



2016 Dairy and Feedlot Operations VOC, PM10 and Ammonia emissions review

The Imperial County APCD (Air District) has recently reviewed the emission factors and control efficiency for application of control measures for both: feedlots and dairies. In addition, the District has found several discrepancies of the current process rate on the emission inventory report for feedlots and the actual process rate reported by the Imperial County Agricultural Department which needs to be corrected. The District proposes to update the 2012 and 2014 Emission Inventory, EIC 620-618-0262-0000, according to the information in Tables 1-3, below.

2012 Emission Inventory Update

On October 10, 2006, the Imperial County APCD adopted Rule 217, Large Confined Animal Facilities Permits Required, which requires mitigation measures for feedlots and dairies to reduce VOC emissions (TOG and ROG). This rule took effect immediately after adoption; however, operators were warranted a 6-month grace period for submittal of a mitigation plan and mitigation measures were required to be fully implemented by January 1, 2008. In addition, the Air District has recently updated the emission factors and control efficiency of feedlots and dairies following San Joaquin APCD's procedures. While, the Air Resources Board has developed emission factors to estimate TOG and ROG emission from dairy and beef feedlot facilities, these emission factors are not based on recent numbers or California specific test data. Therefore, for the current update, the district has opted to use for this evaluation the current emission factors used in San Joaquin. The district chose to use San Joaquin's emission factors due to the following reasons: (a) they are accepted by the Air Resources Board, and (b) they are divided into emission units which facilitates VOC emission evaluation.

The district is requesting to adjust the 2012 and 2014 VOC emission inventory for these source categories to reflect applicability of Rule 217 control measures. Rule 217 control measures were adopted following San Joaquin APCD's Rule 4570 (Confined Animal Facilities); therefore, the air district is updating the 2012 Emission Inventory using SJAPCD emission factors for dairies and beef feedlots. A copy of Rule 4570 Emission Factors and correspondence is attached. Please also note that the population for range cattle is zero due to range cattle is reported as feedlot cattle.

The District proposes to update the 2012-2014 Emission Inventory, EIC 620-618-0262-0000, according to the information in Tables 1 through 3, below. The dairy and feedlot population will be used for this evaluation. The feedlot population was compiled by the Imperial County Agricultural Commissioner. The dairy population was obtained from the Air District permitting files.

Table 1. 2016 Livestock Husbandry
Emission Factors

EIC	Livestock	Emission Factor				
		VOC (Lbs/head/yr)		PM10 (Lbs/1000 head/day)		Ammonia (lb/head/yr)
		Uncontrolled	Controlled	Uncontrolled	Controlled	Controlled
620-618-0262-0101	Dairy	NA	13.5*	6.7	3.35**	74
620-618-0262-0102	Range	0.0	0.00			
620-618-0262-0103	Feedlot	NA	4.6*	28.9	14.45**	26.9

* VOC controlled emission factor (IJVUAPCD, Rule 4570 - Appendix B)

** 50% PM10 control due to implementation of Rule 420 dust control plans requirements.

Note: 25% VOC control due to applicability of Rule 217 control measures for dairies and
23% VOC control due to applicability of Rule 217 control measures for feedlots.

Table 2. Livestock Husbandry
Process Rate and Air Emissions
Dairies
EIC 620-618-0262-0101

YEAR	Population	Emissions						
		VOC (Tons/yr)		VOC (Tons/day)		PM10 (Tons/day)		Ammonia (Tons/day)
		Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Controlled
2008	5250	41.5	35.4	0.11	0.10	0.02	0.01	0.50
2009	5250	41.5	35.4	0.11	0.10	0.02	0.01	0.50
2010	5250	41.5	35.4	0.11	0.10	0.02	0.01	0.50
2011	5250	41.5	35.4	0.11	0.10	0.02	0.01	0.50
2012	4000	31.6	27.0	0.09	0.07	0.01	0.01	0.40
2013	4000	31.6	27.0	0.09	0.07	0.01	0.01	0.40
2014	4000	31.6	27.0	0.09	0.07	0.01	0.01	0.40

* Controlled emission factor due to Rule 217 implementation started in 2008.

Table 3. Livestock Husbandry
Process Rate and Air Emissions
Feedlots
EIC 620-618-0262-0103

YEAR	Population	Emissions				
		VOC (Tons/yr)	VOC (Tons/day)	PM10 (Tons/day)		Ammonia (Tons/day)
		Controlled	Controlled	Uncontrolled	Controlled	Controlled
2008	375,403	863.4	2.4	5.4	2.7	13.8
2009	373,866	859.9	2.4	5.4	2.7	13.8
2010	298,196	685.9	1.9	4.3	2.2	11.0
2011	299,637	689.2	1.9	4.3	2.2	11.0
2012	356,081	819.0	2.2	5.1	2.6	13.1
2013	357,888	823.1	2.3	5.2	2.6	13.1
2014	329,681	758.3	2.1	4.8	2.4	12.1

* Controlled emission factor due to Rule 217 implementation started in 2008.