7.10 management area with nitrate-nitrogen levels greater than or equal to 5.4 mg/L.

7.11 E. If cropland makes up less than three percent of a county's total land area, the
7.12 county is excluded from the requirements in subpart 1, item A.

7.13 F. The commissioner ~~may~~ shall exclude responsible parties in a drinking water
7.14 supply management area from the fall application restrictions in subpart 1 if the commissioner
7.15 determines there is a point source of nitrate-nitrogen contamination, including but not limited
7.16 to an improperly sealed well, an animal feedlot, or an agricultural chemical incident, that
7.17 is a significant source of nitrate-nitrogen contamination in the drinking water supply
7.18 management area's well. In determining whether there is a significant point source of
7.19 nitrate-nitrogen contamination, the commissioner shall:

7.20 (1) review the evaluation of point sources identified in the wellhead protection
7.21 plan approved under chapter 4720 for nitrate-nitrogen contributions to the municipal public
7.22 water supply well; or

7.23 (2) conduct a detailed review of potential contaminant sources in the area;
7.24 evaluate the condition and vulnerability of the municipal water supply well; determine the

8.1 hydrogeology and groundwater flow paths for groundwater flowing into the municipal
8.2 public water supply well; and if necessary, sample soil or other wells in the area; and

8.3 (3) based on the information obtained in subitem (1) or (2), determine whether,
8.4 but for the contamination from the point source, the municipal water supply well would not
8.5 exceed the reference value of 5.4 mg/L. If the municipal water supply well would not exceed
8.6 the reference value of 5.4 mg/L but for the contamination from the point source, the
8.7 responsible parties within the drinking water supply management area are excluded from
8.8 fall application restrictions under subpart 1, item A.

8.9 G. The commissioner ~~may~~ shall exclude part of a drinking water supply
8.10 management area from the fall application restriction if the commissioner determines that
8.11 the area is not contributing significantly to the contamination of the well in the drinking
8.12 water supply management area. In determining whether an area is not contributing
8.13 significantly, the commissioner shall apply the following:

8.14 (1) for drinking water supply management areas greater than 100,000 acres,
8.15 only the designated capture zone and vulnerable groundwater areas are subject to the fall
8.16 application restrictions under subpart 1, item A;

8.17 (2) for drinking water supply management areas that are less than 100,000
8.18 acres and for areas within a designated capture zone for drinking water supply management
8.19 areas greater than 100,000 acres:

8.20 (a) areas within the wellhead protection plan as approved by the
8.21 Department of Health under chapter 4720 that identify an area as low vulnerability are not
8.22 subject to the fall application restrictions under subpart 1, item A; or

8.23 (b) areas within a drinking water supply management area that have a
8.24 ten-foot or greater confining layer, as defined in part 4725.0100, subpart 24a, are not subject
8.25 to fall application restrictions under subpart 1, item A, unless computer modeling indicates

9.1 that leaching and infiltration of nitrate from sources at or near the ground surface is predicted
9.2 to result in nitrate exceeding 5.4 mg/L in the aquifer being monitored;

9.3 The commissioner shall regulate areas under this part by quarter section or by using the
9.4 boundaries in the wellhead protection plan for the drinking water supply management area.

9.5 **Subp. 3. Exceptions.**

9.6 A. Notwithstanding subpart 1, a responsible party may make a fall application of of
9.7 nitrogen fertilizer in a vulnerable groundwater area or drinking water supply management
9.8 area if the responsible party uses applicable nitrogen rates, as defined in item B, in the
9.9 following situations only:

9.10 (1) when nitrogen fertilizer is required to establish winter grains planted in
9.11 the fall;

9.12 (2) when nitrogen fertilizer is required for pasture fertilization;

9.13 (3) when nitrogen fertilizer is required for perennial crops;

9.14 (4) when nitrogen fertilizer is required for grass seed production. For purposes
9.15 of this subitem, grass seed production does not include corn production;

9.16 (5) when nitrogen fertilizer is required for cultivated wild rice; or

9.17 (6) when nitrogen fertilizer is required for growing cover crops for the specific
9.18 purpose of reducing commercial applications of soil fumigants to the subsequent potato
9.19 crop.

9.20 B. For purposes of item A, "nitrogen rates" means:

9.21 (1) the nitrogen rates included in the nitrogen fertilizer best management
9.22 practices adopted by the commissioner under Minnesota Statutes, section 103H.151,
9.23 subdivision 2; or

10.1 (2) if applicable nitrogen rates have not been adopted by the commissioner
10.2 under Minnesota Statutes, section 103H.151, subdivision 2, the nitrogen rates included in
10.3 the Fertilizer Guidelines for Agronomic Crops in Minnesota as published by the University
10.4 of Minnesota Extension.

10.5 C. Notwithstanding subpart 1 and in addition to item A, a responsible party may
10.6 make a fall application in a vulnerable groundwater area in the following situations:

10.7 (1) when applying ammoniated phosphate or micronutrient formulations
10.8 containing nitrogen, so long as the applied nitrogen rate does not exceed an average of 40
10.9 pounds per acre in a field. Fields that have had a soil analysis completed by a certified lab
10.10 and determined to have low to very low phosphorus levels according to the Fertilizer
10.11 Guidelines for Agronomic Crops in Minnesota are not subject to the 40 pounds per acre
10.12 total nitrogen rate;

10.13 (2) when making a land application of agricultural-chemical-contaminated
10.14 soil and other media according to Minnesota Statutes, section 18D.1052; or

10.15 (3) when making an application of nitrogen fertilizer for agricultural research
10.16 and demonstrations for academic purposes. Application of nitrogen fertilizer for agricultural
10.17 research and demonstrations is limited to 20 acres or less unless a higher acreage amount
10.18 is approved by the commissioner.

10.19 **1573.0040 DRINKING WATER SUPPLY MANAGEMENT AREA; MITIGATION**
10.20 **LEVEL DESIGNATION.**

10.21 Subpart 1. **Application.** This part applies to responsible parties in drinking water
10.22 supply management areas.

10.23 Subp. 2. **Evaluation of nitrate-nitrogen concentrations in groundwater.** The
10.24 commissioner shall evaluate nitrate-nitrogen concentrations in groundwater from public
10.25 wells in drinking water supply management areas for purposes of making drinking water

11.1 supply management area mitigation level 1 and 2 designations. The commissioner shall use
11.2 public well nitrate-nitrogen concentration data provided by the commissioner of health or
11.3 the commissioner of health's designee under chapter 4720 for this purpose. The commissioner
11.4 shall initially designate a drinking water supply management area as a mitigation level 1 or
11.5 a mitigation level 2 drinking water supply management area according to the criteria in
11.6 subpart 3. The commissioner shall make mitigation level determinations by January 15 for
11.7 monitoring data received by the commissioner before July 15 of the previous year, unless
11.8 there is good cause for delay. The data shall be submitted to the commissioner on forms or
11.9 in a format specified by the commissioner and shall meet data requirements specified by
11.10 the commissioner.

11.11 **Subp. 3. Criteria for initial mitigation level designation.**

11.12 A. The commissioner shall use the following criteria to make mitigation level
11.13 designations for drinking water supply management areas.

11.14 (1) To be designated as a mitigation level 1 drinking water supply management
11.15 area, the groundwater nitrate-nitrogen concentration of the public well in the drinking water
11.16 supply management area has been greater than or equal to 5.4 mg/L but less than 8.0 mg/L
11.17 at any point in the previous ten years.

11.18 (2) To be designated as a mitigation level 2 drinking water supply management
11.19 area, the groundwater nitrate-nitrogen concentration data of the public well in the drinking
11.20 water supply management area meets one of the following:

11.21 (a) the statistical analysis of the groundwater nitrate-nitrogen
11.22 concentration data for the previous ten years demonstrates that the groundwater
11.23 nitrate-nitrogen concentration of the public well is projected to exceed the health risk limit
11.24 in the next ten years; or

12.1 (b) the nitrate-nitrogen concentration of the public well ~~is~~ has been 8.0
12.2 mg/L or greater at any point in the previous ten years.

12.3 B. For a nonmunicipal public water supply well, the commissioner may make
12.4 exceptions for increasing a mitigation level designation based on:

12.5 ~~(1) whether there has been a significant change in the amount of land used~~
12.6 ~~for agricultural production~~ change in cropland use within the drinking water supply
12.7 management area; and computer modeling or published leaching loss data indicates that
12.8 the reduction in leaching of nitrate is predicted to result in the public well not exceeding
12.9 the criteria for a mitigation level.

12.10 ~~(2) the severity of the nitrate-nitrogen concentration found in other wells in~~
12.11 ~~the drinking water supply management area;~~

12.12 ~~(3) the population affected by the groundwater contamination of~~
12.13 ~~nitrate-nitrogen; and~~

12.14 ~~(4) other factors expected to influence nitrate-nitrogen concentrations.~~

12.15 C. The commissioner ~~may~~ shall exclude responsible parties in a drinking water
12.16 supply management area from mitigation level ~~determinations~~ designations in subpart 2 if
12.17 the commissioner determines there is a point source of nitrate-nitrogen contamination,
12.18 including but not limited to an improperly sealed well, an animal feedlot, or an agricultural
12.19 chemical incident, that is a significant source of nitrate-nitrogen contamination in the drinking
12.20 water supply management area's well. In determining whether there is a significant point
12.21 source of nitrate-nitrogen contamination, the commissioner shall:

12.22 (1) review the evaluation of point sources identified in wellhead protection
12.23 plans approved under chapter 4720 for nitrate-nitrogen contributions to the municipal public
12.24 water supply well; or

13.1 (2) conduct a detailed review of potential contaminant sources in the area;
13.2 evaluate the condition and vulnerability of the public well; determine the hydrogeology and
13.3 groundwater flow paths for groundwater flowing into the public well; and if necessary,
13.4 sample soil or other wells in the area; and

13.5 (3) based on the information obtained in subitem (1) or (2), determine whether,
13.6 but for the contamination from the point source, the public well would not exceed the criteria
13.7 for increasing a mitigation level.

13.8 D. The commissioner ~~may~~ shall exclude part of a drinking water supply
13.9 management area from a mitigation level designation if the commissioner determines that
13.10 the area is not contributing significantly to the contamination of the public well in the
13.11 drinking water supply management area. In determining whether the area is not contributing
13.12 significantly, the commissioner shall apply the following:

13.13 (1) areas within the wellhead protection plan as approved by the Department
13.14 of Health under chapter 4720 that identify an area as low vulnerability shall not be included
13.15 in the mitigation area designation; or

13.16 (2) the commissioner shall not include areas within a drinking water supply
13.17 management area that have a ten-foot or greater confining layer, as defined in part 4725.0100,
13.18 subpart 24a, in the mitigation level designation, unless computer modeling indicates that
13.19 leaching and infiltration of nitrate from sources at or near the ground surface is predicted
13.20 to result in nitrate exceeding 5.4 mg/L in the aquifer being monitored.

13.21 The commissioner shall regulate areas under this part by quarter section or by using the
13.22 boundaries in the wellhead protection plan for the drinking water supply management area.

14.1 Subp. 4. **Determination of nitrogen fertilizer best management practices and**
14.2 **mitigation levels.**

14.3 A. For a mitigation level 2 drinking water supply management area, the
14.4 commissioner shall determine the nitrogen fertilizer best management practices applicable
14.5 for that drinking water supply management area. The commissioner may form a local
14.6 advisory team to consult on the determination of applicable nitrogen fertilizer best
14.7 management practices.

14.8 B. The commissioner shall provide notice to the public of the designation of a
14.9 drinking water supply management area as a mitigation level 2 and the nitrogen fertilizer
14.10 best management practices that are applicable to that drinking water supply management
14.11 area through publication in the legal newspaper for the affected drinking water supply
14.12 management area and on the Department of Agriculture's Web site.

14.13 Subp. 5. **Monitoring.**

14.14 A. The commissioner shall monitor a drinking water supply management area's
14.15 nitrate-nitrogen concentrations pursuant to Minnesota Statutes, section 103H.251, subdivision
14.16 2. For purposes of the monitoring required by this subpart, the commissioner may:

14.17 (1) use groundwater nitrate-nitrogen concentrations of a public well provided
14.18 by the commissioner of health or the commissioner's designee; or

14.19 (2) establish a groundwater monitoring network to determine changes in
14.20 water quality in the drinking water supply management area.

14.21 B. If the commissioner establishes a groundwater monitoring network, the
14.22 commissioner must design the groundwater monitoring network to represent the drinking
14.23 water supply management area or a portion of the drinking water supply management area
14.24 being monitored.

15.1 C. The commissioner may conduct residual soil nitrate tests to evaluate changes
15.2 in residual soil nitrate for cropland within a drinking water supply management area.

15.3 Subp. 6. **Nitrogen fertilizer best management practices evaluation.**

15.4 A. The commissioner shall conduct an evaluation in designated mitigation level
15.5 2 drinking water supply management areas to determine whether the nitrogen fertilizer best
15.6 management practices approved by the commissioner have been implemented by responsible
15.7 parties on at least 80 percent of the cropland, excluding soybean cropland. The commissioner
15.8 shall not conduct an evaluation under this subpart for at least three growing seasons
15.9 subsequent to the publication of the nitrogen fertilizer best management practices applicable
15.10 to the drinking water supply management area. The commissioner may conduct periodic
15.11 evaluations during the three growing seasons to monitor the drinking water supply
15.12 management area's progress.

15.13 B. When conducting an evaluation under this subpart, the commissioner shall
15.14 consider:

15.15 (1) cropland where a responsible party has implemented approved alternative
15.16 management tools as being in compliance with nitrogen fertilizer best management practices
15.17 applicable to that drinking water supply management area;

15.18 (2) cropland certified by the Minnesota Agricultural Water Quality
15.19 Certification Program as being cropland in compliance with all nitrogen fertilizer best
15.20 management practices;

15.21 (3) nitrogen fertilizer best management practices not to be implemented if
15.22 the responsible party does not provide information or provides insufficient information to
15.23 the commissioner to make a determination related to the implementation of nitrogen fertilizer
15.24 best management practices on that cropland; and

16.1 (4) practices that do not meet the nitrogen fertilizer best management practices
16.2 to be in compliance with the nitrogen fertilizer best management practices if the
16.3 noncompliance is due to an agricultural emergency or other extreme circumstance as
16.4 determined by the commissioner; ~~and.~~

16.5 ~~(5) cropland where a manure management plan has been implemented by the~~
16.6 ~~responsible party as cropland that has implemented nitrogen fertilizer best management~~
16.7 ~~practices if the manure management plan has been approved and determined to be~~
16.8 ~~implemented by the commissioner of the Pollution Control Agency or the commissioner's~~
16.9 ~~designee, and includes the nitrogen fertilizer best management practices determined~~
16.10 ~~applicable for the drinking water supply management area by the commissioner.~~

16.11 Subp. 7. **Mitigation level 2 drinking water supply management area; mitigation**
16.12 **designation review.**

16.13 A. The commissioner shall review the water quality and monitoring data of a
16.14 mitigation level 2 drinking water supply management area and either provide a new
16.15 mitigation level designation or maintain the existing mitigation level designation for the
16.16 drinking water supply management area after no fewer than three growing seasons or the
16.17 lag time, whichever is longer, following the commissioner's initial mitigation level 2
16.18 designation. However, if residual soil nitrate testing is conducted, the review period shall
16.19 not be less than three growing seasons. The commissioner shall review the mitigation level
16.20 designation not less than every three growing seasons thereafter.

16.21 B. The commissioner shall designate a mitigation level 2 drinking water supply
16.22 management area as a mitigation level 1 drinking water supply management area if the
16.23 commissioner determines that the statistical analysis for nitrate-nitrogen concentrations in
16.24 the public well is not projected to exceed the health risk limit and the groundwater
16.25 nitrate-nitrogen concentration has been below 8.0 mg/L for ten years.

17.1 C. The commissioner shall designate a mitigation level 2 drinking water supply
17.2 management area as a mitigation level 3 drinking water supply management area if
17.3 responsible parties within the drinking water supply management area have implemented
17.4 nitrogen fertilizer best management practices on less than 80 percent of cropland and:

17.5 (1) the statistical analysis of the nitrate-nitrogen concentration of the public
17.6 well within the drinking water supply management area for the past ten years is projected
17.7 to exceed the health risk limit in the next ten years; or

17.8 (2) the nitrate-nitrogen concentration of the public well within the drinking
17.9 water supply management area is 8.0 mg/L or more at any point in the previous ten years.

17.10 D. The commissioner shall designate a mitigation level 2 drinking water supply
17.11 management area as a mitigation level 3 drinking water supply management area if the net
17.12 residual nitrate in soil below the root zone is increasing after not less than three growing
17.13 seasons within the drinking water supply management area.

17.14 E. The commissioner shall designate a mitigation level 2 drinking water supply
17.15 management area as a mitigation level 3 drinking water supply management area if the
17.16 statistical analysis indicates the nitrate-nitrogen concentration is increasing for the public
17.17 well or groundwater monitoring network.

17.18 F. The mitigation level remains a mitigation level 2 unless one of the criteria in
17.19 items B to E is met.

17.20 G. If responsible parties within a drinking water supply management area have
17.21 demonstrated progress ~~in addressing nitrates in groundwater~~ by changing agricultural or
17.22 land use practices within the drinking water supply management area, so that the public
17.23 well does not meet the criteria of a mitigation level 3 as shown by computer modeling data
17.24 or residual soil nitrate testing, the commissioner may grant a onetime exemption from
17.25 designating a mitigation level 2 drinking water supply management area as a mitigation

18.1 level 3 drinking water supply management area for a period equal to the period for the
18.2 mitigation level designation decision under item A.

18.3 ~~H. The commissioner may make exceptions for increasing a mitigation level~~
18.4 ~~designation if there has been a significant change in land use in a drinking water supply~~
18.5 ~~management area.~~

18.6 Subp. 8. **Mitigation level 3 drinking water supply management areas; mitigation**
18.7 **level designation review.**

18.8 A. The commissioner shall review the water quality and monitoring data of a
18.9 mitigation level 3 drinking water supply management area and either make a new mitigation
18.10 level designation or maintain the existing mitigation level designation for the drinking water
18.11 supply management area after no fewer than three growing seasons or the lag time, whichever
18.12 is longer, following the commissioner's initial mitigation level 3 designation. However, if
18.13 residual soil nitrate testing is conducted, the review period shall not be fewer than three
18.14 growing seasons. The commissioner shall review the mitigation level designation not fewer
18.15 than every three growing seasons thereafter.

18.16 B. The commissioner shall designate a mitigation level 3 drinking water supply
18.17 management area as a mitigation level 1 drinking water supply management area if the
18.18 commissioner determines that the statistical analysis for nitrate-nitrogen concentrations in
18.19 the public well is not projected to exceed the health risk limit and the groundwater
18.20 nitrate-nitrogen concentration has been below 8.0 mg/L for ten years.

18.21 C. The commissioner shall designate a mitigation level 3 drinking water supply
18.22 management area as a mitigation level 4 drinking water supply management area if the
18.23 nitrate-nitrogen concentration of the public well within the drinking water supply
18.24 management area is 9.0 mg/L or higher for any three samples in the previous ten years
18.25 unless a statistical trend analysis indicates nitrate-nitrogen concentrations have decreased.

19.1 D. The commissioner shall designate a mitigation level 3 drinking water supply
19.2 management area as a mitigation level 4 drinking water supply management area if net
19.3 residual nitrate in soil below the root zone is increasing after not less than three growing
19.4 seasons within the drinking water supply management area.

19.5 E. The commissioner shall designate a mitigation level 3 drinking water supply
19.6 management area as a mitigation level 4 drinking water supply management area if the
19.7 statistical analysis of the nitrate-nitrogen concentration in the public well or in the
19.8 groundwater monitoring network is increasing.

19.9 F. The mitigation level remains a mitigation level 3 unless one of the criteria in
19.10 items B to E is met.

19.11 G. If responsible parties within a drinking water supply management area have
19.12 demonstrated progress ~~in addressing nitrate in groundwater~~ by changing agricultural or land
19.13 use practices, so that the public well does not meet the criteria of a mitigation level 4 as
19.14 shown by computer modeling data or residual soil nitrate testing, the commissioner may
19.15 grant a onetime exemption from designating a mitigation level 3 drinking water supply
19.16 management area as a mitigation level 4 drinking water supply management area for a
19.17 period equal to the period for the mitigation level designation decision under item A.

19.18 Subp. 9. **Mitigation level 4 drinking water supply management area; mitigation**
19.19 **level designation review.**

19.20 A. The commissioner shall review the water quality and monitoring data of a
19.21 mitigation level 4 drinking water supply management area and either make a new mitigation
19.22 level designation or maintain the existing mitigation level 4 designation for the drinking
19.23 water supply management area after no fewer than three growing seasons or the lag time,
19.24 whichever is longer, following the commissioner's initial mitigation level 4 designation.
19.25 However, if residual soil nitrate testing is conducted, the review period shall not be less

20.1 than three growing seasons. The commissioner shall review the mitigation level designation
20.2 every three growing seasons thereafter.

20.3 B. The commissioner shall designate a mitigation level 4 drinking water supply
20.4 management area as a mitigation level 3 drinking water supply management area if:

20.5 (1) the statistical analysis for groundwater nitrate-nitrogen concentrations in
20.6 the public well shows that the well is not projected to exceed the health risk limit for a
20.7 period of ten years; and

20.8 (2) the groundwater nitrate-nitrogen concentrations in the public well have
20.9 not reached or exceeded 9.0 mg/L for any three samples in the past ten years.

20.10 Subp. 10. **Limitation on change in designation.** The commissioner shall not designate
20.11 a drinking water supply management area more than one mitigation level higher than the
20.12 drinking water supply management area's previous designation for a minimum of three
20.13 growing seasons.

20.14 **1573.0050 WATER RESOURCE PROTECTION REQUIREMENTS ORDER.**

20.15 Subpart 1. **Commissioner's water resource protection requirements order.**

20.16 A. The commissioner shall issue a water resource protection requirements order
20.17 to responsible parties in mitigation level 3 and 4 drinking water supply management areas
20.18 that meet the criteria in part 1573.0040, subparts 7 to 9. The commissioner shall use the
20.19 nitrate-nitrogen concentration results obtained in part 1573.0040, subpart 5, to issue a water
20.20 resource protection requirements order for a mitigation level 3 or 4 drinking water supply
20.21 management area.

20.22 B. If a groundwater monitoring network is installed or residual soil nitrate testing
20.23 is conducted in the drinking water supply management area, then a commissioner's order
20.24 applies to the entire drinking water supply management area.

21.1 C. If a groundwater monitoring network is not installed or residual soil nitrate
21.2 testing is not conducted in the drinking water supply management area, then the
21.3 commissioner's order applies to the area within the drinking water supply management area
21.4 for which land surface practices may impact water quality within the monitored well after
21.5 the recommended nitrogen fertilizer best management practices for the drinking water supply
21.6 management area are first published by the commissioner. This area shall be determined
21.7 based on the estimated travel time, including lag time, for nitrate-nitrogen to travel from
21.8 the place of application to the well.

21.9 D. In prioritizing the issuance of water resource protection requirements orders
21.10 throughout the state, the commissioner shall consider the following:

21.11 (1) the nitrate-nitrogen concentration in drinking water supply management
21.12 areas as determined by the commissioner of health's public well data or the groundwater
21.13 monitoring network data;

21.14 (2) the size of the population at risk receiving water from the public well in
21.15 the drinking water supply management area due to high nitrate in groundwater;

21.16 (3) whether the drinking water supply management area has a water treatment
21.17 system; and

21.18 (4) the potential cost for a new water treatment system or systems.

21.19 E. A commissioner's water resource protection requirements order shall include
21.20 the following:

21.21 (1) the mitigation level of the drinking water supply management area;

21.22 (2) the drinking water supply management area that is subject to the water
21.23 resource protection requirements order;

22.1 (3) the water resource protection requirements for the drinking water supply
22.2 management area that is subject to the water resource protection requirements order;

22.3 (4) the effective date of the water resource protection requirements order;
22.4 and

22.5 (5) information on a responsible party's right to request a contested case
22.6 hearing regarding the water resource protection requirements order.

22.7 F. A commissioner's water resource protection requirements order applies to
22.8 responsible parties in a drinking water supply management area that is subject to a water
22.9 resource protection requirements order.

22.10 G. The commissioner may exclude part of a drinking water supply management
22.11 area from the water resource protection requirements order if the commissioner determines
22.12 that the area is not contributing significantly to the contamination ~~in the well or it is not~~
22.13 ~~practicable to include that part~~ of the well. In determining whether an area is not contributing
22.14 significantly, the commissioner shall apply the following:

22.15 (1) areas within the wellhead protection plan as approved by the Department
22.16 of Health under chapter 4720 that identify an area as low vulnerability are not subject to
22.17 the water resource protection requirements order; or

22.18 (2) areas within a drinking water supply management area that have a ten-foot
22.19 or greater confining layer, as defined in part 4725.0100, subpart 24a, are not subject to the
22.20 water resource protection requirements order, unless computer modeling indicates that
22.21 leaching and infiltration of nitrate from sources at or near the ground surface is predicted
22.22 to result in nitrate exceeding 5.4 mg/L in the aquifer being monitored.

22.23 The commissioner shall regulate areas under this part by quarter section or using the
22.24 boundaries in the wellhead protection plan for the drinking water supply management area.

23.1 H. The commissioner shall issue a water resource protection requirements order
23.2 within 180 days of receiving all the information required in part 1573.0040, subparts 7, 8,
23.3 and 9. For good cause shown, the commissioner may extend the deadline by 180 days.

23.4 **Subp. 2. Notice of proposed water resource protection requirements order.**

23.5 A. The commissioner shall hold at least one public informational meeting in the
23.6 county of the mitigation area subject to the proposed water resource protection requirements
23.7 order before publishing the proposed water resource protection requirements order.

23.8 B. The commissioner shall provide notice of the proposed water resource protection
23.9 requirements order to all known affected responsible parties within the drinking water supply
23.10 management area. If personal notification is not practicable, the commissioner shall publish
23.11 notice of the proposed water resource protection requirements order in two consecutive
23.12 issues of the legal newspaper for the affected drinking water supply management area and
23.13 in the State Register.

23.14 C. The commissioner shall also provide the notice required under item B to the
23.15 following entities whose jurisdiction includes a mitigation area:

23.16 (1) cities;

23.17 (2) township boards;

23.18 (3) counties;

23.19 (4) soil and water conservation districts; and

23.20 (5) watershed districts.

23.21 D. The commissioner shall also provide the notice required under item B to the
23.22 executive director of the Board of Water and Soil Resources, the commissioner of natural
23.23 resources, the commissioner of the Pollution Control Agency, the commissioner of health,
23.24 and the executive director of the Environmental Quality Board.

24.1 E. The commissioner must provide or publish the notices required under this
24.2 subpart at least 60 days before the proposed effective date of the water resource protection
24.3 requirements order.

24.4 Subp. 3. **Contested case hearing.**

24.5 A. Following notice of the proposed water resource protection requirements order
24.6 as required by subpart 2, any person or entity subject to the water resource protection
24.7 requirements order may petition the commissioner for a contested case hearing to challenge
24.8 a water resource protection requirements order.

24.9 B. A petition for a hearing must contain a statement of the issue or issues proposed
24.10 to be addressed at the hearing as well as the part of the proposed water resource protection
24.11 requirements order to be challenged. The petition must also contain the specific relief or
24.12 resolution requested as well as the proposed findings of fact in dispute.

24.13 C. Upon receipt of a timely petition for a hearing, the commissioner shall order
24.14 a public hearing. The commissioner shall publish the order for hearing in the legal newspaper
24.15 for the affected drinking water supply management area and in the State Register at least
24.16 30 days before the public hearing. The public hearing shall be held within 60 days of the
24.17 proposed effective date of the proposed water resource protection requirements order. The
24.18 hearing shall be held before an administrative law judge in the county in which the mitigation
24.19 area is located and in accordance with the requirements of Minnesota Statutes, chapter 14,
24.20 and the rules relating to contested case proceedings.

24.21 D. The administrative law judge shall submit recommended findings of fact,
24.22 conclusions of law, and the final order to the commissioner and each petitioner no later than
24.23 30 days from the conclusion of the public hearing.

25.1 E. Any party to the hearing may submit written exceptions and argument to the
25.2 commissioner up to ten business days from the date of issuance of the recommendations
25.3 from the administrative law judge.

25.4 F. Within 30 days of the issuance of the recommended findings of fact, conclusions
25.5 of law, and final order by the administrative law judge, the commissioner shall issue a final
25.6 water resource protection requirements order, which is the final decision of the agency for
25.7 a contested case for purposes of judicial review under Minnesota Statutes, sections 14.63
25.8 to 14.69.

25.9 G. The commissioner shall publish notice of the final water resource protection
25.10 requirements order in two consecutive issues of the legal newspaper for any affected drinking
25.11 water supply management area.

25.12 The commissioner shall also provide the notice of the final water resource protection
25.13 requirements order to the executive director of the Board of Water and Soil Resources, the
25.14 commissioner of natural resources, the commissioner of the Pollution Control Agency, the
25.15 commissioner of health, and the executive director of the Environmental Quality Board.

25.16 Subp. 4. **Final water resource protection requirements order.** If the commissioner
25.17 does not receive any petitions requesting a hearing under subpart 3 within 60 days of the
25.18 notice of the proposed water resource protection requirements order as required by subpart
25.19 2, the published proposed water resource protection requirements order is effective on the
25.20 date provided in the proposed water resource protection requirements order.

25.21 Subp. 5. **Amendment to a water resource protection requirements order.**

25.22 A. The commissioner may amend the content of a water resource protection
25.23 requirements order based on the content of part 1573.0070.

25.24 B. The commissioner shall provide notice of proposed amendments to a water
25.25 resource protection requirements order to all known affected responsible parties within the

26.1 drinking water supply management area. If personal notification is not practicable, the
26.2 commissioner shall publish notice of proposed amendments to a water resource protection
26.3 requirements order in two consecutive issues of the legal newspaper for any affected drinking
26.4 water supply management area and in the State Register at least 30 days before the proposed
26.5 effective date of the amendments. The commissioner shall also provide notice of proposed
26.6 amendments to a water resource protection requirements order to the executive director of
26.7 the Board of Water and Soil Resources, the commissioner of natural resources, the
26.8 commissioner of the Pollution Control Agency, the commissioner of health, and the executive
26.9 director of the Environmental Quality Board at least 30 days before the proposed effective
26.10 date of the amendments.

26.11 C. Any person or entity subject to proposed amendments to a water resource
26.12 protection requirements order has 30 days from the date of notice of the amendments under
26.13 item B to provide written comments to the commissioner on the proposed amendments.

26.14 D. The commissioner shall publish notice of the amended final water resource
26.15 protection requirements order in two consecutive issues in the legal newspaper for any
26.16 drinking water supply management area affected by the amendments to the water resource
26.17 protection requirements order.

26.18 E. The amended final water resource protection requirements order is effective
26.19 upon publication under item D.

26.20 **Subp. 6. Judicial review.**

26.21 A. Any person or entity subject to a final water resource protection requirements
26.22 order or an amended water resource protection requirements order may seek judicial review
26.23 pursuant to Minnesota Statutes, sections 14.63 to 14.69.

27.1 B. For judicial review of an amended water resource protection requirements
27.2 order, only the amendments to the water resource protection requirements order are subject
27.3 to judicial review.

27.4 Subp. 7. **Recording.** The commissioner shall record all final water resource protection
27.5 requirements orders and amendments for water resource protection requirements in the
27.6 appropriate county.

27.7 **1573.0060 REQUIREMENTS FOR WATER RESOURCE PROTECTION**
27.8 **REQUIREMENTS ORDERS.**

27.9 A. A responsible party in a mitigation level 3 or 4 drinking water supply
27.10 management area must comply with the following:

27.11 (1) maintain field-specific records for six years, starting with the effective
27.12 date of the water resource protection requirements order. The records required to be kept
27.13 under this subitem must document nitrogen fertilizer use, including but not limited to its
27.14 application date, application rate, any credit given for organic and inorganic nitrogen sources,
27.15 the timing of the nitrogen fertilizer application, the source of the nitrogen, and nitrogen's
27.16 placement;

27.17 (2) provide records maintained under this part to the commissioner upon
27.18 request;

27.19 (3) comply with the prohibitions on fall application and application to frozen
27.20 soils under part 1573.0030, unless the application is excluded from the prohibitions under
27.21 part 1573.0030, subpart 2; and

27.22 (4) comply with any water resource protection requirements orders that apply
27.23 to the drinking water supply management area governing the cropland over which the
27.24 responsible party has control.

27.25 B. This chapter is enforceable pursuant to Minnesota Statutes, chapter 18D.

28.1 **1573.0070 WATER RESOURCE PROTECTION REQUIREMENTS ORDER**
28.2 **CONTENTS.**

28.3 Subpart 1. **Mitigation level 3.**

28.4 A. The commissioner shall consider including the following requirements for
28.5 responsible parties in a water resource protection requirements order for mitigation level 3
28.6 drinking water supply management areas:

28.7 (1) nitrogen fertilizer best management practices approved by the
28.8 commissioner pursuant to Minnesota Statutes, section 103H.151, subdivision 2;

28.9 (2) application guidelines for nitrogen fertilizer from the University of
28.10 Minnesota;

28.11 (3) educational activities approved by the commissioner;

28.12 (4) field testing to determine nitrogen requirements for specific crops;

28.13 (5) testing of manure using a lab approved or certified by the commissioner;

28.14 (6) testing as needed to monitor nitrate-nitrogen concentrations in the
28.15 groundwater;

28.16 (7) nitrogen crediting from previous crops, manure application, irrigation
28.17 application, and all other sources of nitrogen;

28.18 (8) irrigation, fertilizer chemigation, water, manure, and nutrient management
28.19 plans developed or approved by a qualified professional;

28.20 (9) soil amendments registered with the commissioner that reduce the need
28.21 for or improve the use of nitrogen;

28.22 (10) plant amendments registered with the commissioner that improve the
28.23 efficient use of nitrogen inputs;

28.24 (11) products delaying nitrification, approved by the commissioner; or

29.1 (12) products delaying plant available nitrogen, approved by the
29.2 commissioner.

29.3 B. The commissioner may require alternative management tools to be used in
29.4 drinking water supply management areas provided that a source of funding for increased
29.5 costs related to the implementation of the alternative management tool is available to
29.6 responsible parties. The commissioner shall select alternative management tools for purposes
29.7 of this subpart in consultation with the local advisory team. The commissioner shall not
29.8 restrict the selection of the primary crop.

29.9 Subp. 2. **Mitigation level 4.** The commissioner shall consider including the
29.10 requirements in items A to C for responsible parties in a water resource protection
29.11 requirements order for mitigation level 4 drinking water supply management areas:

29.12 A. any requirement listed in subpart 1;

29.13 B. specific nitrogen fertilizer rate requirements for crops. The commissioner shall
29.14 not set rate requirements for nitrogen fertilizer below the lowest University of Minnesota
29.15 recommended rate; and

29.16 C. water resource protection requirements as defined in Minnesota Statutes, section
29.17 103H.005, subdivision 15, and that meet factors under Minnesota Statutes, section 103H.275,
29.18 subdivision 2a. The commissioner shall not restrict the selection of the primary crop.

29.19 Subp. 3. **Exceptions.** The commissioner may provide exceptions to a water resource
29.20 protection requirements order ~~on a site-specific basis.~~ if the commissioner determines the
29.21 order could not be implemented because of:

29.22 A. adverse weather conditions including late spring thaw, heavy rainfall, drought,
29.23 or other extreme weather event;

29.24 B. crop failure for any reason including plant diseases or pest infestations; or

30.1 C. the required practice is agronomically or technically unsuitable for a specific
30.2 field based on the soil types, topography, or the crops grown.

30.3 **1573.0080 MINNESOTA AGRICULTURAL WATER QUALITY CERTIFICATION**
30.4 **PROGRAM EXEMPTION.**

30.5 A responsible party certified through the Minnesota Agricultural Water Quality
30.6 Certification Program under Minnesota Statutes, sections 17.9891 to 17.993, is deemed to
30.7 be in compliance with this chapter for the duration of the water quality certification.

30.8 **1573.0090 ALTERNATIVE MANAGEMENT TOOLS; ALTERNATIVE**
30.9 **PROTECTION REQUIREMENTS.**

30.10 Subpart 1. **Alternative management tools.**

30.11 A. The commissioner shall maintain a list of alternative management tools on the
30.12 Department of Agriculture's Web site.

30.13 B. The commissioner shall identify on the list of alternative management tools if
30.14 an alternative management tool can be substituted for a nitrogen fertilizer best management
30.15 practice in the nitrogen fertilizer best management practice evaluation.

30.16 C. A responsible party subject to a water resource protection requirements order
30.17 may implement an alternative management tool as an alternative to a specific requirement
30.18 in a water resource protection requirements order only if the commissioner states in the list
30.19 of alternative management tools that the alternative management tool is a substitute for a
30.20 nitrogen fertilizer best management practice. A responsible party must keep records of all
30.21 alternative management tools used and the specific water resource protection requirements
30.22 order that allows the alternative management tool to be used.

30.23 D. A responsible party may use an alternative management tool in addition to the
30.24 requirements in the water resource protection requirements order.

31.1 **Subp. 2. Alternative protection requirements.**

31.2 A. A person subject to a water resource protection requirements order may apply
31.3 to the commissioner to suggest an alternative protection requirement pursuant to Minnesota
31.4 Statutes, section 103H.275, subdivision 2, paragraph (e).

31.5 B. All applications for alternative protection requirements shall be made on a
31.6 form approved by the commissioner.

31.7 **EFFECTIVE DATE.** Minnesota Rules, part 1573.0030, is effective January 1, 2020.