

Worksheet
For Nutrient Management Plan
Submittal to Regional Water Board to help meet requirements
of Draft Dairy GWDR R1-2019-0001

Introduction: Dairy GWDR Conditions section J.3. Nutrient Management Plan, states that if solid or liquid manure or other fertilizer is applied to the dairy land, or dairy animals graze the dairy land for more than 30 days annually, then a Nutrient Management Plan (NMP) must be completed and implemented consistent with the technical standards specified in Attachment D – Appendix 2, by **November 30, 2020**. This worksheet is due to the Regional Water Board by **November 30, 2021**. Dairies with a previous NMP may need to update the NMP by this date to address new NMP requirements of the GWDR. In the case of newly enrolling dairies, the NMP is due to be completed and implemented within **two years of enrollment** of this Order. Newly enrolling dairies include goat, sheep, or water buffalo dairies, or re-opening of previously abandoned dairies, new dairies, or expanding dairies that have increased their maximum milking herd size.

Purpose: The purpose of an NMP is to ensure that the facility is designed, constructed, operated, and maintained so that nutrients and wastes generated and applied to fields are managed to prevent conditions of nuisance or adverse impacts to groundwater and surface water. The NMP must be specific to the maximum number of dairy cattle and kept onsite.

NMP Compliance Questions:

Date: _____

Dairy Name and facility address: _____

Please state the name of the person(s), affiliated organization, and their specialty from the above list that worked on your dairy NMP, including nutrient budget calculations: _____

Does the dairy have a NRCS approved CNMP? ___Yes ___No

If yes, what is the year of your NRCS approved CNMP? _____ Year of updates? _____

Year that the CNMP started being implemented at the dairy? _____

- 1. Contents of an NMP.** The NMP must contain, at a minimum, the components listed below. There is no need to duplicate information already in a Water Quality Plan on record at the Regional Water Board.

Nutrient Budget Calculations: The NMP must include calculations showing all sources of nutrients used by the facility and demonstrating that nutrients are applied at rates that are protective of water quality. These calculations must be reviewed annually and updated if there are any significant changes in conditions or practices at the dairy that necessitate changes in the NMP.

These calculations may be reviewed by Regional Water Board staff during inspections.

The details of the nutrient budget are discussed in GWDR Attachment D, Appendix 2, Section D.

Land application practices and water quality protection: The NMP must:

- a. Describe the methods by which manure and process water are applied to land; _____

- b. List the areas that are used for manure pond water application and a general schedule for periods of time when manure ponds are reaching maximum capacity and rainstorms are imminent: _____

2. Nutrient Budget Calculations

The Discharger shall develop a nutrient budget that establishes the nutrient application practices for each crop in each land application area.

Nutrient application rates shall not approach a site's maximum ability to contain one or more nutrients through soil adsorption. If the nutrient budget shows that the nutrients generated by the dairy exceed the amount needed by crops in the land application area, then the Discharger must implement management practices that will prevent impacts to surface water or groundwater due to application of excess nutrients. Such practices may include obtaining access to additional land for nutrient application, exporting manure, or reducing the number of cows at the dairy. Does the nutrient budget show that the dairy applies nutrients at or below the site's maximum ability to contain the nutrients through soil adsorption?

___ Yes, ___ No. If no, please explain: _____

Specific nutrients are discussed below.

Nitrogen: Nitrogen shall be measured at the dairy through water and soil sampling. Does the dairy operator measure nitrogen at the dairy through water and soil sampling? ___ Yes, ___ No. If no, please explain:

Application rates shall not result in total nitrogen exceeding the recommendations by UCCE, NRCS, other local information, or 1.4 times the anticipated nitrogen removal in forage.

If application of total nitrogen to a land application area exceeds the budgeted application rate for the specific land application area, the Discharger shall either revise the nutrient budget to prevent such exceedance in the future or demonstrate and record that the application rates have not contaminated surface or ground water. Applications of nitrogen exceeding the initial recommendations are allowable if the following conditions are met:

Is the nitrogen application rate at or below the maximum the professional recommended nitrogen application rate at each dairy location? ___ Yes, ___ No. If no, please explain:

Phosphorus and Potassium: Application of these nutrients at agronomic levels, along with reasonable erosion control and runoff control measures, will normally prevent water quality problems. In some instances, other best management practices may need to be included in the NMP. How is the dairy ensuring that storm runoff does not discharge nutrients such as phosphorus and potassium to streams? _____

3. Land Application Practices

Application of manure and process water to croplands shall be at rates which are reasonable for the crop, soil, climate, special local situations, management systems, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand and shall be in accordance with the nutrient budget calculations. What practices at the dairy ensure that manure and process water is being applied to croplands at reasonable rates for the land? _____

The timing of nutrient application must correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. Please explain what time of year manure and process water are applied to fields and how this timing maximizes plant nutrient uptake: _____

Please identify all surface water or potential conduits to surface water that are within 100 feet of any land application area. What actions does the dairy take to protect water quality so that nutrient application to land does not result in discharges to surface waters? _____

a. **Setbacks:** Please explain how land application areas that receive dry manure and process water are managed to minimize erosion of soil and nutrients to surface waters. For instance, the dairy may have setbacks, vegetated buffers, or berms that protect streams from nutrient runoff: _____

b. Best Management Practices to protect surface water:

i. Manure and wastewater discharges to land, including spray irrigation, shall be conducted during non-saturated conditions, must not result in runoff to surface waters and must infiltrate completely within 72 hours after application. Does the dairy meet this requirement? ___Yes, ___No. If no, what alternative practices does the dairy implement that protect surface waters? _____

ii. Land application areas that receive dry manure and/or process water shall be managed to minimize erosion. What practices does the dairy implement to minimize erosion to

prevent manure, process water, and sediment discharge to surface waters?

- iii. Spray irrigation applications must be accurately timed and regularly monitored in order to prevent discharges to surface waters and/or beyond the property line. What practices does the dairy implement to time and monitor spray irrigation applications to prevent discharges to surface waters and to prevent discharges off the property?

- c. **Avoiding conduits that can transport pollutants:** The NMP Appendix 2, section E.3. states that, "Manure and process water shall not be applied closer than 100 feet to open tile line intake structures, sinkholes, or well heads unless the NMP contains a statement from a professional explaining that an alternative practice will be as protective as the 100-foot separation. This professional must be a registered or certified engineering geologist or hydrogeologist, or a responsible professional with experience in manure containment and structural facility specification. Documentation from initial wellhead construction may be acceptable upon review by Regional Water Board staff."

If the dairy has an approved CNMP, a technical service provider or NRCS staff person reviewed tile line intake structures, sinkholes, or well heads. Does the CNMP recommend improvements to these structures to protect surface waters or groundwater?

___ Yes. ___ No. If yes, please explain the status of such improvements: _____

- d. **Wetland Protection:** Wetlands must be protected and degradation must be avoided. Wetlands containing standing water shall be protected through dairy cow exclusion and the exclusion of manure or process water application. How does the dairy CNMP or NMP address wetland water quality protection? _____

What practices does the dairy exercise to protect wetlands? _____

- e. **Sampling, Analysis, and Calculations**

Soil, manure, soil amendments, process water, irrigation water, and plant tissue shall be monitored, sampled, and analyzed, in accordance to the U.S. Department of Agriculture, Natural Resource Conservation Service, 590-Practice Procedures for Nutrient Management, or an alternative sampling analysis program developed by technical specialist (as described above in Section A) and approved by the Executive Officer.

How has the dairy met this requirement? _____

Samples of soils at each field type shall be analyzed for the following constituents at least once every 5 years as a requirement of the NMP. Sampling results shall be reviewed to verify that levels do not exceed limits needed to maintain acceptable crop yields and prevent adverse impacts to water quality. If this review determines that a buildup of nutrients threatens water quality, application rates must be decreased until the situation is corrected. How has the dairy met this requirement and what year was the soil last analyzed for N, P, and K? _____

4. Field Risk Assessment

Has stormwater sampling shown that excessive nutrient discharges are occurring from the dairy to surface waters? ___ Yes. ___ No. If yes, how have the sample results been used to modify dairy practices? _____

5. Manifests and Third-Party Agreements

Manifests are required to be kept onsite to record transfer of waste (sell or give away manure) outside facilities and must be kept as part of the NMP. Has the dairy allowed the transfer of waste to outside facilities? ___ Yes. ___ No. If yes, how does the dairy record and file these transfers? _____

6. Record-Keeping and NMP Review

The Discharger must maintain nutrient management and application records and use the records for revisions to the NMP. These records may be in the dairy NRCS CNMP or NMP.

Does the dairy maintain the following records for five (5) years?

- a. All analysis of manure, process wastewater, irrigation water, soil, plant tissue, discharges (including tailwater discharges), surface water, subsurface (tile) drainage, and groundwater. (See contents of NMP in GWDR Appendix 2). ___ Yes ___ No
If yes, please explain where this information is located such as at NRCS, or in CNMP at dairy, or in National Organic Program records at dairy: _____

If no, please explain: _____

- b. All records for nutrient management and land application areas:

- i. Expected and actual crop yields (or estimated yields if crop is grazed) ___ Yes, ___ No.
If no, please explain: _____

- ii. Identification of crop, acreage, and dates of planting and harvest for each field:
___ Yes, ___ No. If no, please explain: _____

- iii. Dates, locations, and approximate weight of manure applied to each field; ___ Yes ___ No
If no, please explain: _____

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- iv. Dates, locations, and volume of process wastewater applied to each field; ___ Yes, ___ No. If no, please explain: _____

 - v. Whether precipitation occurred, or standing water was present, at the time of manure and process wastewater applications and for 24 hours prior to and following applications; ___ Yes, ___ No. If no, please explain: _____

 - vi. Test methods and procedures for soil; ___ Yes, ___ No. If no, please explain: _____

 - vii. Results from manure, process, process wastewater, irrigation water, soil, plant tissue, discharge (including tailwater), and stormwater sampling; ___ Yes, ___ No. If no, please explain: _____

 - viii. Explanation for the basis for determining manure or process wastewater application rates: ___ Yes, ___ No. If no, please explain: _____

 - ix. General calculations showing the total nitrogen, phosphorous, and potassium to be applied to each field, including sources other than manure or process wastewater (Nutrient Budget); ___ Yes, ___ No. If no, please explain: _____

 - x. Nutrient Budget Calculations from Section 2 above; ___ Yes, ___ No. If no, please explain: _____

 - xi. The method(s) used to apply manure and/or process wastewater; ___ Yes, ___ No. If no, please explain: _____

 - xii. Records documenting any corrective actions taken to correct deficiencies noted as a result of the inspections required in the Monitoring Requirements above. Deficiencies not corrected in 30 days must be accompanied by an explanation of the factors preventing immediate correction; ___ Yes ___ No ___ N/A meaning the dairy has not taken corrective actions to correct deficiencies. If no, please explain: _____

 - xiii. Manure manifests: ___ Yes ___ No ___ N/A meaning the dairy does not transfer waste to outside facilities). If no, please explain: _____
