



AIR POLLUTION CONTROL DISTRICT

LARGE CONFINED ANIMAL FACILITY EMISSIONS MITIGATION PLAN

DAIRY

Reference Table 2.2 of Rule 217

Name of Business	_____
Owner / Operator	_____
Mailing Address	_____
Location Address	_____
Telephone Number	_____ Cellular Number _____
E-mail Contact	_____
Total Animal Head Count	_____

A. Feed - An owner/operator of a dairy CAF shall implement mitigation measures 1, 2, 3, and 4 and at least one (1) additional mitigation measure:

- Required** 1. Feed according to National Research Council (NRC) guidelines.
- Required** 2. Push feed so that it is within three (3) feet of feedapron fence within two hours of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the cows.
- Required** 3. Begin feeding total mixed rations within two (2) hours of grinding and mixing rations.
- Required** 4. Store grain in a weatherproof storage structure or under a weatherproof covering from October through May.
5. Feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains.
6. Remove uneaten wet feed from feed bunks within twenty-four (24) hours after the end of a rain event.
7. For total mixed rations that contain at least 30% by weight of silage, feed animals total mixed rations that contain at least 45% moisture.
8. Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

B. Silage: An owner/operator of a dairy CAF that feeds silage shall implement at least one (1) of the following silage mitigation measures:

- Operators selecting this option must choose mitigation measure 1a plus one (1) from mitigation measures 1b, 1c, 1d plus two (2) from mitigation measures 1e, 1f, 1g:
- Required** 1a. Cover the surface of silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least five (5) mils thick (0.005 inches), multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material, within seventy-two (72) hours of last delivery of material to the pile.

B. Silage - Continued

Choose one of the following:

- 1b. Build silage piles such that the average bulk density of silage piles is at least 44 lb/cu ft for corn silage and 40 lb/cu ft for other silage types, as measured in accordance with G; or
- 1c. When creating a silage pile, adjust filling parameters to assure a calculated average bulk density of at least 44 lb/cu ft for corn silage and at least 40 lb/cu ft for other silage types, using a spreadsheet approved by the Air District; or
- 1d. Incorporate all of the following practices when creating silage piles:
 - i. Harvest silage crop at $\geq 65\%$ moisture for corn; and $\geq 60\%$ moisture for alfalfa/ grass and other silage crops; and
 - ii. Incorporate the following parameters for Theoretical Length of Chop (TLC) and roller opening, as applicable, for the crop being harvested.

Crop Harvested	TLC	Roller Opening (mm)
Corn with no Processing	$\leq 1/2$ in	N/A
Processed Corn <35% dry matter	$\leq 3/4$ in	1-4 mm
Alfalfa/Grass	≤ 1.0 in	N/A
wheat/Cereal Grains/Other	$\leq 1/2$ in	N/A

- iii. Manage silage material delivery such that no more than six (6) inches of material are un-compacted on top of the pile.

Choose two of the following:

- 1e. Manage exposed silage (**select one of the following**) :
 - i. Manage silage piles such that only one silage pile has an uncovered face and the uncovered face has a total exposed surface area of less than 2,150 square feet; or
 - ii. Manage multiple uncovered silage piles such that the total exposed surface area of all uncovered silage piles is less than 4,300 square feet.
- 1f. Maintain silage working face (**select one of the following**) :
 - i. Use a shaver/facer to remove silage from the silage pile; or
 - ii. Maintain a smooth vertical surface on the working face of the silage pile.
- 1g. Silage Additives (**select one of the following**) :
 - i. Inoculate silage with homolactic lactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage; or
 - ii. Apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at a rate specified by the manufacturer to reduce yeast counts when forming silage pile; or
 - iii. Apply other additives at specified rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the Air District and EPA.
- 2. Utilize a sealed feed storage system (e.g., Ag-Bag) for silage.
- 3. Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

C. Milking Parlor - An owner/operator of a dairy CAF shall implement at least one (1) of the following mitigation measures in each milking parlor:

- Flush or hose milking parlor immediately prior to, immediately after, or during each milking.
- Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

D. Freestall Barn - An owner/operator of a dairy CAF that houses animals in freestalls shall implement mitigation measures 1 and 2 and at least one (1) additional mitigation measure in each freestall barn:

- Required** 1. Pave feedaprons, where present, for a width of at least eight (8) feet along the corral side of the feedapron fence for milk and dry cows and at least six (6) feet along the corral side of the feedapron for heifers.
- Required** 2. Choose one of the following:
- a. Flush, scrape, or vacuum freestall flush lanes immediately prior to, immediately after, or during each milking; or
 - b. Flush or scrape freestall flush lanes at least three (3) times per day.
3. Use non-manure-based bedding and non-separated solids based bedding for at least 90% of the bedding material, by weight, for freestalls (e.g. rubber mats, almond shells, sand, or waterbeds).
4. For a large dairy CAF, remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days.
5. Have no animals in exercise pens or corrals at any time.
6. Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

E. Corrals - An owner/operator of a dairy CAF that houses animals in corrals shall implement mitigation measures 1, 2, 3, 4, 5, and 6 and at least one (1) additional mitigation measure in each corral where animals have been housed in the last thirty (30) days:

- Required** 1. Pave feedaprons, where present, for a width of at least 8 feet along the corral side of the feedapron fence for milk and dry cows and at least 6 feet along the corral side of the feedapron for heifers.
- Required** 2. Choose one of the following:
- a. Clean manure from corrals at least four (4) times per year with at least sixty (60) days between cleaning; or
 - b. Clean corrals at least once between April and July and at least once between September and December.
- Required** 3. Choose one of the following:
- a. Scrape, vacuum, or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock; or
 - b. Clean concrete lanes such that the depth of manure does not exceed twelve (12) inches at any point or time.
- Required** 4. Inspect water pipes and troughs and repair leaks at least once every seven (7) days.
- Required** 5. Choose one of the following:
- a. Slope the surface of the corrals at least 3% where the available space for each animal is 400 square feet or less. Slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 square feet per animal; or

E. Corrals - continued

- b. Maintain corrals to ensure proper drainage preventing water from standing more than forty-eight (48) hours; or
 - c. Harrow, rake, or scrape corrals sufficiently to maintain a dry surface.
- Required** 6. If the CAF has shade structures, they must choose one of the following:
- a. Install shade structures such that they are constructed with a light permeable roofing material; or
 - b. Install all shade structures uphill of any slope in the corral; or
 - c. Clean manure from under corral shades at least once every fourteen (14) days, when weather permits access into the corral; or
 - d. Install shade structure so that the structure has a North/South orientation.
7. Manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible.
8. Knockdown fence line manure build-up prior to it exceeding a height of twelve (12) inches at any time or point. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible.
9. Choose one of the following:
- a. Use lime or a similar absorbent material in the corrals according to the manufacturer's recommendation; or
 - b. Apply thymol to the feedlot soil in accordance with the manufacturer's recommendation.
10. Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

F. Solid Manure/Separated Solids - Owners/operators of a large dairy CAF that handle or store solid manure or separated solids outside the animal housing shall implement at least one (1) of the following mitigation measures:

- Within seventy-two (72) hours of removal from housing, either:
 - a. Remove dry manure from the facility; or
 - b. Cover dry manure outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event.
- Within seventy-two (72) hours of removal from the drying process, either:
 - a. Remove separated solids from the facility; or
 - b. Cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event.
- Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

G. Liquid Manure - An owner/operator of a dairy CAF that handles manure in a liquid form shall implement at least one (1) of the following mitigation measures:

- Use a phototropic lagoon.
- Use an anaerobic treatment lagoon designed in accordance with NRCS Guideline No. 359.
- Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon.
- Maintain lagoon pH between 6.5 and 7.5.
- Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

H. Land Application - An owner/operator of a dairy CAF who land applies manure to crop land on the facility shall implement the following applicable mitigation measures:

Required If the CAF applies solid manure, choose one of the following:

- a. Incorporate all solid manure within seventy-two (72) hours of land application; or
- b. Only apply solid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon, or digester system; or
- c. Apply no solid manure with a moisture content of more than 50%; or
- d. Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

Required If the CAF applies liquid manure, choose one of the following:

- a. Only apply liquid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon, or digester system; or
- b. Allow liquid manure to stand in the fields for no more than twenty-four (24) hours after irrigation; or
- c. Apply liquid/slurry manure via injection with drag hose or similar apparatus; or
- d. Implement an alternative mitigation measure(s), not listed above - subject to approval by the APCD.

I hereby certify that: I am the owner/operator of the facility on which this plan will be implemented; I have a copy of Rule 217 and I shall comply with the listed mitigation measures.

Signature

Date