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AIR POLLUTION CONTROL DISTRICT

POLICY: Recommended Mitigation Measures for Large Confined Animal Facilities (LCAF's)

DATE: October 10, 2006
Revised June 7, 2022

POLICY: 38

REFERENCE: RULE 217, LARGE CONFINED ANIMAL FACILITIES PERMITS REQUIRED

Because of legislative action, traditionally exempt agricultural sources and their corresponding operations are now required to obtain and maintain a Large Confined Animal Facilities (LCAF) Permit under the requirements of ICAPCD Rule 217. Within the structure of Rule 217, owners or operators of LCAFs are required to submit an application for an Authority to Construct (ATC)/Permit to Operate (PTO), which includes an emission mitigation plan.

Owners and Operators of a LCAF shall develop an emission mitigation plan containing the appropriate selected number of measures within each source category as offered within the attached menu of options.

Matt Dessert
Air Pollution Control Officer

POLICY 38

RULE 217, LARGE CONFINED ANIMAL FACILITIES PERMITS REQUIRED
RECOMMENDED MITIGATION MEASURES FOR
LARGE CONFINED ANIMAL FACILITIES

I. Owners/operators of a LCAF that is a Beef Feedlot shall comply with the following applicable requirements

Beef Feedlot Mitigation Measures Requirements

A. Feed: An owner/operator of a beef feedlot Confined Animal Facility (CAF) shall implement at least two (2) of the following feed mitigation measures:	
1.	Feed according to National Research Council (NRC) guidelines.
2.	Feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains.
3.	Remove uneaten wet feed from feed bunks within twenty-four (24) hours after the end of a rain event.
4.	Implement an alternative mitigation measure(s), not listed above.

B. Silage: An owner/operator of a beef feedlot CAF that feeds silage shall implement at least one (1) of the following silage mitigation measures:	
1.	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: a. 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. Choose one of the following: b. 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 District Rule 217, Section G; or c. 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 District; or d. Incorporate all of the following practices when creating silage piles: i. Harvest silage crop at ≥65% moisture for corn; and ≥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	≤ ½ in	N/A
Processed Corn <35% dry matter	≤ ¾ in	1-4 mm
Alfalfa/Grass	≤ 1.0 in	N/A
Wheat/Cereal/Other	≤ ½ 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:

e. 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.

f. 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.

g. 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 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.

C. Housing: An owner/operator of a beef feedlot CAF shall implement mitigation measures 1, 2, 3, and 4 and at least one (1) additional mitigation measure in each of the animal housing structures (e.g. each corral, etc.):	
1.	a. Scrape corrals twice a year with at least ninety (90) days between cleanings, excluding the removal of in-corral mounds; and b. Clean and remove manure from corrals every eighteen (18) months, including the removal of in-corral mounds.
2.	Inspect water pipes and troughs and repair leaks at least once every seven (7) days.
3.	Choose one of the following: a. Maintain corrals to ensure proper drainage preventing water from standing more than forty-eight (48) hours; unless standing water is the result of a rain event; or b. Harrow, rake, or scrape corrals sufficiently to maintain a dry surface, unless the corrals have not held animals in the last thirty (30) days; except moisture may be permitted in areas underneath shade structures or where animals commonly congregate in large groups.
4.	If the CAF has shade structures, they must choose with 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. Install shade structure so that the structure has a North/South orientation.
5.	Manage corrals and concrete lanes such that the dry manure depth in the pen does not exceed twelve (12) inches at any time or point, except for in-corral mounds. Manure depth may exceed twelve (12) inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of twelve (12) inches or lower immediately upon the corral becoming accessible.
6.	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 twelve (12) inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of twelve (12) inches or lower immediately upon the corral becoming accessible.
7.	Implement an alternative mitigation measure(s), not listed above.
D. Solid Manure/Separated Solids: An owner/operator of a beef feedlot CAF that handles or stores solid manure or separated solids outside the animal housing shall implement at least one (1) of the following mitigation measures:	

1.	Choose one of the following: a. Within 72 hours of removal from animal housing, either remove dry manure from the facility or, during those months where rain occurs, cover dry manure pile with a weatherproof covering, except for times, not to exceed twenty-four (24) hours per event, when wind events remove the covering; or b. Manage moisture content of manure to less than 50%.
2.	Implement an alternative mitigation measure(s), not listed above.

E. Liquid Manure: An owner/operator of a beef feedlot CAF that handles manure in a liquid form shall implement at least one (1) of the following mitigation measures:	
1.	Use a phototropic lagoon.
2.	Use an anaerobic treatment lagoon designed in accordance with NRCS Guideline No. 359.
3.	Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon.
4.	Maintain lagoon pH between 6.5 and 7.5.
5.	Implement an alternative mitigation measure(s), not listed above.

F. Land Application: An owner/operator of a beef feedlot CAF who land applies manure to crop land on the facility shall implement the following applicable mitigation measures:	
1.	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.
2.	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.

II Owners/operators of a LCAF that is a Dairy shall comply with the following applicable requirements:

Dairy LCAF Mitigation Measure Requirements

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:	
1.	Feed according to National Research Council (NRC) guidelines.
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.
3.	Begin feeding total mixed rations within two (2) hours of grinding and mixing rations.
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.

B. Silage: An owner/operator of a dairy CAF that feeds silage shall implement at least one (1) of the following silage mitigation measures:	
1.	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: a. 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. Choose one of the following: b. 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 District Rule 217, Section G; or c. 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 District; or d. Incorporate all of the following practices when creating silage piles: i. Harvest silage crop at ≥65% moisture for corn; and ≥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	≤ ½ in	N/A
Processed Corn <35% dry matter	≤ ¾ in	1-4 mm
Alfalfa/Grass	≤ 1.0 in	N/A
Wheat/Cereal/Other	≤ ½ 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:

e. 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.

f. 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.

g. 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 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.

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:	
1.	Flush or hose milking parlor immediately prior to, immediately after, or during each milking.
2.	Implement an alternative mitigation measure(s), not listed above.

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:	
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.
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.

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:	
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.
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.
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.

4.	Inspect water pipes and troughs and repair leaks at least once every seven (7) days.
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 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.
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.

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:	
1.	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 except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event.
2.	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.
3.	Implement an alternative mitigation measure(s), not listed above.

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

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:	
1.	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.
2.	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.

III Owners/Operators of LCAF that is an other cattle CAF shall comply with the following applicable requirements

Other Cattle Mitigation Measure Requirements

A. Feed: An owner/operator of an other cattle CAF shall implement at least two (2) of the following feed mitigation measures:	
1.	Feed according to National Research Council (NRC) guidelines.
2.	Feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains.
3.	Remove uneaten wet feed from feed bunks within twenty-four (24) hours after the end of a rain event.
4.	Implement an alternative mitigation measure(s), not listed above.

B. Silage: An owner/operator of an other cattle CAF that feeds silage shall implement at least one (1) of the following silage mitigation measures:	
1.	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: a. 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. Choose one of the following: b. 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 District Rule 217, Section G; or c. 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 District; or d. Incorporate all of the following practices when creating silage piles: i. Harvest silage crop at ≥65% moisture for corn; and ≥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	≤ ½ in	N/A
Processed Corn <35% dry matter	≤ ¾ in	1-4 mm
Alfalfa/Grass	≤ 1.0 in	N/A
Wheat/Cereal/Other	≤ ½ 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 one of the following:

e. 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.

f. Maintain silage working face (select one of the following):
   i. Use a shaver/facer to remove silage on the working face of the silage pile.
   ii. Maintain a smooth vertical surface on the working face of the silage pile.

g. 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 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.

C. Freestalls:

An owner/operator of an other cattle 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:

1. Vacuum, scrape, or flush freestalls at least once every seven (7) days.

2. Pave feedaprons, where present, for a width of at least six (6) feet along the corral side of the feedapron.

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.	Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade bedding in freestalls at least once every seven (7) days.
5.	Implement an alternative mitigation measure(s), not listed above.

D. Corrals: An owner/operator of a other cattle CAF that houses animals in corrals shall implement mitigation measures 1, 2, 3, 4, and 5 and at least one (1) additional mitigation measure in each corral where animals have been housed in the last thirty (30) days:	
1.	Scrape corrals twice a year with at least 90 days between cleanings, excluding in-corral mounds.
2.	Choose one of the following: a. Scrape, vacuum, or flush concrete lanes in corrals at least once every seven (7) days; or b. Clean concrete lanes such that the depth of manure does not exceed twelve (12) inches at any point or time.
3.	Inspect water pipes and troughs and repair leaks at least once every seven (7) days.
4.	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. b. Maintain corrals to ensure proper drainage preventing water from standing more than forty-eight (48) hours; or c. Harrow, rake, or scrape corrals and corrals sufficiently to maintain a dry surface, unless the corrals have not held animals in the last thirty (30) days.
5.	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. Install shade structure so that the structure has a North/South orientation.
6.	Manage corrals and concrete lanes such that the dry manure depth in the pen does not exceed twelve (12) inches at any time or point, except for in-corral mounds. Manure depth may exceed twelve (12) inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of twelve (12) inches or lower immediately upon the corral becoming accessible.
7.	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 twelve (12) inches when corrals become inaccessible due to rain events. The facility must

	resume management of the manure depth of twelve (12) inches or lower immediately upon the corral becoming accessible.
8.	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.
9.	Implement an alternative mitigation measure(s), not listed above.

E. Solid Manure/Separated Solids: An owner operator of an other cattle CAF that handles or stores solid manure or separated solids outside the animal housing shall implement at least one (1) of the following mitigation measures:	
1.	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 during those months where rain occurs, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event.
2.	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.
3.	Implement an alternative mitigation measure(s), not listed above.

F. Liquid Manure: An owner/operator of an other cattle CAF that handles manure in a liquid form shall implement at least one (1) of the following mitigation measures:	
1.	Use a phototropic lagoon.
2.	Use an anaerobic treatment lagoon designed in accordance with NRCS Guideline No. 359.
3.	Remove solids from the waste system with a solid separator separation system.
4.	Maintain lagoon pH between 6.5 and 7.5.
5.	Implement an alternative mitigation measure(s), not listed above.

G. Land Application: An owner/operator of an other cattle CAF who land applies manure to crop land on the facility shall implement the following applicable mitigation measures:	
1.	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.
2.	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.

IV An owner/operator of a LCAF that is a swine CAF shall comply with the following requirements

Swine Mitigation Measure Requirements

A. Feed: Owners/operators of a swine CAF shall implement at least two (2) of the following feed mitigation measures:	
1.	Use grain with an average particle size diameter between 300-800 microns.
2.	Utilize phase feeding and split-sex feeding programs to more closely match the nutrient requirements of animals.
3.	Implement an alternative mitigation measure(s), not listed above.

B. Housing: Owners/operators of a swine CAF shall implement at least three (3) of the following mitigation measures in each animal housing unit:	
1.	Use a slatted floor system (slatted floors over deep pits or shallow flush alleys), with daily manure removal for shallow flush alleys and weekly removal from deep pits.
2.	Manage pens such that the manure depth in the pen does not exceed twelve (12) inches at any time or point.
3.	Inspect water pipes and troughs and repair leaks at least once every seven (7) days.
4.	Implement an alternative mitigation measure(s), not listed above.

C. Liquid Manure: Owners/operators of a swine CAF that handle manure in a liquid form shall implement at least one (1) of the following mitigation measures:	
1.	Use a phototropic lagoon.
2.	Use an anaerobic treatment lagoon designed in accordance with NRCS Guideline No. 359.
3.	Maintain lagoon pH between 6.5 and 7.5.

4.	Implement an alternative mitigation measure(s), not listed above.

D. Land Application: Owners/operators of a swine CAF who land apply liquid manure to crop land on the facility shall implement one (1) of the following mitigation measures:	
1.	Allow liquid manure to stand in the fields for no more than twenty-four (24) hours after irrigation.
2.	Implement an alternative mitigation measure(s), not listed above.

V. An owner/operator of a LCAF that is a layer CAF shall comply with the following requirements

Layer Mitigation Measures Requirements

A. Feed: Owners/operators of a layer CAF shall implement at least one (1) of the following feed mitigation measures:	
1.	Choose one of the following: a. Feed according to NRC guidelines; or b. Feed animals probiotics designed to improve digestion according to manufacturer recommendations; or c. Feed animals an amino acid supplemented diet to meet their nutrient requirements; or d. Feed animals feed additives such as amylase, xylanase, and protease, designed to maximize digestive efficiency according to manufacturer recommendations.
2.	Implement an alternative mitigation measure(s), not listed above.

B. Housing: Owners/operators of a layer CAF shall implement at least two (2) of the following housing mitigation measures:	
1.	Use drinkers that do not drip continuously.
2.	Inspect water pipes and drinkers and repair leaks daily.
3.	Implement an alternative mitigation measure(s), not listed above.

C. Solid Manure/Separated Solids: Owners/operators of a layer CAF that handle or store solid litter/manure or separated solids outside the animal housing shall implement at least one (1) of the following mitigation measures:	
1.	Within seventy-two (72) hours of removal from housing, either: a. Remove all litter/manure from the facility; and b. Cover litter/manure outside the housing with a weatherproof covering during those months where rain occurs, except for times when wind events

	remove the covering, not to exceed twenty-four (24) hours per event.
2.	Implement an alternative mitigation measure(s), not listed above.

D. Liquid Manure: Owners/operators of a layer CAF that handle manure in a liquid form shall implement at least one (1) of the following mitigation measures:	
1.	Use a phototropic lagoon.
2.	Use an anaerobic treatment lagoon designed in accordance with NRCS Guideline No. 359.
3.	Maintain lagoon pH between 6.5 and 7.5.
4.	Implement an alternative mitigation measure(s), not listed above.

VI. An owner/operator of a LCAF that is a chicken broiler, duck, or turkey CAF shall comply with the following requirements

Broiler, Duck or Turkey Mitigation Measure Requirements

A. Feed: Owners/operators of a broiler, duck, or turkey CAF shall implement at least one (1) of the following feed mitigation measures:	
1.	Choose one of the following: a. Feed according to NRC guidelines; orb. Feed animals probiotics designed to improve digestion according to manufacturer recommendations; or b. Feed animals probiotics designed to improve digestion according to manufacturer recommendations; or c. Feed animals an amino acid supplemented diet to meet their nutrient requirements; or d. Feed animals feed additives such as amylase, xylanase, and protease, designed to maximize digestive efficiency according to manufacturer recommendations.
2.	Implement an alternative mitigation measure(s), not listed above.

B. Housing: Owners/operators of a broiler or duck CAF shall implement at least four (4) of the following housing mitigation measures: Owners/operators of a turkey CAF shall implement at least five (5) of the following housing mitigation measures:	
1.	Use a dry housing cleaning method at all times, except when a wet cleaning method is required for animal health or biosecurity issues, pursuant to District Rule 217, Section C.1.e.
2.	Use drinkers that do not drip continuously.
3.	Inspect drinkers at least once every seven (7) days and adjust the height,

	volume, and location of drinkers if necessary.
4.	Inspect water pipes and drinkers and repair leaks daily.
5.	If the facility houses turkeys in pens, install mounds or berms up gradient to prevent the runoff of storm water into pens.
6.	Implement an alternative mitigation measure(s), not listed above.

C. Solid Manure/Separated Solids: Owners/operators of a broiler, duck, or turkey CAF that handles or stores solid litter/manure or separated solids outside the animal housing shall implement at least one (1) of the following mitigation measures:	
1.	Within seventy-two (72) hours of removal from housing, either: a. Remove all litter/manure from the facility; or b. Cover litter/manure outside the housing with a weatherproof covering during those months where rain occurs, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event.
2.	Implement an alternative mitigation measure(s), not listed above.

D. Liquid Manure: Owners/operators of a broiler, duck, or turkey CAF that handles manure in a liquid form shall implement at least one (1) of the following mitigation measures:	
1.	Use a phototropic lagoon.
2.	Use an anaerobic treatment lagoon designed in accordance with NRCS Guideline No. 359.
3.	Maintain lagoon pH between 6.5 and 7.5.
4.	Implement an alternative mitigation measure(s), not listed above.