

**San Joaquin Valley
Unified Air Pollution Control District**

Emissions Units at Dairy and Heifer Ranch Facilities

Approved By: <u></u> Arnaud Marjollet Director of Permit Services	Date: <u>May 04. 2015</u>
--	---------------------------

I. Purpose

The purpose of this policy is to identify the various emissions units common to dairy and heifer ranch permit units.

II. Applicability

This policy applies to all Authority to Construct (ATC) and Permit to Operate (PTO) applications for new and modified dairy and heifer ranch facilities.

III. Background

The various operations at dairies and heifer ranches can commonly be grouped into five primary permit units:

- Cow milking (dairy facilities only)
- Cow housing
- Liquid manure handling
- Solid manure handling
- Feed storage and handling

However, not all dairies and heifer ranches may subscribe to these permit units. For example, if a facility does not handle any liquid manure, it will not have a permit unit for liquid manure handling.

Each permit unit may consist of multiple emissions units, as identified in the following section.

IV. Emissions Units

An emissions unit, as defined in District Rule 2201, is an identifiable operation or piece of process equipment such as a source operation which emits, may emit, or results in the emissions of any affected pollutant directly or as fugitive emissions.

The table below lists the five common permit units at most dairy and heifer ranch facilities, and the types of emissions units each may be comprised of.

Cow Milking (Dairies Only)	
Emissions Unit	Reasoning/Comment
<ul style="list-style-type: none"> • Each primary milking parlor 	<ul style="list-style-type: none"> • Cows may be milked in any milking parlor • Each milking parlor operates independently • Potential to Emit can be calculated for each milking parlor
<ul style="list-style-type: none"> • Each hospital milking parlor 	
<ul style="list-style-type: none"> • Each special needs milking parlor 	
<ul style="list-style-type: none"> • Each maternity milking parlor 	

Cow Housing	
Emissions Unit	Reasoning/Comment
<ul style="list-style-type: none"> • Each freestall barn and associated exercise pens 	<ul style="list-style-type: none"> • Each barn or corral is identifiable as a housing structure or area • Each housing structure/area may house specific type(s)/number(s) of cows (based on design capacity) • Emissions from exercise pens are included in the freestall/Saudi style barn uncontrolled emission factor • If facility adds a new housing structure/area or modifies an existing housing structure, only these structures will be subject to BACT (i.e. facility will not have to implement BACT for existing, unmodified housing structures) • Potential to Emit can be calculated for each housing structure/area
<ul style="list-style-type: none"> • Each Saudi style barn and associated exercise pens 	
<ul style="list-style-type: none"> • Each loafing barn 	
<ul style="list-style-type: none"> • Each open corral (also referred to as drylot or pen) 	
<ul style="list-style-type: none"> • Each bedpack barn 	
<ul style="list-style-type: none"> • Each calf hutch housing area (designated area for multiple hutches) 	<ul style="list-style-type: none"> • Multiple calf hutches are typically grouped together in a designated area • A single hutch would otherwise never trigger BACT, allowing facilities to indefinitely add calves • A calf hutch area may have row spacing large enough for feed distribution equipment to pass through. However, larger facilities may have multiple calf hutch areas located in different areas of the facility. • If facility adds a new calf housing area or modifies an existing calf housing area, only these areas will be subject to BACT (i.e. facility will not have to implement BACT for existing, unmodified calf housing areas)

Liquid Manure Handling	
Emissions Unit	Reasoning/Comment
<ul style="list-style-type: none"> Each lagoon/storage pond system (may include multiple lagoons/storage ponds)¹ 	<ul style="list-style-type: none"> Liquid manure flows between the lagoon(s)/storage pond(s) in a system, so each lagoon/storage pond works in conjunction with one another rather than acts as a separate emissions units; Larger facilities may have more than one lagoon/storage pond system, with each system operating independently and only handling manure from specific areas or from a specific number of animals Potential to Emit can be calculated for each lagoon/storage pond system
<ul style="list-style-type: none"> Liquid manure land application (all cropland at facility) 	<ul style="list-style-type: none"> Land application of liquid manure is a separate operation from liquid manure storage; Flood/furrow irrigation disperses liquid across all land, so no easy way to distinguish different application areas and quantity applied. Thus, evaluate on an entire facility basis.

Solid Manure Handling	
Emissions Unit	Reasoning/Comment
<ul style="list-style-type: none"> Solid manure stockpiles (all stockpiles within the facility) 	<ul style="list-style-type: none"> Current solid manure emission factors based on type/age of cows. Impractical to determine which cows contribute to each manure stockpile/windrow. Thus, evaluate on an entire facility basis.
<ul style="list-style-type: none"> Windrow composting (all windrows within the facility) 	
<ul style="list-style-type: none"> Solid manure land application (all cropland at facility) 	<ul style="list-style-type: none"> Land application of solid manure is a separate operation from solid manure storage or composting Equipment disperses solid manure over various cropland. Thus, no easy way to quantify amount of manure applied to different areas, and which cows contribute to the solid manure that is applied.

Feed Storage and Handling	
Emissions Unit	Reasoning/Comment
<ul style="list-style-type: none"> Each silage pile 	<ul style="list-style-type: none"> Each pile evaluated separately ensures BACT applicability addressed for both open and closed piles Potential to emit can be calculated based on each individual pile's dimensions
<ul style="list-style-type: none"> Total Mixed Rations (TMR) Feeding Operation 	<ul style="list-style-type: none"> Potential to emit calculated based on number of animals. TMR mixed and dispensed into housing feedlanes at specified times. Thus, separate source operation than housing structures.

¹ A lagoon/storage pond system may also include processing pits, weeping wells, settling basins, and mechanical separators which aide in solids separation from liquid manure. Solids separation systems separate solid manure and other fibrous materials prior to liquid manure entering the lagoon system. Removal of these materials allows for more complete digestion in the lagoon/storage system. Thus, processing pits, weeping wells, settling basins, and mechanical separations serve as control devices for lagoon/storage pond systems.