This document has been prepared as part of the implementation project of Legal Pathways to Deep Decarbonization (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see https://lpdd.org

Part 82. Subpart J - Nitrous Oxide Management for Large Commercial Farms

§ 82.400 Purpose

The purpose of this subpart is to reduce emissions of nitrous oxide (N_2O) associated with large commercial farms through the establishment, administration, and enforcement of a program that requires development and implementation of farm-specific nitrogen management plans. These plans shall encourage implementation of best management practices to improve nitrogen use efficiency and thereby reduce emissions of N_2O and its impacts on the stratospheric ozone layer.

§ 82.401 Definitions

Act means the Clean Air Act, as amended, 42 U.S.C. 7401, *et seq.*

Agency or Administrator means the Administrator of the U.S. Environmental Protection Agency or their designee.

Best Management Practice means a conservation or emission control practice that manages soil, fertilizer or other potential emission sources to minimize emissions of nitrous oxide (N_2O).

CAFO NPDES Program means the applicable state or federal regulatory program implemented under the authority of the Clean Water Act (33 U.S.C. 1251, *et seq.*) that issues National Pollution Discharge Elimination System (NPDES) permits to Concentrated Animal Feeding Operations (CAFOs) and imposes associated requirements, such as preparation of a nutrient management plan consistent with federal CAFO NPDES Program regulations (40 C.F.R. 122.42(e)).

Certification means recognition by the Agency that an individual has met the qualification standards established by the Agency authorizing the individual to perform the functions of a Certified Nitrogen Management Planner.

Certified Nitrogen Management Planner or simply *Planner* means an individual certified by the Administrator to prepare a nitrogen management plan for a farm under this subpart.

Commercial Farm means a farm greater than 1,000 acres in size that performs activities related to the production and sale of seasonal agricultural commodities from crops, including but not limited to row crops, fruits, vegetables, and horticulture, and which has generated more than $1,000,000 per year in gross annual income in one or more of the three preceding calendar or fiscal years.

Commercial Farmer means a farmer of a commercial farm.

Cover Crop means a crop that is planted following the harvest of summer crops that provides seasonal protection of soil, assimilates residual nitrogen left from the previous crop, and improves long term soil quality. Cover crops shall be treated and identified as a core management strategy in all plans where it is compatible with the underlying agricultural commodity.

Farm means land on which agricultural commodities are or may be produced from crops and which is located on one or more contiguous or adjacent parcels under control of the same person (or persons under common control), including land rented by the farmer.

Farmer means a person, including an owner, with operational control over a farm, which includes the authority to introduce and implement operating, environmental, and crop management policies. Where operational control is shared by multiple persons, the person holding the crop insurance policy for the farm shall be considered the farmer for the purposes of this subpart.

Nitrogen Requirements means the primary nitrogen requirements of a crop determined as pounds of N required for production of a crop yield unit such as a bushel of corn or a ton of alfalfa.

Field means an area within a farm sharing common characteristics, including soil type, nutrient content, and plant type or crop produced, such that nitrogen can be recommended and managed in a uniform and consistent manner.

Field Identification Number means a number used by a commercial farmer to identify the location of a field on a farm.

Nitrogen Content means the percentage of nitrogen in any type or source of nitrogen fertilizer.

Nitrogen Fertilizer means any substance containing nitrogen used for its nitrogen content in promoting plant growth, including but not limited to synthetic products, natural organic products, manure, and other animal waste.

Nitrogen Application Rate means the quantity of total nitrogen recommended by a certified nitrogen management planner to supply crop or plant nitrogen needs and achieve crop yield goals and accounting for application of cover crops and best management practices.

Nitrogen Management Plan means a plan prepared under this subpart by a certified nitrogen management planner to manage the source, amount, placement, timing, and application of nitrogen fertilizer in any form, including manure, synthetic fertilizer, sludge, or plant forms to prevent N_2O emissions and to maintain the productivity of soil when growing agricultural products.

Total Nitrogen Applied means the quantity of total nitrogen actually applied by the commercial farm to achieve crop yield goals, separately quantified by field and nitrogen fertilizer source. Nitrogen applied through direct deposition of manure from grazing animals on the field shall be separately accounted for, and shall not count towards any binding nitrogen application rate.

Person includes an individual, corporation, partnership, estate, trust, proprietorship, association, institution, research body, tribe, political entity, or other organized group of persons, whether incorporated or not.

Responsible Official means one of the following: (1) for a corporation, a president, secretary, treasurer, or vice-president in charge of a principal business function of the corporation, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of the commercial farm; (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipality, State, Federal, or other public agency, either a principal executive officer or ranking elected official; or (4) for any other entity, an individual with authority to make policy and decision-making functions.

§ 82.402 Applicability

(a) Each commercial farm shall develop and implement a nitrogen management plan no later than the latest of the following dates:

(1) Two years from the effective date of this subpart; or

(2) July 1 of the year after the farm meets the definition of a commercial farm.

(b) Failure to develop and implement a nitrogen management plan for a commercial farm by the deadlines set forth above shall constitute noncompliance with this subpart.

(c) Each commercial farm shall remain subject to this subpart until it no longer meets the definition of commercial farm for three consecutive years or permanently ceases farming activities.

§ 82.403 General Requirements

(a) Plan Preparation. Commercial farms shall implement nitrogen management plans prepared by a certified nitrogen management planner according to the schedule set forth in section 82.402.

(b) Registration. Commercial farms shall electronically register with the Agency prior to the effective dates set forth in section 82.402 and designate a responsible officer of the farmer, if the farmer is not an individual. The Administrator shall issue a unique identification number for the commercial farm that shall be included on all reports, plans, and other submittals to the Agency.

(c) Nitrogen Application Rate Target. Each plan shall include a nitrogen application rate target for each field, as calculated under section 82.405, enforceable as follows:

(1) The nitrogen application rate target shall be treated as a non-binding goal so long as cover crops are planted over the off season when identified as a core management strategy in the plan.

(2) If a commercial farmer does not plant a cover crop in the preceding off season on a given field when it is identified as a core management strategy in the plan, the application rate target for that field shall be treated as a binding limit.

(d) Best Management Practices. Each plan shall include site-specific and crop-specific best management practice recommendations, as detailed in section 82.405.

(e) Plan Maintenance. Plans shall be revised and updated at least once every 2 years from the date that the current plan was prepared or upon a major change that renders the plan inadequate or incomplete to fulfill its purpose. Examples of major changes include:

(1) Changes to the planned crop or rotation, when not addressed in the existing plan, unless the new crop would have similar nitrogen management;

(2) Changes to nitrogen sources (e.g., from manure to synthetic nitrogen) that have different application rate, time, and placement considerations, when not addressed in the existing plan;

(3) Changes to total farm acreage, if 10 percent or greater; and

(4) When soil test results indicate that the existing plan recommendations are not appropriate.

(f) Reporting and Recordkeeping.

(1) By [date] each year, beginning three years after the effective date of this subpart, commercial farms must electronically file with the Administrator a plan implementation report on a form issued by the Agency. The report shall include:

(i) Nitrogen application rate targets and yield goals for each field as stated in the plan;

(ii) Whether and which cover crops were used on each field the prior winter, with photo verification;

(iii) Total nitrogen applied (separately accounting for any manure that is directly deposited by grazing animals, which shall not count towards any binding nitrogen application rate);

(iv) Best management practices recommendations that were applied;

(v) Actual yield results per field and acreage farmed; and

(vi) Results of any soil and manure tests taken in the preceding 12 months.

(vii) A certification by the commercial farmer or responsible official of the commercial farmer that the information submitted is accurate, truthful and complete.

(2) Commercial farmers shall keep accurate records sufficient to document the information provided in each plan implementation report for 5 years, and promptly make such information available to the Agency for review, upon request.

§ 82.404 Core Plan Elements

(a) Scope**.** This section describes the content requirements for nitrogen management plans, requirements for plan recommendations by certified nitrogen management planners, and requirements for implementation of a nitrogen management plans by commercial farmers.

(b) Nitrogen Application Rates.

(1) Nitrogen application rate targets shall be calculated for the realistic yield goals and nitrogen requirements of the crop, accounting for soil analysis results, use of cover crops, and implementation of recommended best management practices.

(2) Crop nitrogen requirements shall be based on standards derived from scientifically validated data acceptable to the Administrator.

(3) Realistic yield goals.

(i) The calculation of realistic crop yield goals shall be based upon one of the following:

(A) An average of the 3 highest-yielding years for the crop out of the latest consecutive 5-year cropping sequence; or

(B) If yield information exists for more than 5 years for a given field, crop yield calculations may be based on the average of 60 percent of the highest-yielding years for all consecutive years that crop yield information is available.

(ii) If field-specific yield goal information is unavailable or unrepresentative due to the inclusion of new seed varieties, irrigation, or new technologies, a planner may use alternative methods, including:

(A) Average yield based upon the 3 highest-yielding years for the crop out of the latest consecutive 5-year cropping sequence from nearby fields with similar soil type and management conditions; or

(B) Any other relevant data acceptable to the Administrator.

(iii) Planners shall document what information is used as the basis for determining realistic yield goals as part of the planner's record-keeping obligations set forth in subsection 82.403(e).

(4) Nitrogen application rates shall be expressed as pounds of N per acre of land farmed.

(5) Margin of error. Planners shall increase calculated nitrogen application rates by 10 percent to conservatively account for uncertainties and marginal overages.

(c) Cover crops. Each plan shall include recommendations on planting and management of cover crops following the harvest of summer crops as a core management strategy. Implementation of the recommended cover crop strategy shall be accounted for and its soil fertility benefits credited in calculation of the nitrogen application rate target for each field. Fields where cover cropping is not feasible due to the nature of the agricultural commodity (e.g., cranberries) need not include cover cropping as a core management strategy.

(d) Soil and Fertilizer Analysis.

(1) Soil sampling consistent with the requirements below is a mandatory element of each plan.

(2) Soil analysis for each field shall be based on standard soil sampling and analysis methods acceptable to the Administrator. Variations from the standard sampling process shall be documented by the planner and may include:

(A) Soil samples collected from larger acreage with uniform characteristics, including soil types, moisture, or fertility management history; and

(B) Any specialized portion of a field which may warrant smaller sampling units.

(3) Soil analysis results for a plan are valid for 2 years, except if the following conditions exist and are documented by the planner:

(i) A less frequent soil analysis is required to implement a management system based on new technologies;

(ii) The management system does not require any nitrogen application; or

(iii) The management system requires nitrogen application at a frequency less than once every 2 years.

(4) Ongoing soil analysis shall be used as an indicator of whether rates or best management practices recommendations should be adjusted.

(5) If applicable to the commercial farm, manure or other animal waste that is spread, deposited, injected, or otherwise land applied to a field for purposes of fertilization shall be tested and analyzed for nitrogen content on an annual basis using a representative sample.

(e) Best Management Practices. Based on farm and field-specific analyses, each plan shall include best management practice recommendations to minimize nitrogen volatilization losses, improve agricultural productivity, and maximize economic efficiency. Recommendations shall include the following:

(1) Strategies to implement the 4Rs principles, including recommendations regarding:

(i) The best source and type of nitrogen fertilizer, accounting for cost, crop, region, and other site specific factors;

(ii) Reduction of chemical nitrogen application rates to maximize cost effective yields;

(iii) Timing, such that application is as close to plant nitrogen uptake periods as possible to maximize plant utilization efficiency;

(iv) Location, including measures to achieve accurate and uniform application and minimize movement to areas susceptible to loss, such as wetlands, sinkholes, and steep slopes.

(2) Special strategies to ensure efficient use and application of nitrogen fertilizer, to the extent applicable on a farm-specific basis, such as crop rotation, reduced tillage, use of nitrogen inhibitors, and micro-irrigation, among other strategies that may be identified by the planner.

(3) Strategies for manure management to the extent practicable, encompassing testing, storage, and land application that maximize plant nitrogen uptake and minimize loss and volatization.

(f) Signatures. Each nitrogen management plan and amendment shall be signed as follows to be deemed valid:

(1) By the certified nitrogen management planner which prepared it, accompanied by a certification that the plan complies with the requirements of this subpart.

(2) By the farmer or responsible official of the farmer, accompanied by a certification acknowledging receipt of the nitrogen management plan.

§ 82.405 Plan Structure and Content

(a) Plan Identification Information. The following information shall be included:

(1) Commercial farmer name and address;

(2) Commercial farm identification number;

(3) Date plan was prepared;

(4) Time period the plan covers; and

(5) The name, certification, and license number of the certified nitrogen management planner responsible for plan development.

(b) Maps and Aerial Photograph. Every plan shall include one or more maps or an aerial photograph which identify the following:

(1) The location and boundaries of the commercial farm; and

(2) The individual field boundaries, identifiers, and acreage;

(c) Core Plan Elements.

(1) Crop yield goals and basis for same;

(2) Crop and site specific best management practice recommendations;

(3) Recommendations regarding efficient application of fertilizers, including strategies for deploying 4R principles;

(4) Field-specific data including a soil analysis; and

(5) Nitrogen application rates for each field and crop and calculation methods for same.

(d) Summary. The front matter of a plan shall include a summary, in table form, identifying each field, acreage, expected crop, expected yield over the plan period, nitrogen application rate targets, and best management practices recommendations.

(e) Plan Maintenance Information. A plan shall contain information for maintenance and update. General comments about plan maintenance may be summarized and shall address the requirements set forth in subsection 82.403(d).

(f) Streamlining. Nothing in this section shall preclude a commercial farm which is also regulated under a CAFO NPDES Program from combining its nitrogen management plan

under this subpart with a nutrient management plan prepared consistent with 40 CFR 22.42(e), or under other state programs requiring nutrient management plans.

(g) Length. Plans shall be as brief and user-friendly as feasible to maximize accessibility.

§ 82.406 Planner Certification and Duties

(a) Scope. This section describes the certification program and requirements for individuals that prepare nitrogen management plans under this subpart. Nothing in this section shall preclude an individual who is a commercial farmer from obtaining certification and preparing a nitrogen management plan for their own commercial farm.

(b) Certification Required. Unless certified by the Administrator, an individual may not act as a certified nitrogen management planner or otherwise engage in the business of providing certified nitrogen management plans as provided by this subpart.

(c) Training, Qualification, and Exclusions

(1) Initial Qualification. In order to initially qualify as a certified nitrogen management planner, an individual must complete and pass an approved training course and then electronically register with the Agency. The Administrator shall confirm the individual's credentials and issue a unique planner identification number upon registration. This initial certification shall be valid for one year.

(2) Renewal. Planner certifications may be renewed for 3-year terms provided the following requirements are satisfied:

(i) Completion of 5 hours of continuing education offered by an accredited training program within the first year following certification and 15 hours within each subsequent 3-year term; and

(ii) Compliance with all other requirements of this subpart.

(3) An individual with a conflict of interest is ineligible for certification as a certified nitrogen management planner under this subpart. A conflict of interest exists when:

(i) The individual holds an ownership interest in (greater than one percent), or is employed by, a person in the business of selling or dealing chemical nitrogen fertilizer; or

(ii) The individual has held such a position or ownership interest in the last three years.

(d) Planner Recordkeeping and Reporting

(1) Each individual certified by the Administrator under this subpart shall keep records and electronically file with the Agency by [date] of each year an annual activity report covering the previous year ([date] through [date]) that contains the following information:

(i) The name of the certified nitrogen management planner and identification number;

(ii) The number of nitrogen management plans completed;

(iii) Identification of each commercial farm for which a plan was prepared; and

(iv) The acreage covered by each plan.

(2) Each certified planner shall keep a copy of each nitrogen management plan prepared under this subpart. The individual shall also keep records of the following information for five years and make such information available to the Agency, upon request, if not included in each plan:

(i) Location of the farm, total acres for nitrogen application, and crop type;

(ii) Completed soil analysis results;

(iii) Realistic crop yield goals and basis for calculations;

(iv) Recommended nitrogen application rate targets for each crop and field, including application time and methods; and

(v) Any adjustments of recommendations due to limitations, which shall be scientifically justified and documented.

(e) Suspension and Revocation.

(1) The Administrator may suspend or revoke a certification issued under this section of any individual who violates a requirement of this subpart, including:

(i) Providing misleading, false, or fraudulent information in applying for a certification;

(ii) Preparing a nitrogen management plan without an active certification;

(iii) Preparing a nitrogen management plan that contains knowingly false or misleading information; or

(iv) Failing to promptly allow the Agency access to inspect any required records, which in no event shall exceed 30 days.

(2) Failure to complete continuing education requirements prior to expiration of an active certification may result in suspension or revocation of the individual's certification and require the individual to re-take the initial qualification training course prior to reinstatement.

§ 82.407 Training Programs and Continuing Education

(a) Any nitrogen management certification program may apply for accreditation in accordance with the provisions of this paragraph, by submitting to the Administrator verification that the program meets all of the following standards:

(1) Each program must provide adequate education on best management practices for nitrogen management, including the 4Rs, use of cover crops, manure management, and other emerging strategies, as well as education on how to apply such methods economically in the field.

(2) Each program must provide adequate education on the environmental consequences of nitrogen use.

(3) Each program must provide training on all aspects of preparing nitrogen management plans under this subpart, including calculating reasonable crop yields

and nitrogen needs, performing soil and manure testing and interpreting results, and identifying appropriate cover cropping methods.

(4) Each program must provide instruction on administrative and technical skills, including use of the Agency's online data reporting system.

(5) Each program must include an examination component with testing to verify competence in the skills and knowledge of the material set forth in (1) - (4), above. Completed tests must be graded by an entity or individual who receives no benefit based on the outcome of testing. Sufficient measures must be taken to ensure that tests are completed honestly by each applicant. Each test must provide a means of verifying the identification of the individual taking the test.

(6) Each program must provide proof of completion with a unique, verifiable identification number for each applicant which passes the test that can be submitted by the individual to the Agency.

(b) In deciding whether to grant accreditation, the Administrator will consider the extent to which the training program applicant has documented that its program meets the standards set forth in this section. The Administrator reserves the right to consider other factors deemed relevant to ensure the effectiveness of certification programs.

(c) Directors of approved certification programs must conduct periodic reviews of test subject material and update the material based upon the latest technological developments in nitrogen management. A written summary of the review and any changes made must be submitted to the Administrator at minimum every two years to maintain accreditation.

(d) Accredited programs may offer continuing education programs and shall provide attendees with certificates to document attendance.

(e) If at any time an accredited program is conducted in a manner not consistent with the representations made in the application for accreditation of the program under this section, the Administrator reserves the right to revoke accreditation.