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| Minnesota Pollution Control Agency (MPCA), 520 Lafayette Road North, St. Paul, MN 55155-4194 | Manure Management Plan  Reviewer’s checklist  Feedlot Program  *Doc Type: Permit Approval* |

**Instructions:** A complete *Manure Management Plan* (MMP) will include each of the items listed below. For items not marked with an “X” in the checkbox, list the reasons why that section is not acceptable in the comments area at the end of each section.

## Facility information

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| Facility name: |  | | | | |
| Facility location: |  | | | | |
| Registration No.: |  | Review date: |  | Reviewer’s initials: |  |

1. Manure storage, handling, and testing

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| **1.1** | **Manure storage description** (Minn. R. 7020.2225, subp. 4, item D(1)) |
|  | Type of storage areas are described. |
|  | Storage capacity and number of months of storage. |
|  | Type and number of animals contributing to each storage area are included. |
|  | Comments: |
| **1.2** | **Manure nutrient content** (Minn. R. 7020.2225, subp. 4, item D(4) and subp. 2) |
|  | Testing frequency shows testing at least once every four years and once per year for the first three years (annually for NPDES permits). |
|  | Sampling procedures and protocol are described. |
|  | Estimated nutrient content of manure(s) is listed and is based on past laboratory test results (or average book values for new facilities). |
|  | Comments: |
| **1.3** | **Amount of manure generated** (Minn. R. 7020.2225, subp. 4, item D(1)) |
|  | Tons of solid manure and gallons of liquid manure to be land applied from each storage area per year are listed (based on records from past fewyears). |
|  | Annual amount of nitrogen available from all manure storage areas are listed (based on records of amount hauled in past years times the manure nutrient content). |
|  | Annual amount of phosphorus available from all manure storage areas is listed. |
|  | Comments: |
| **1.4** | **Method of application** (Minn. R. 7020.2225, subp. 4, item D(2)) |
|  | Method of application, including number of days between application and incorporation. |
|  | Equipment calibration practices (if not using a certified commercial applicator). |
|  | Comments: |

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| **1.5** | **Timing of application** (Minn. R. 7020.2225, subp. 4, item D(8)(13)) |
|  | Expected months of application are listed. |
|  | For June, July or August applications, type of cover crop to be planted to harvested fields without actively growing crops is described. |
|  | NPDES permits: Manure is applied to *sandy* soils during spring or mid-to late fall (after soils are less than 50 degrees F) |
|  | Comments: |

2. Field Locations and Acreage

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| **2.1** | **Maps or aerial photos** (Minn. R. 7020.2225, subp. 4, item D(3)(10)) |
|  | Fields are shown on maps or aerial photos. |
|  | Maps or aerial photos highlight planned setbacks. |
|  | Winter application fields are identified on map(s). |
|  | Comments: |
| **2.2** | **2.2 Number of acres** (Minn. R. 7020.2225, subp. 4, item D(3)) |
|  | Total number of acres for application is identified. |
|  | Acreage excludes land not suitable for application (due to setbacks, wetlands, etc.). |
|  | Identified acreage is sufficient to handle manure nitrogen. |
|  | Identified acreage is sufficient to receive manure phosphorus (P) without extreme soil P build-up over time. |
|  | Comments: |
| **2.3** | **Winter application fields** (Minn. R. 7020.2225, subp. 4, item D(10)) |
|  | Field locations for winter application are generally those farthest from waters and no applications will occur within 300 feet of waters (i.e., special protection areas). |
|  | Slopes for winter application sites are listed in the plan and generally are the flattest land available. |
|  | Conservation practices (e.g., contour tillage) are described for winter application sites. |
|  | NPDES permits: Fields for emergency spreading of liquid manure in the winter are identified in the MMP and meet permit requirements. |
|  | NPDES permits: winter application criteria for solid manure are met, as required in permit, including six percent slope restrictions and phosphorus index showing a low rating. |
|  | Comments: |
| **2.4** | **Soil conservation practices (CAFOs)** (40 CFR Part 122.42 (e) (1) (vi)) |
|  | NPDES permits: Soil conservation practices are described. |
|  | Comments: |

3. Field Specific Nutrient Management

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| **3.1** | **Crop rotations** (Minn. R. 7020.2225, subp. 4, item D(5)) |
|  | Crop rotations are described and show which crops in the rotation will receive manure. |
|  | NPDES permits: Likely alternative crop rotations. |
|  | Comments: |

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| **3.2** | **Crop nutrient needs from manure** (Minn. R. 7020.2225, subp. 4, item D(5) and subp. 3) |
|  | Nitrogen (N) needs for non-legumes and N removal for legumes is described for fields receiving manure. |
|  | Range of expected crop yields are listed and realistic. |
|  | Crop N needs account for previous year legume N credits. |
|  | Crop N needs account for N credits from alfalfa or red clover grown two years ago. |
|  | Crop N needs are consistent with recommendations from the University of Minnesota or from another University in IA, WI, ND, or SD. |
|  | Plans for soil nitrate testing are described, where recommended by the University of Minnesota. |
|  | N credits from the previous year manure applications are accounted for (i.e. continuous corn) |
|  | Crop phosphorus (P) needs are identified and based on soil P test results. |
|  | NPDES permits: Methodology for determining crop N and P needs for specific manure application sites. |
|  | Comments: |
| **3.3** | **Planned rates of manure application** (Minn. R. 7020.2225, subp. 4, item D(5) and subp. 3) |
|  | Manure rates specific for each field or cropping situation are described. |
|  | Rates are consistent with crop nutrient needs and expected manure nutrient content/availability. |
|  | NPDES permits: Methodology for determining manure application rates based on N and P content. |
|  | Comments: |
| **3.4** | **Available nutrients from applied manure** (Minn. R. 7020.2225, subp. 4, item D(7) and subp. 3) |
|  | Amounts of N and P available to the first crop following manure application are described (lbs/acre). |
|  | The sum of all manure applied to individual fields approximately equals the expected amount of manure generated at the feedlot. |
|  | Comments: |
| **3.5** | **Total nutrients available to crops from all sources** (Minn. R. 7020.2225, subp. 4, item D(6)) |
|  | Total N amounts per acre available to each crop are described (manure N + fertilizer N + other N). |
|  | Added commercial fertilizer N does not result in total N additions that are above crop N needs. |
|  | Total P amounts per acre are listed and include fertilizer P. |
|  | Methodology for determining manure application rates taking into account other sources of N and P if applicable. |
|  | Comments: |
| **3.6** | **Nitrogen carry-over into following year** (Minn. R. 7020.2225, subp. 4, item D(7) and subp. 3) |
|  | Manure and/or fertilizer additions during the year following manure application are reduced to account for second year N credits. The amount of carry-over N is incorporated into the plan. |
|  | Comments: |

4. Sensitive areas management

See local requirements, feedlot permit conditions, and the publication “Applying Manure in Sensitive Areas.”

| **4.1** | **Special protection areas** (Minn. R. 7020.2225, subp. 4, item D(9) and subp. 6) |
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|  | **Protective measures are described when applying manure within 300 feet of:** |
|  | Lakes; |
|  | DNR protected wetlands (i.e., over ten acres); |
|  | streams and intermittent streams; and |
|  | drainage ditches without protective berms. |
|  | All protective measures for the above areas meet minimum state and county requirements, and otherwise provide sufficient protection of waters. |
|  | NPDES permits: Alternatives to a 100-foot setback or 35 to 100-foot grassed buffer demonstrate equivalent or better water quality protection using Minnesota Pollution Control Agency (MCPA) form or other documentation. |
|  | Comments: |

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| **4.2** | **Other avenues to surface water** (Minn. R. 7020.2225, subp. 4, item D(9) and subp. 7) |
|  | In flood plains; |
|  | within 300 feet of surface tile intakes, including, at a minimum, injection or incorporation within 24 hours; and |
|  | within 300 feet of non-protected wetlands (e.g., less than ten acres). |
|  | All protective measures for the above areas meet minimum state and county requirements, and otherwise provide sufficient protection of waters. |
|  | Comments: |
| **4.3** | **Groundwater protection** (Minn. R. 7020.2225, subp. 4, item D(9)) |
|  | **Protective measures are described when applying manure:** |
|  | in a vulnerable drinking water supply management area; |
|  | within 300 feet of sinkholes; and |
|  | on land with less than three feet of soil above bedrock. |
|  | All protective measures for the above features meet minimum state and county requirements, and otherwise provide sufficient protection of waters. |
|  | Comments: |
| **4.4** | **High phosphorus soils** (Minn. R. 7020.2225, subp. 4, item D(11) and subp. 3, item C – requirements if over 300 animal units (AU)) |
|  | Soils are tested for P at least once every four years. |
|  | Soil P is managed in special protection areas to prevent increasing P levels over any six-year period (where soil P levels are already high enough for crop needs and a 50 to 100-foot buffer has not been established). |
|  | Manure application is avoided on soils exceeding 150 parts per million (ppm) Bray or 120 ppm Olsen in areas outside of special protection areas, or to soils exceeding 75 ppm Bray or 60 ppm Olsen in special protection areas (if not avoided, the plan includes a strategy to protect water quality, e.g., meet all NRCS standards for high P soils and prevent continued soil phosphorus build-up). |
|  | NPDES permits: Methodology for describing how soil phosphorus test results will be used to comply with soil phosphorus requirements. |
|  | Comments: |