

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

ATMOSPHERIC RESOURCE QUALITY MANAGEMENT

(Ac.)

CODE 370



DEFINITION

A combination of treatments to manage resources that maintain or improve atmospheric quality.

PURPOSE

- ◆ Minimize or reduce emissions of:
 - Particulate matter (including smoke)
 - Odors
 - Ammonia
 - Greenhouse gases
 - Ozone precursors
 - Chemical drift
- ◆ Maintain or increase visibility

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to cropland, forest land, rangeland, roads, feedlots, dairies, poultry and swine operations and other CAFOs, equipment yards and staging areas, and other lands that contribute dust, smoke, chemical particulates, ammonia, odor, greenhouse gases and other emissions that have a negative impact on air quality.

CRITERIA

General Criteria Applicable to All Purposes

The landowner is responsible for acquiring and following all necessary local, state, and federal permits.

The work shall be performed in compliance with all international, federal, state, and local laws, rules, and regulations affecting the control of particulate matter, smoke, visibility/haze, ozone precursors, odors, greenhouse gases, and chemical drift in the area of concern.

Impact to cultural resources, wetlands and Federal and State protected species shall be evaluated and avoided or minimized to the extent practicable during planning, design and implementation of this conservation practice in accordance with established National and Florida NRCS policy as contained in the General Manual, Title 420-Part 401, and Title 190-Parts 410.22 and 410.26; the National Planning Procedures Handbook, Florida Supplements to Parts 600.1 and 600.6; the National Cultural Resources Procedures Handbook; and the National Environmental Compliance Handbook.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Site specific practice effects shall be evaluated for the practice in accordance with guidance information contained in the National Planning Procedures Handbook, and Sections III and V of the NRCS Field Office Technical Guide (FOTG).

Specific Criteria Applicable to Air Movement and Temperature

The effects of excessive or deficient temperature and air movement on animal/plant productivity, human comfort and energy consumption shall be assessed and mitigated where appropriate.

Specific Criteria Applicable to Reducing Particulate Matter Emissions

Roads. Minimize PM-10 generation from unpaved roads, staging areas, and equipment storage areas by treating with water, chemicals, soil stabilizers, mulch, or other cover. Road shoulders shall be stabilized with vegetation or other means to reduce dust.

Control speed and access on unpaved roads.

The amount of mud tracked onto paved roads shall be reduced by limiting turning of equipment and vehicles on paved roads, cleaning equipment before leaving the field or cleaning tracked mud off of paved roads.

Confined Animals. Management plans to decrease PM-10 and PM-2.5 production from activities in concentrated animal areas shall include, as appropriate, maintaining minimum manure depths, sprinkler watering, surfacing, and corral cleaning time tables. Manage unpaved corrals and walkways to control dust generated by animal activities. Treatments include watering prior to expected heavy animal activity, application of soil stabilizers or surfacing.

Manure management plans shall identify non-critical air temperature and movement periods when confined areas can be cleaned without contributing to high PM-10 concentrations, or shall specify modifications to the confinement environment such that PM-10 emissions are reduced.

Animal feed shall be mixed in an enclosed area or during low wind periods to minimize dust from animal feed processing.

Cropland and Grazing Land. Residue management (code 329A, 329B or 329C) shall

be used to reduce the generation of particulate matter from cropland.

Cover crops shall be established on fields susceptible to PM-10 generation during vulnerable periods (see conservation practice standard Cover Crop, Code 340).

Cover crops shall be planted between the rows in orchards, groves and vineyards to minimize PM-10 generation during harvest operations.

Mowing operations shall be done in a manner which minimizes the generation of particulate matter.

When burning, follow all procedures as described in conservation practice standard Prescribed Burning, Code 338.

Specific Criteria Applicable to Reducing Odor Emissions

Windbreaks (Code 380) shall be sited to minimize the transport of odor from an odor-producing source to a sensitive area. Tree varieties and placement for the windbreak shall be managed to maximize odor interception and dilution of air, and reduce odor leaving the source.

Disposal piles shall be located away from populated or frequently accessed areas.

Waste utilization (Code 633) shall be used to reduce the amount of odor during manure spreading operations.

Specific Criteria Applicable to Reducing Ammonia and Greenhouses Gas Emissions

Confined Animals. Sprinkler watering that is done to reduce PM-10 releases from feedlots also shall be timed and conducted to minimize ammonia (NH₃) emissions from wet manure.

Feed and manure additives shall be utilized to minimize ammonia production and volatilization (see conservation practice Feed Management Code 592).

The amount, method, and timing of animal waste storage and disposal shall be managed in conjunction with other practices to minimize ammonia volatilization from the waste.

Reduction of methane (CH₄) emissions from animal waste storage shall be accomplished using an appropriate anaerobic digester or other approved methane reduction technology.

Cropland and Grazing Land. Management plans to increase carbon sequestration in organic matter and soil and offset carbon dioxide (CO₂) emissions to the atmosphere shall specify a reduction in the frequency and intensity of tillage activities.

Plans to provide renewable energy sources and offset greenhouse gas emissions through biomass removal shall specify the amount and timing of the biomass removal. Sufficient biomass shall be left on the surface to maintain soil quality and to achieve the planned soil loss objective.

Organic and inorganic fertilizers shall be stored and applied to croplands and grazing lands in a manner which minimizes the loss of ammonia and nitrous oxide (N₂O) to the air (see conservation practice standard Nutrient Management, Code 590).

Specific Criteria Applicable to Reducing Ozone

Minimize emissions of nitrogen oxides (NO_x), volatile organic compounds (VOCs) and other ozone precursors by use of a proper manure management system and proper storage of fuels, chemicals and pesticides. Farm equipment shall be used in the most efficient manner to reduce emissions wherever possible.

Specific Criteria Applicable to Reducing Chemical Drift

Follow IFAS recommendations for controlling chemical drift. See reference at the end of this document.

Reduce volatile organic compounds from pesticide application by changing formulations and adapting methods of application.

Do not apply chemicals in or near environmentally sensitive areas.

Apply chemicals during appropriate weather. For example, do not apply during thermal inversions.

Minimize chemical drift during pesticide application via use of methods such as low pressure systems, low-drift nozzles, proper equipment calibration and chemical adjuvants. Utilize pesticide forecasting for scheduling application. See conservation practice standard

Pest Management (Code 595) for further information.

CONSIDERATIONS

Consider the use of windbreaks (Code 380), cross wind trap strips (Code 589C) and herbaceous wind barriers (Code 603) to reduce transport of all types of emissions.

Where appropriate, conservation plans which identify wind erosion controls should evaluate those controls for their PM-10 reductions.

Encourage the use of less intensive tillage systems (Residue and Tillage Management conservation practice standards, Codes 329, 345 and 346) and/or equipment that will reduce particulate matter generation and enhance soil carbon sequestration.

Instead of burning tree-trimming wastes, they can be chipped/shredded and used for composting or as mulch on unpaved roads or other areas that produce particulate emissions.

Consider the use of mulches, oils, or tree saps on critical areas to help reduce particulate matter generation.

Consider covering lagoons and storage pits to reduce odor dispersion.

Consider incorporation of waste into cropland or grazing land soils at a depth of 2-4 inches to reduce odor and ammonia emissions.

Consider the effect of daily and seasonal temperature and air movement patterns on dispersion and/or volatilization rates. For instance, ammonia volatilization rates increase with temperature between 50 to 120 degrees F and with increased air turbulence. Consider planning certain activities when temperatures are lower and air movement patterns are favorable.

Use cleaner burning fuels, such as natural gas, to reduce the emission of ozone precursors from farm engines whenever possible.

Consider use of an IPM system or biological control of pests rather than synthetic pesticides to reduce the production of VOCs and NO_x.

PLANS AND SPECIFICATIONS

Plans for atmospheric resource quality management that are elements of a more comprehensive conservation plan shall recognize other requirements of the conservation plan and be compatible with them.

Plans and specifications will be listed separately to address particulate matter, odor, and ammonia and greenhouse gas management. Plan narratives or job sheets will address identified atmospheric resource concerns to meet quality and condition criteria.

The location of all supporting practices used will be shown on the drawings or conservation plan map.

OPERATION AND MAINTENANCE

The conservation plan should include operation and maintenance items needed to continue treatment of atmospheric resource related concerns.

Records shall be kept in accordance with associated practices and Federal, state and local laws.

REFERENCES

National NRCS Conservation Practice Standard: *Atmospheric Resource Quality Management, Code 370*

<ftp://ftp-fc.sc.egov.usda.gov/NHQ/practice-standards/standards/370.pdf>

NRCS Technical Note ECS 190-1: *Environmental Quality—Establishing Greenhouse Gas Priorities for Conservation*
http://policy.nrcs.usda.gov/scripts/lpsiis.dll/TN/TN_EQ_190_1.htm

Florida Administrative Code, Chapter 62-204: *Air Pollution Control – General Provisions*
<http://www.dep.state.fl.us/Air/rules/fac/chapter62-204.pdf>

IFAS Florida Cooperative Extension Service: *Agricultural Chemical Drift and Its Control*
<http://edis.ifas.ufl.edu/pdffiles/AE/AE04300.pdf>

Florida NRCS Conservation Practice Standards, Florida Field Office Technical Guide, Section IV:
Cover Crop, Code 340

Cross Wind Trap Strips, Code 589C
Feed Management, Code 592
Herbaceous Wind Barriers, Code 603
Nutrient Management, Code 590
Pest Management, Code 595
Prescribed Burning, Code 338
Residue and Tillage Management, Codes 329, 345 and 346
Waste Utilization (Code 633)
Windbreak/Shelterbelt Establishment (Code 380)
[Electronic Field Office Technical Guide | NRCS](#)

NRCS General Manual
Title 190, Part 410.22—Threatened and Endangered Species of Plants and Animals

Title 190, Part 410.26—Protection of Wetlands

[Part 410 - Compliance with NEPA](#)

Title 420, Part 401—Cultural Resources
[Part 401 - Cultural Resources \(Archeological and Historic Properties\)](#)

National Planning Procedures Handbook
FL Supplements to Parts 600.1 and 600.6

National Cultural Resources Procedures Handbook [190 - National Cultural Resources Procedures Handbook](#)

National Environmental Compliance Handbook [190 - National Environmental Compliance Handbook](#)