APPENDIX 2

General Waste Discharge Requirements for Dairies
Order No. R1-2019-0001
Monitoring and Reporting Program

Nutrient Management Plan

Owners and operators of dairies (hereinafter identified as "Dischargers") seeking coverage under the General Waste Discharge Requirements for Dairies Order No. R1-2019-0001 (Order) and who apply manure and/or dairy process water to land as a soil amendment or source of nutrients are required to develop and implement a Nutrient Management Plan (NMP). Also, if the dairy animals graze the dairy land for more than 30 days annually, then an NMP must be completed and implemented consistent with the technical standards specified in this NMP. Manure and process water cannot be applied to land for the purpose of disposal. Manure and process water that are wastes must be disposed at an appropriate permitted disposal facility. NMPs are not required for dairies that do not land apply manure~~;~~. A certified and implemented Comprehensive Nutrient Management Plan or Nutrient Management Plan from the below list of specialists may substitute for this appendix if the CNMP or NMP meets the purpose of the GWDR and this appendix for the protection of water quality.

A. NMP Purpose and Implementation

The purpose of the NMP is to identify the management practices used at the dairy to minimize adverse impacts to surface water and groundwater from runoff and leaching from land application areas. The NMP is specific for a particular dairy and considers crops, soil types, climate, local conditions, all sources of nutrients, and the non-nutrient salts applied to each field. All nutrient applications to land at a dairy, including applications to pasture, must be made in accordance with an NMP. Implementation of the NMP is closely linked to each facility's waste management system, monitoring program, and environmental conditions. The NMP must be updated in response to changing conditions and the results of monitoring.

For dairies covered by the Order, the NMP must be developed by the Dischargers with the assistance of specialists such as those with a degree in or certification from: Soil Scientist, Agronomist, Crop Advisor, University of California Cooperative Extension (UCCE) or Resource Conservation District service advisor or technician, or a Technical Service Provider certified by the Natural Resources Conservation Service (NRCS). In particular, Dischargers shall obtain assistance from these specialists in completing the nutrient budget calculations. The most current version of the NMP must be kept at the facility and must be made available for review by Regional Water Board staff during inspections. Regional Water Board staff may approve the use of alternative specialists. For dairies that are not Concentrated Animal Feeding Operations (CAFOs), development of the NMP can begin upon applying for coverage under the Order. For instance, the

NOI (Attachment A) collects initial information for starting an NMP. For existing dairies, the NMP must be completed by **November 30, 2020**, if the dairy doesn't already have an NMP. If existing dairies already have an NMP from before adoption of this Order, then the NMP must be updated to meet the requirements in this appendix by November 30, 2020.

A worksheet regarding dairy compliance with these NMP requirements is to be filled out and submitted to the Regional Water Board by **November 30, 2021** (see enclosure worksheet located at the end of this Appendix 2).

For re-opening, new, or expanding dairies, the NMP must be completed within two (2) years of dairy enrollment in the GWDR. The Regional Water Board may approve an alternative schedule for submittal of MRP reports, including for the NMP, to dairies implementing an approved nutrient offset project.

Dairies that meet the definition of a large CAFO that are not point sources, but meet the conditions of the GWDR, and want to enroll under this Order must be implementing an NMP upon enrollment if they will discharge stormwater from cropland where manure, litter, or process wastewater has been applied.

The most current version of the NMP must be kept at the dairy and must be made available for review by Regional Water Board staff during inspections. The NMP shall be submitted to the Regional Water Board upon request.

The NMP shall be revised within 30 days when discharges from a land application area result in exceedance of water quality objectives. The NMP shall be revised within 90 days when any of the following occur:

1. Site-specific information becomes available to replace default values used in the initial NMP;
2. Changes in operating practices result in the production of nutrients that are not addressed by the NMP;
3. Crops will be grown that are not covered by the NMP;
4. There is a change of 15% or more in the acreage used for land application; or
5. The NMP is not effective in preventing periodic discharges of manure or process water to Waters of the United States (U.S.).

The Discharger shall review the NMP annually and revise it if changes in conditions or practices at the dairy require changes in the NMP. The review/revision date must be noted in the NMP. Records on the timing and amounts of manure and process water applied to land and information developed through a Monitoring and Reporting Program (MRP) associated with the GWDR for the dairy must be considered when making decisions related to nutrient management.

B. Management of Dairy Manure and Process Water

Compliance with the following management measures is required once the Discharger begins implementation of the NMP. Best Management Practices

(BMPs) must be in place to prevent discharges to surface waters at all times:

1. The collection, treatment, storage, or application of manure or process water shall not result in:
    a. Degradation of surface water or groundwater except as allowed by the Order;
    b. Contamination or pollution of surface water or groundwater; or
    c. A condition of nuisance (as defined by the California Water Code Section 13050).
2. This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota. The application of manure and process water shall not violate any applicable local, state, or federal laws or regulations or contribute to an exceedance of any applicable water quality objective in the Basin Plan or of any applicable state or federal water quality criteria.
3. The discharge of process water to surface water is prohibited.
4. The discharge of stormwater to surface water from land where manure or process water has been applied is prohibited unless all applications to land are in accordance with an NMP.
5. The application of manure and process water to land shall be in accordance with an NMP.

C. Contents of NMP

The NMP must contain, at a minimum, the components listed below. Some of the information provided to the Regional Water Board for the Water Quality Plan (GWDR Attachment D-Appendix 1) may be also utilized for the NMP (example: dairy contact information, maps, and measurements such as nutrients).

1. **Contact Information:** The name, mailing address, and phone number of (a) the dairy owner, (b) the dairy operator (if different), and (c) any specialist who participated in the development of the NMP.

2. **Specific dates:** The date that the NMP was completed, the date that the NMP will be implemented, and the dates of anticipated NMP reviews and revisions.

3. **Description of the dairy:** The following information must be included:
    a. name of the dairy;
    b. the dairy address or, if no street number, the street and nearest cross street;
    c. design maximum cow population by type (milk cows, dry cows, heifers, calves);
    d. current cow population by type;
    e. Assessor's Parcel Number(s) for the dairy and all associated land;
    f. for each Assessor's Parcel, the total acreage; the acreage used for crops including pasture, the acreage used for application of (a) manure, (b) process water, or (c) both;
    g. the crop rotation, if any, within each land application area.

4. **Maps:** One or more United States Geological Survey quadrangle maps or equivalent showing the location of the dairy and all areas under the Discharger's control, whether owned, rented, or leased, to which manure or process water may be applied. If suitable, an aerial photo with appropriate notations may be utilized. The map(s), aerial photos, and/or drawings (see next section) should show the locations of all the following that exist at the dairy. More than one map may be used for clarity.

~~a.~~

a. Surface watercourses and conveyances;
b. ~~b.~~ Pipelines (above and/or underground);
c. ~~c.~~ Where process water is mixed with irrigation water or discharged;
d. ~~d.~~ Drainage flows for the production area and each field;
e. ~~e.~~ Drainage ditches and drainage easements;
f. ~~f.~~ Drainage controls (berms, levees, etc.) for tailwater and stormwater;
g. ~~g.~~ Extent of subsurface (tile) drainage systems and associated discharge ~~points~~;
h. ~~h.~~ Pumping facilities and flow meters;
i. ~~i.~~ Wells and well type (domestic, industrial, agricultural, or monitoring);
j. ~~j.~~ Storm water discharge points;
k. ~~k.~~ Point(s) locating any septic systems;
l. ~~l.~~ All water quality sampling points; and
m. ~~m.~~ A map legend.

Note: In some cases, the map provided in the WQP may be utilized also for the NMP.

5. **Drawings:** A scaled drawing, aerial photo or topographic map that shows the following. These drawings, photos or maps may also be used to show the locations of features listed above under "Maps" above.

a. ~~a.~~ Production area (including the livestock feeding and housing areas);
b. ~~b.~~ Feed storage areas;
c. ~~c.~~ Manure and process water storage areas;
d. ~~d.~~ Milk barn;
e. ~~e.~~ Chemical storage areas; and
f. ~~f.~~ Waste storage areas.

6. **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 below in Section D.

7. **Land application practices and water quality protection:** The NMP must:
~~a.~~

a. Describe the methods by which manure and process water is applied to land;
b. ~~b.~~ Describe the BMPs that are implemented to protect surface water and groundwater; and
c. ~~c.~~ List the areas that are used ~~for~~where liquid manure ~~pond water application~~is applied under normal, drought, and ~~a general schedule for periods of time~~in emergency situations such as when manure ponds are reaching maximum capacity and rainstorms are ~~eminent~~imminent. The goal is to prevent discharges of manure to surface water and groundwater.

Note: Land application practices are discussed below in Section E.

8. Sampling and analysis program: The NMP must describe the associated sampling program including sampling locations, sampling frequency, sample collection and preservation procedures. The NMP must identify the analytical laboratory utilized and the analyses to be conducted for soil, manure, soil amendments, process water, irrigation water, plant tissue, etc. The laboratory utilized must be certified, or if not certified it must be approved by the Regional Water Board staff. Laboratory analysis methods are identified in California Analytical Methods Manual for Dairy General Order Compliance – Nutrient Management Plan Constituents:

https://anlab.ucdavis.edu/media/pdf/uc_analytical_methods.pdf

Note: The sampling and analysis program is discussed below in Section F.

D. Nutrient Budget Calculations

The Discharger shall develop a nutrient budget that establishes the nutrient application practices for each crop in each land application area. The initial nutrient budget may be based on default values if site-specific information is not available[1]~~.~~ ~~Subsequent nutrient budgets~~, Use of default values are common for initial nutrient management calculations for the first year of nutrient planning. Subsequent nutrient budgets, starting the second year of nutrient planning, shall be based on site-specific analytical data for soil, manure, process water, irrigation water, other sources of nutrients,
and plant tissue. Note that irrigation well sampling is not necessary if the groundwater well sampled has the same nutrient concentration (i.e. is of the same origin). The nutrient budget shall include the following:

[1] Crop nutrient needs may be based on recommendations from the University of California or the Western Fertilizer Handbook (9th Edition). Acceptable default values for the nutrient content of materials include values recognized by the American Society of Agricultural and Biological Engineers (ASABE), the Natural Resources Conservation Service (NRCS), and/or the University of California that accurately estimate. The nutrient content of commercial fertilizers shall be California Department of Food and Agriculture published values.

1. ~~1.~~ The rate of nutrient applications (e.g., pounds of nitrogen per acre) based on default values or site-specific analytical data in order to meet each crop's needs for nitrogen and phosphorus without exceeding the application rates that will protect water quality. The rate of nutrient applications shall be based on realistic yield goals for each crop in each ~~land~~ application area. For new crops or varieties, industry yield expectations may be used until site-specific yield information is available.

2. ~~2.~~ The quantity of manure, soil amendments, and/or process water to be applied shall be based on the nutrient content of the material, the characteristics of the material (e.g., the amount of organic nitrogen), and the site conditions (e.g., if a pasture is not grazed or mowed, the amount of residual nutrients in soil will be higher). In determining the quantity to apply, the Discharger shall consider all sources of nutrients including irrigation water, commercial fertilizers, and previous crops.

~~3.~~ The timing of applications shall be based on seasonal and climatic conditions, the growth stage of the crop, and the availability of water. The anticipated maximum time between land application events

3. (i.e., the storage period) shall be used to determine the needed storage capacity for manure and process water.

4. ~~4.~~ The method of manure, soil amendment, and process water application for each crop in each land application area shall be based on site-specific conditions and shall minimize the discharge of sediments, nutrients, and salts from the application area.

5. ~~5.~~ 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.

6. Supplementary commercial fertilizers and/or soil amendments may be added when the application of nutrients contained in manure and process water alone is not sufficient to meet the crop needs. Specific nutrients are discussed below.

Nitrogen: Total Ammonia Nitrogen and Total Nitrogen shall be measured at the dairy through water and soil sampling. Nitrogen application rates shall not result in

total nitrogen applied to the land application areas exceeding the nitrogen application in each location as recommended by UCCE, NRCS, other local information, or 1.4 times the anticipated nitrogen removal in forage. CNMP or NMP values for nitrogen obtained through a specialist listed on page 1 may be used for the first year of nutrient planning. Nutrients specific to the dairy must be measured thereafter starting the second year of nutrient planning. Dischargers may request from the Executive Officer, alternative methods of obtaining nutrient values, for instance when values are expected to be the same or less than book values or values last measured at the dairy (e.g. stable herd sizes or smaller herd sizes).

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:

1. Soil Plant Available Nitrogen (PAN) testing or plant tissue testing has been conducted and indicates that additional nitrogen is required to obtain crop yield estimates typical for the soils and other local conditions;
2. The amount of additional nitrogen applied is based on the soil or tissue testing and is consistent with UCCE or NRCS guidelines or written recommendations from a nutrient management specialist or Certified Crop Advisor;
3. The form, timing, and method of application facilitates timely nitrogen availability to the crop; and
4. Records are maintained documenting the need for the additional applications.

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.

E. 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.

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. Land application areas that receive dry manure and process water shall be managed to minimize erosion.

The NMP must identify all surface water or potential conduits to surface water that

are within 100 feet of any land application area and take appropriate actions to protect water quality. The following sections discuss practices that reduce the potential for pollutants from land application areas to reach surface water.

1. ~~1.~~ **Setbacks, vegetated buffers, and other alternatives to protect surface water:** A setback is a specified distance that separates land application areas from surface water or a potential conduit to surface water, and where manure and dairy process water may not be applied, but where crops may be grown. A vegetated buffer is a relatively narrow (approximately 35 feet), permanent strip of dense perennial vegetation where no crops are grown and which is established perpendicular to the dominant slope of a land application area for the purposes of slowing water runoff, enhancing water infiltration, trapping pollutants bound to sediment, and minimizing the risk of pollutants reaching surface waters. A berm is another alternative to prevent runoff from reaching surface water.

   Manure and process water shall not be applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback; or an alternative conservation practice or field-specific condition that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback. Any alternative practice utilized must be described in the NMP or Riparian Management Plan.

   Animals must be separated from surface waters by a 35-foot wide vegetated buffer unless an alternative practice demonstrating equal or better water quality protection is utilized and described in the NMP or Riparian Management Plan. Alternative practices may include rocked crossings, fences, bridges, culverts, engineered slopes, etc. Vegetation along flowing watercourses shall be protected from overgrazing to maintain natural water temperatures and protect stream banks.

   Flash grazing of the vegetated buffer, as an alternative practice, must be described in the NMP or Riparian Management Plan.

   Practices for establishing and maintaining vegetated buffers include:

   ~~a.~~ Limiting removal of vegetation within the buffers and promoting ~~—~~
   a. ~~—~~plant growth in the buffer;
   b. ~~b.~~ Maintaining the recommended height for the plant species;
   c. ~~c.~~ Establishing plant density for adequate filtering capacity;
   d. ~~d.~~ Improving soil conditions to reduce erosion and increase infiltration; and
   e. ~~e.~~ Preventing erosion channels and gullies from forming.

2. **Best Management Practices to protect surface water:**

a. 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;
~~runoff to surface waters and must infiltrate completely within 72 hours after application.~~

b. ~~b.~~ Land application areas that receive dry manure and/or process water ~~—~~shall be managed to minimize erosion~~.~~; and

~~c.~~ Spray irrigation applications must be accurately timed and regularly~~—~~ ~~—~~ monitored in order to prevent discharges to surface waters and/or

c. ~~—~~ beyond the property line.

3. **Avoiding conduits that can transport pollutants:** Manure and process water shall not be applied closer than 100 feet to open tile line intake structures, culverts, 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.

4. **Wetland Protection**: Wetlands are waters of the state and are protected under state regulations by provisions of the California Water Code. Wetlands are also protected as waters of the ~~U.S~~state. under the federal Clean Water Act. The beneficial use of wetlands must be protected against water quality degradation. Discharges of manure and process water to wetlands with standing water must be addressed in the NMP. Wetlands containing standing water shall be protected through dairy cow exclusion and the exclusion of manure or process water application.

F. 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, Code 590-Conservation Practice ~~Procedures~~Standard for Nutrient Management for California, or an alternative sampling analysis program developed by technical ~~education administrator~~specialist (as described above in Section A), and approved by the Executive Officer. For plant tissue analysis, a field composite from 10 grab samples may be retrieved throughout the harvest of the field to represent the field (Miller et. al. 2018). Note that additional sampling of irrigation water is not necessary if irrigation water is from a well sampled for groundwater and results are the same. Nitrogen analysis must be current. See section D above for more information on nutrient analysis. The analytical results shall be used during the development, implementation, and revision of the NMP.

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.

Manure and other organic by-product analyses must include total nitrogen (N), ammonium, total phosphorus (P) or P_2O_5, total potassium (K) or K_2O, and percent moisture. Microwave moisture content for solid manure is allowed (Karle et.al. 2008).

Nutrient credit from previous legume crops shall be determined by methods acceptable to the UCCE, the NRCS, Resource Conservation District, or a technical service provider that is NRCS certified in developing NMPs.

The NMP must identify the analytical laboratory utilized and the analysis to be conducted for soil, manure, soil amendments, process water, irrigation water, plant tissue, etc. The laboratory utilized must be certified and use the analysis methods identified in California Analytical Methods Manual for Dairy General Order Compliance – Nutrient Management Plan Constituents: https://anlab.ucdavis.edu/media/pdf/uc_analytical_methods.pdf

G. Field Risk Assessment

Dischargers are required to sample discharges of stormwater from land application

areas to surface water, as detailed in the MRP. The analytical results for those samples shall be used by the Discharger to assess water quality conditions and to inform management practices. If results indicate a potential for adverse impacts to receiving waters, the Discharger shall modify their NMP to reduce such movement and collect additional samples to assess the effectiveness of the modifications.

Land application areas must be managed to prevent contamination of crops grown for human consumption. When crops grown for human consumption without processing (berries, nut trees, etc.) are grown near to land application areas, the Discharger shall take appropriate actions to prevent movement of pathogens that could cause adverse impacts to human health.

H. Manifests and Third-Party Agreements

Manifests are required to be kept onsite to record transfer of waste outside facilities and must be kept as part of the NMP. The application of manure or process water to lands not owned, leased, or controlled by the Discharger without written permission from the landowner is prohibited. The Discharger shall have a written agreement with each third-party that receives process wastewater from the Discharger for its own use. The written agreement(s) shall be effective until the third-party is covered under the waste discharge requirements or a waiver of waste discharge requirements. The written agreement may serve as the manifest, and shall:

1. ~~1.~~ Clearly identify:

~~a.~~

a. The Discharger and Dairy from which the process wastewater originates,

~~b.~~ The third-party that will control the application of the process wastewater

b. ~~to~~ to cropland,

c. ~~c.~~ The Assessor's Parcel Number(s) and the acreage(s) of the cropland where ~~the~~ the process wastewater will be applied, and

2. ~~2.~~ Include an agreement by the third-party to:

~~a.~~

a. Use the process wastewater at agronomic rates for the crops to be grown, ~~and~~ and,

b. ~~b.~~ Prevent the runoff to surface waters of wastewater, stormwater, or ~~irrigation~~ irrigation supply water that has come into contact with manure or is ~~blended~~ blended with wastewater

I. Record-Keeping and NMP Review

The Discharger must maintain records for five years, for each land application area and use the records as a basis for revisions to the NMP. In addition to the ~~manifest~~ manifest records described above, records shall include:

~~**1.** All analysis of manure, process wastewater, irrigation water, soil, plant tissue, discharges (including tailwater discharges), surface water, stormwater, subsurface (tile) drainage, and groundwater.~~

Section C, "Contents of NMP" outlines the required analyses and nutrients;

2. All records for nutrient management and land application areas including:

a. ~~a.~~ Expected and actual crop yields (or estimated yields if crop is grazed);

b. ~~b.~~ Identification of crop, acreage, and dates of planting and harvest for each field;

c. ~~c.~~ Dates, locations, and approximate weight ~~and moisture content~~ of manure applied to each field;

d. ~~d.~~ Dates, locations, and volume of process wastewater applied to each field;

e. ~~e.~~ 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;

f. ~~f.~~ Test methods and procedures for soil;

g. ~~g.~~ Results from manure, process, process wastewater, irrigation water, soil, plant tissue, discharge (including tailwater), and stormwater sampling;

h. ~~h.~~ Explanation for the basis for determining manure or process wastewater application rates;

~~i. 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);~~

i. ~~j. Total amount of nitrogen, phosphorus, and potassium actually applied to each field, including documentation of calculations for the total amount applied (~~Nutrient Application Calculations~~);~~ from Section D above;

j. ~~k.~~ The method(s) used to apply manure and/or process wastewater; and

k. ~~l.~~ 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.

The Discharger must maintain records for each land application area and use the records as a basis for revisions to the NMP. The NMP must be available for Regional Water Board staff review during inspections.

References:

Karle, B.M., Meyer, D., Price, P. Solid Manure Moisture Content Determination-Microwave Method for Exported Solid Manures. 2008. https://www.researchgate.net/publication/242159702_Solid_Manure_Moisture_Content_Determination-Microwave_Method_for_Exported_Solid_Manures

Miller, C.M.F., Fadel, J.G., Heguy, J.M., Karle, B.M., Price, P.L., Meyer, D. Optimizing

accuracy of protocols for measuring dry matter and nutrient yields of forage crops. Sci. Total Environ. 624, 180-188. 2018.

U.S. Department of Agriculture, Natural Resources Conservation Service. September 2016, Conservation Practice Standard, Nutrient Management (Ac.) Code 590. https://efotg.sc.egov.usda.gov/references/public/Ca/590-std-ca-9-16.pdf

Enclosed: NMP Worksheet

Appx 2 NMP Dairy GWDR