Revised Project Air Emissions

PM10 EMISSIONS FROM 500 MILK COW DAIRY FACILITY (CATTLE CORRAL DUST)

	Head Capacity					Scenario 1 (AP-42 Emission Factor; include rain effects; ignore calves)								
Source	1997 USDA Census	Support stock to milk cow ratio	Existing Head	Total Head Capacity	**500 milk cow dairy**	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)
	a	b	c=a x b	d	e=500xb	f	g=fxe	h=g/12	I	j=2xixh	k	l=2xkxh	m=hx8	n=m+l +j
Milk Cow	124,660													
Dry Cows & bred heifers	--	0.150	na	na	75	0.02453	2	0	0.5	0	0.75	0	1	2
Heifers (1 yr to breeding)	--	0.480	na	na	240	0.02453	6	0	0.5	0	0.75	1	4	5
Calves (3 mos. To 1 year)	--	0.400	na	na	200	0.00000	0	0	0.5	0	0.75	0	0	0
Baby Calves (<3 months)	--	0.080	na	na	40	0.00000	0	0	0.5	0	0.75	0	0	0
Total														**7**

	Scenario 2 (AP-42 Emission Factor; ignore rain effects; include calves)		Scenario 3 (USDA AAQTF Emission Factor; include rainfall effects, exclude calves)										Scenario 4 (USDA AAQTF Emission Factor; exclude rainfall effects, include calves)		
Source	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)
	o	p=oxe	q	r=qx365/(2000x1000)	s=rxe	t=s/12	u	v=2xtxu	w	x=2xwxt	y=tx8	z=y+x+v	aa	b=aax365/(2000x100	ac=exab
Milke cows															
Dry Cows & bred heifers	0.02453	2	20	0.00365	0.27	0.02	0.5	0	0.75	0	0	0	20	0.00365	0
Heifers (1 yr to breeding)	0.02453	6	20	0.00365	0.88	0.07	0.5	0	0.75	0	1	1	20	0.00365	1
Calves (3 mos. To 1 year)	0.02453	5	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	1
Baby Calves (<3 months)	0.02453	1	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	0
Total		**14**										**1**			**2**

PM10 EMISSIONS FROM 705 MILK COW DAIRY FACILITY (CATTLE CORRAL DUST)

	Head Capacity					Scenario 1 (AP-42 Emission Factor; include rain effects; ignore calves)								
Source	1997 USDA Census	Support stock to milk cow ratio	Existing Head	Total Head Capacity	**705 milk cow dairy**	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)
	a	b	c=a x b	d	e=500xb	f	g=fxe	h=g/12	I	j=2xixh	k	l=2xkxh	m=hx8	n=m+l +j
Milk Cow	124,660													
Dry Cows & bred heifers	--	0.150	na	na	106	0.02453	3	0	0.5	0	0.75	0	2	2
Heifers (1 yr to breeding)	--	0.480	na	na	338	0.02453	8	1	0.5	1	0.75	1	6	7
Calves (3 mos. To 1 year)	--	0.400	na	na	282	0.00000	0	0	0.5	0	0.75	0	0	0
Baby Calves (<3 months)	--	0.080	na	na	56	0.00000	0	0	0.5	0	0.75	0	0	0
Total														**10**

	Scenario 2 (AP-42 Emission Factor; ignore rain effects; include calves)		Scenario 3 (USDA AAQTF Emission Factor; include rainfall effects, exclude calves)										Scenario 4 (USDA AAQTF Emission Factor; exclude rainfall effects, include calves)		
Source	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)
	o	p=oxe	q	r=qx365/(2000x1000)	s=rxe	t=s/12	u	v=2xtxu	w	x=2xwxt	y=tx8	z=y+x+v	aa	b=aax365/(2000x100	ac=exab
Milke cows															
Dry Cows & bred heifers	0.02453	3	20	0.00365	0.39	0.03	0.5	0	0.75	0	0	0	20	0.00365	0
Heifers (1 yr to breeding)	0.02453	8	20	0.00365	1.24	0.10	0.5	0	0.75	0	1	1	20	0.00365	1
Calves (3 mos. To 1 year)	0.02453	7	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	1
Baby Calves (<3 months)	0.02453	1	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	0
Total		**19**										**1**			**3**

PM10 EMISSIONS FROM 2,000 MILK COW DAIRY FACILITY (CATTLE CORRAL DUST)

	Head Capacity					Scenario 1 (AP-42 Emission Factor; include rain effects; ignore calves)								
Source	1997 USDA Census	Support stock to milk cow ratio	Existing Head	Total Head Capacity	**2,000 milk cow dairy**	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)
	a	b	c=a x b	d	e=2,000xb	f	g=fxe	h=g/12	I	j=2xixh	k	l=2xkxh	m=hx8	n=m+l +j
Milk Cow	124,660													
Dry Cows & bred heifers	--	0.150	na	na	300	0.02453	7	1	0.5	1	0.75	1	5	6
Heifers (1 yr to breeding)	--	0.480	na	na	960	0.02453	24	2	0.5	2	0.75	3	16	21
Calves (3 mos. To 1 year)	--	0.400	na	na	800	0.00000	0	0	0.5	0	0.75	0	0	0
Baby Calves (<3 months)	--	0.080	na	na	160	0.00000	0	0	0.5	0	0.75	0	0	0
Total														**27**

	Scenario 2 (AP-42 Emission Factor; ignore rain effects; include calves)		Scenario 3 (USDA AAQTF Emission Factor; include rainfall effects, exclude calves)										Scenario 4 (USDA AAQTF Emission Factor; exclude rainfall effects, include calves)		
Source	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)
	o	p=oxe	q	r=qx365/(2000x1000)	s=rxe	t=s/12	u	v=2xtxu	w	x=2xwxt	y=tx8	z=y+x+v	aa	b=aax365/(2000x1000	ac=exab
Milke cows															
Dry Cows & bred heifers	0.02453	7	20	0.00365	1.10	0.09	0.5	0	0.75	0	1	1	20	0.00365	1
Heifers (1 yr to breeding)	0.02453	24	20	0.00365	3.50	0.29	0.5	0	0.75	0	2	3	20	0.00365	4
Calves (3 mos. To 1 year)	0.02453	20	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	3
Baby Calves (<3 months)	0.02453	4	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	1
Total		**54**										**4**			**8**

PM10 EMISSIONS FROM 5,000 MILK COW DAIRY FACILITY (CATTLE CORRAL DUST)

	Head Capacity					Scenario 1 (AP-42 Emission Factor; include rain effects; ignore calves)								
Source	1997 USDA Census	Support stock to milk cow ratio	Existing Head	Total Head Capacity	**5,000 milk cow dairy**	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)
	a	b	c=a x b	d	e=5,000xb	f	g=fxe	h=g/12	I	j=2xixh	k	l=2xkxh	m=hx8	n=m+l +j
Milk Cow	124,660													
Dry Cows & bred heifers	--	0.150	na	na	750	0.02453	18	2	0.5	2	0.75	2	12	16
Heifers (1 yr to breeding)	--	0.480	na	na	2,400	0.02453	59	5	0.5	5	0.75	7	39	52
Calves (3 mos. To 1 year)	--	0.400	na	na	2,000	0.00000	0	0	0.5	0	0.75	0	0	0
Baby Calves (<3 months)	--	0.080	na	na	400	0.00000	0	0	0.5	0	0.75	0	0	0
Total														**68**

	Scenario 2 (AP-42 Emission Factor; ignore rain effects; include calves)		Scenario 3 (USDA AAQTF Emission Factor; include rainfall effects, exclude calves)										Scenario 4 (USDA AAQTF Emission Factor; exclude rainfall effects, include calves)		
Source	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)	PM10 Emissions (tons/month)	PM10 redn in Jan and Feb	PM10 Emissions Jan and Feb	PM10 redn in Dec & Mar	PM10 Emissions Dec & Mar	PM10 Emissions other months	Total PM10 Emissions (tons/yr)	PM10 EF (lb/1000hd-day)	PM10 EF (tons/head-yr)	PM10 Emissions (tons/yr)
	o	p=oxe	q	r=qx365/(2000x1000)	s=rxe	t=s/12	u	v=2xtxu	w	x=2xwxt	y=tx8	z=y+x+v	aa	b=aax365/(2000x1000	ac=exab
Milke cows															
Dry Cows & bred heifers	0.02453	18	20	0.00365	2.74	0.23	0.5	0	0.75	0	2	2	20	0.00365	3
Heifers (1 yr to breeding)	0.02453	59	20	0.00365	8.76	0.73	0.5	1	0.75	1	6	8	20	0.00365	9
Calves (3 mos. To 1 year)	0.02453	49	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	7
Baby Calves (<3 months)	0.02453	10	0	0.00000	0.00	0.00	0.5	0	0.75	0	0	0	20	0.00365	1
Total		**136**										**10**			**20**

SUMMARY

	Scenario (tons/year)			
milk cow dairy capacity	**1**	**2**	**3**	**4**
500	7	14	1	2
705	10	19	1	3
2,000	27	54	4	8
5,000	68	136	10	20

Notes:

a Total milk cows in Kings County in 1997 from 1997 USDA Census of Agriculture for Kings County, CA.

b Ratio of milk cow to support stock for total cattle capacity in Kings County, as provided in Table No. 5, Nitrogen & Salt Generation Calculation Table.

c The USDA 1997 Census of Agriculture for Kings County, CA did not provide a breakdown for the number of dry cows, heifers, and calves. Therefore, the number of dry cows, heifers, and calves was determined using the support stock to milk cow ratio.

d Determined from Table No. 5, Nitrogen & Salt Generation Calculation Table.

f PM10 Emission factor obtained from CARB's Section 7.6 (Cattle Feedlot Dust), March 1989, Emission Inventory Procedural Manual and from USEPA AP42 4th edition; Emission factor assumes a PM10 percent of 48%, based on CARB's Section 7.6. PM10EF = (280lb/1000head-day) x (0.48 PM10) x (365 day/yr) / (2000 lb/ton) = 0.024528 tons/head-year. The emission factor used is for beef cattle in cattle feedlots since PM10 emission factors for support stock at dairy facilities are not available.

i, j According to CARB (personal communication between Mr. Patrick Gaffney, CARB and Ms. Rhodora Del Rosario, BASELINE, on 8/30/99, CARB has not published data that identifies the rainfall volume that would reduce reduce PM10 emissions from feedlot corrals. Based on the lack of data, CARB suggested that published PM10 reductions applied for land preparation be used for feedlot calculations.

q PM10 Emission factor obtained from Confined Livestock Air Quality Committee of the USDA Agricultural Air Quality Committee of the USDA Agricultural Air Quality Task Force, Air Quality Research & Technology Transfer Programs for Concentrated Animal Feeding Operations Air Quality Research and Technoloy Transfer White Paper and Recommendations for Concentrated Animal Feeding Operations, Adopted by USDA Agricultural Air Quality Task Force, Washington D.C., July 19, 2000; emission factor reflects non-annualized value since rainfall effects in Texas would different compared to California.

ROG & Methane Emissions from Manure Decomposition

Existing Conditions

Source	Existing	ratio	Head	emission factors (lb/head-year)			emission (lb/year)			emission (ton/year)		
				TOG	Methane	ROG	TOG	Methane	ROG	TOG	Methane	ROG
	a	b	c=axb	d	e	f	g=cxd	h=cxe	I=cxf	j=g/2000	k=h/2000	L=I/2000
Milk cows	124,668	1	124,668	160.8	112.56	12.88	20,046,614	14,032,630	1,605,734	10,023	7,016	803
Dry Cows & bred heifers		0.150	18,700	160.8	112.56	12.88	3,006,992	2,104,895	240,860	1,503	1,052	120
Heifers (1 yr to breeding)		0.480	59,841	160.8	112.56	12.88	9,622,406	6,735,684	770,755	4,811	3,368	385
Calves (3 mos. To 1 year)		0.400	49,867	160.8	112.56	12.88	8,018,646	5,613,052	642,294	4,009	2,807	321
Baby Calves (<3 months)		0.080	9,973	160.8	112.56	12.88	1,603,708	1,122,596	128,457	802	561	64
Total			**263,050**				42,298,367	29,608,857	3,388,099	**21,149**	**14,804**	**1,694**

Future Conditions

Source	Future Total Head Capacity	emission factors (lb/head-year)			emission (lb/year)			emission (ton/year)		
		TOG	Methane	ROG	TOG	Methane	ROG	TOG	Methane	ROG
	m	n	o	p	q=mxn	r=mxo	s=mxp	t=q/2000	u=r/2000	v=s/2000
Milk cows	381,980	160.8	112.56	12.88	61,422,384	42,995,669	4,919,933	30,711	21,498	2,460
Dry Cows & bred heifers	57,297	160.8	112.56	12.88	9,213,358	6,449,350	737,990	4,607	3,225	369
Heifers (1 yr to breeding)	183,351	160.8	112.56	12.88	29,482,841	20,637,989	2,361,576	14,741	10,319	1,181
Calves (3 mos. To 1 year)	152,792	160.8	112.56	12.88	24,568,954	17,198,268	1,967,973	12,284	8,599	984
Baby Calves (<3 months)	30,558	160.8	112.56	12.88	4,913,726	3,439,608	393,589	2,457	1,720	197
Total	**805,978**				129,601,262	90,720,884	10,381,061	**64,801**	**45,360**	**5,191**

500 Milk Cow Dairy

Source	500 milk cow dairy	ratio	Head	emission factors (lb/head-year)			emission (lb/year)			emission (ton/year)		
				TOG	Methane	ROG	TOG	Methane	ROG	TOG	Methane	ROG
	a	b	c=axb	d	e	f	g=cxd	h=cxe	I=cxf	j=g/2000	k=h/2000	L=I/2000
Milk cows	500	1	500	160.8	112.56	12.88	80,400	56,280	6,440	40	28	3
Dry Cows & bred heifers		0.150	75	160.8	112.56	12.88	12,060	8,442	966	6	4	0
Heifers (1 yr to breeding)		0.480	240	160.8	112.56	12.88	38,592	27,014	3,091	19	14	2
Calves (3 mos. To 1 year)		0.400	200	160.8	112.56	12.88	32,160	22,512	2,576	16	11	1
Baby Calves (<3 months)		0.080	40	160.8	112.56	12.88	6,432	4,502	515	3	2	0
Total			**1,055**				169,644	118,751	13,588	85	59	7

705 Milk Cow Dairy

Source	705 milk cow dairy	ratio	Head	emission factors (lb/head-year)			emission (lb/year)			emission (ton/year)		
				TOG	Methane	ROG	TOG	Methane	ROG	TOG	Methane	ROG
	a	b	c=axb	d	e	f	g=cxd	h=cxe	I=cxf	j=g/2000	k=h/2000	L=I/2000
Milk cows	705	1	705	160.8	112.56	12.88	113,364	79,355	9,080	57	40	5
Dry Cows & bred heifers		0.150	106	160.8	112.56	12.88	17,005	11,903	1,362	9	6	1
Heifers (1 yr to breeding)		0.480	338	160.8	112.56	12.88	54,415	38,090	4,359	27	19	2
Calves (3 mos. To 1 year)		0.400	282	160.8	112.56	12.88	45,346	31,742	3,632	23	16	2
Baby Calves (<3 months)		0.080	56	160.8	112.56	12.88	9,069	6,348	726	5	3	0
Total			**1,488**				239,198	167,439	19,160	120	84	10

2,000 Milk Cow Dairy

Source	2,000 milk cow dairy	ratio	Head	emission factors (lb/head-year)			emission (lb/year)			emission (ton/year)		
				TOG	Methane	ROG	TOG	Methane	ROG	TOG	Methane	ROG
	a	b	c=axb	d	e	f	g=cxd	h=cxe	I=cxf	j=g/2000	k=h/2000	L=I/2000
Milk cows	2,000	1	2,000	160.8	112.56	12.88	321,600	225,120	25,760	161	113	13
Dry Cows & bred heifers		0.150	300	160.8	112.56	12.88	48,240	33,768	3,864	24	17	2
Heifers (1 yr to breeding)		0.480	960	160.8	112.56	12.88	154,369	108,058	12,365	77	54	6
Calves (3 mos. To 1 year)		0.400	800	160.8	112.56	12.88	128,640	90,048	10,304	64	45	5
Baby Calves (<3 months)		0.080	160	160.8	112.56	12.88	25,728	18,009	2,061	13	9	1
Total			**4,220**				678,576	475,003	54,354	**339**	**238**	**27**

5,000 Milk Cow Dairy

Source	5,000 milk cow dairy	ratio	Head	emission factors (lb/head-year)			emission (lb/year)			emission (ton/year)		
				TOG	Methane	ROG	TOG	Methane	ROG	TOG	Methane	ROG
	a	b	c=axb	d	e	f	g=cxd	h=cxe	I=cxf	j=g/2000	k=h/2000	L=I/2000
Milk cows	5,000	1	5,000	160.8	112.56	12.88	804,000	562,800	64,400	402	281	32
Dry Cows & bred heifers		0.150	750	160.8	112.56	12.88	120,600	84,420	9,660	60	42	5
Heifers (1 yr to breeding)		0.480	2,400	160.8	112.56	12.88	385,921	270,145	30,912	193	135	15
Calves (3 mos. To 1 year)		0.400	2,000	160.8	112.56	12.88	321,600	225,120	25,760	161	113	13
Baby Calves (<3 months)		0.080	400	160.8	112.56	12.88	64,319	45,023	5,152	32	23	3
Total			**10,550**				1,696,440	1,187,508	135,885	**848**	**594**	**68**

Summary

	emission (lb/year)			**emission (ton/year)**		
Scenario	**TOG**	**Methane**	**ROG**	**TOG**	**Methane**	**ROG**
Existing Conditions	42,298,367	29,608,857	3,388,099	21,149	14,804	1,694
Future Conditions	129,601,262	90,720,884	10,381,061	64,801	45,360	5,191
500 milk cow dairy	169,644	118,751	13,588	85	59	7
705 milk cow dairy	239,198	167,439	19,160	120	84	10
2000 milk cow dairy	678,576	475,003	54,354	339	238	27
5000 milk cow dairy	1,696,440	1,187,508	135,885	848	594	68

Notes:
a (Existing & Future) - From Table No. 5 (Theoretical Dairy Herd Capacity in Kings County)
b (Existing) - Ratio of milk cow to support stock for total cattle capacity in Kings County, as provided in Table No. 5(Theoretical Dairy Capacity of Kings County)
Emission factors are from CARB Livestock Waste Methodology and 1988, Radian; assumed emission factor
published is for milk cows; adjusted head to equivalent head using Animal Unit (AU) conversion factors.

Ammonia Emissions Generated from Manure Decomposition

Cattle	head	emission factor (lb/animal/yr) NH3	emission (lb/year) NH3	emissions (tons/year) NH3
Existing Conditions				
milk cows	124,668	74.00	9,225,432	4,613
dry cows&bred	18,700	74.00	1,383,815	692
heifers (1yr-bred)	59,841	74.00	4,428,222	2,214
3mo-1yr calves	49,867	74.00	3,690,173	1,845
baby calves	9,973	74.00	738,025	369
Total	**263,050**		**19,465,666**	**9,733**
Future Conditions				
milk cows	381,980	74.00	28,266,520	14,133
dry cows&bred	57,297	74.00	4,239,978	2,120
heifers (1yr-bred)	183,351	74.00	13,567,974	6,784
3mo-1yr calves	152,792	74.00	11,306,608	5,653
baby calves	30,558	74.00	2,261,292	1,131
Total	**805,978**		**59,642,372**	**29,821**
500 milk cow dairy				
milk cows	500	74.00	37,000	19
dry cows&bred	75	74.00	5,550	3
heifers (1yr-bred)	240	74.00	17,760	9
3mo-1yr calves	200	74.00	14,800	7
baby calves	40	74.00	2,960	1
Total	**1,055**		**78,070**	**39**
705 milk cow dairy				
milk cows	705	74.00	52,170	26
dry cows&bred	106	74.00	7,826	4
heifers (1yr-bred)	338	74.00	25,042	13
3mo-1yr calves	282	74.00	20,868	10
baby calves	56	74.00	4,174	2
Total	**1,488**		**110,079**	**55**
2,000 milk cow dairy				
milk cows	2,000	74.00	148,000	74
dry cows&bred	300	74.00	22,200	11
heifers (1yr-bred)	960	74.00	71,040	36
3mo-1yr calves	800	74.00	59,200	30
baby calves	160	74.00	11,840	6
Total	**4,220**		**312,280**	**156**
5,000 milk cow dairy				
milk cows	5,000	74.00	370,000	185
dry cows&bred	750	74.00	55,500	28
heifers (1yr-bred)	2,400	74.00	177,601	89
3mo-1yr calves	2,000	74.00	148,000	74
baby calves	400	74.00	29,600	15
Total	**10,550**		**780,700**	**390**

Notes:
Emission factors obtained from James, et al.; emission factor
does not speciate between the different cattle types (e.g., heifers, calves, cows) as it reflects the average emission factor for all cattle types; estimate assumes that ratios of cattle types are similar to the dairy studied by UC Davis in developing the emission factor.
Support stock for existing, 500-, 2,000-, and 5,000-cow dairy conditions were determined using the ratio of milk cow to support stock for total capacity in Kings County, as provided in Table No. 5B (Theoretical Dairy Capacity of Kings County).

Ammonia Emissions Generated from Manure Decomposition

Cattle	head	emission factor (lb/animal/yr) NH3	emission (lb/year) NH3	emissions (tons/year) NH3
Existing Conditions				
milk cows	124,668	28.37	3,537,230	1,769
dry cows&bred	18,700	28.37	530,585	265
heifers (1yr-bred)	59,841	8.54	510,874	255
3mo-1yr calves	49,867	3.53	176,011	88
baby calves	9,973	3.53	35,202	18
Total	263,050		4,789,902	2,395
Future Conditions				
milk cows	381,980	28.37	10,837,996	5,419
dry cows&bred	57,297	28.37	1,625,699	813
heifers (1yr-bred)	183,351	8.54	1,565,308	783
3mo-1yr calves	152,792	3.53	539,295	270
baby calves	30,558	3.53	107,858	54
Total	805,978		14,676,155	7,338
500 milk cow dairy				
milk cows	500	28.37	14,187	7
dry cows&bred	75	28.37	2,128	1
heifers (1yr-bred)	240	8.54	2,049	1
3mo-1yr calves	200	3.53	706	0
baby calves	40	3.53	141	0
Total	1,055		19,211	10
705 milk cow dairy				
milk cows	705	28.37	20,003	10
dry cows&bred	106	28.37	3,000	2
heifers (1yr-bred)	338	8.54	2,889	1
3mo-1yr calves	282	3.53	995	0
baby calves	56	3.53	199	0
Total	1,488		27,087	14
2,000 milk cow dairy				
milk cows	2,000	28.37	56,746	28
dry cows&bred	300	28.37	8,512	4
heifers (1yr-bred)	960	8.54	8,196	4
3mo-1yr calves	800	3.53	2,824	1
baby calves	160	3.53	565	0
Total	4,220		76,843	38
5,000 milk cow dairy				
milk cows	5,000	28.37	141,866	71
dry cows&bred	750	28.37	21,280	11
heifers (1yr-bred)	2,400	8.54	20,489	10
3mo-1yr calves	2,000	3.53	7,059	4
baby calves	400	3.53	1,412	1
Total	**10,550**		**192,106**	**96**

Notes:
Emission factors obtained from 1994 Battye Report; emission factors reflect stable & storage emission factor components only.
Support stock for existing, 500-, 2,000-, and 5,000-cow dairy conditions were determined using the ratio of milk cow to support stock for total capacity in Kings County, as provided in Table No. 5B (Theoretical Dairy Capacity of Kings County).

Methane Generation from Dairy Cattle

Animal type	#cows	Emission Factor (lb CH4/head/year)	Emissions (tons CH4/year)	Notes
Existing Conditions				
milk cows	124,668	262.5	16,363	considered mature cows
dry cows&bred	18,700	152	1,421	used beef cattle mature cows since these cows are not milk cows
heifers (1yr-bred)	59,841	134.6	4,027	considered replacement cows from 12 -24 months
3mo-1yr calves	49,867	45.5	1,134	considered replacement cows from 0-12 months
baby calves	9,973	45.5	227	considered replacement cows from 0-12 months
Total	263,050		**23,173**	
Future Conditions				
milk cows	381,980	262.5	50,135	considered mature cows
dry cows&bred	57,297	152	4,355	used beef cattle mature cows since these cows are not milk cows
heifers (1yr-bred)	183,351	134.6	12,340	considered replacement cows from 12 -24 months
3mo-1yr calves	152,792	45.5	3,476	considered replacement cows from 0-12 months
baby calves	30,558	45.5	695	considered replacement cows from 0-12 months
Total	805,978		**71,000**	
500 milk cow dairy				
milk cows	500	262.5	66	considered mature cows
dry cows&bred	75	152	6	used beef cattle mature cows since these cows are not milk cows
heifers (1yr-bred)	240	134.6	16	considered replacement cows from 12 -24 months
3mo-1yr calves	200	45.5	5	considered replacement cows from 0-12 months
baby calves	40	45.5	1	considered replacement cows from 0-12 months
Total	1,055		**93**	
705 milk cow dairy				
milk cows	705	262.5	93	considered mature cows
dry cows&bred	106	152	8	used beef cattle mature cows since these cows are not milk cows
heifers (1yr-bred)	338	134.6	23	considered replacement cows from 12 -24 months
3mo-1yr calves	282	45.5	6	considered replacement cows from 0-12 months
baby calves	56	45.5	1	considered replacement cows from 0-12 months
Total	1,488		**131**	
2,000 milk cow dairy				
milk cows	2,000	262.5	263	considered mature cows
dry cows&bred	300	152	23	used beef cattle mature cows since these cows are not milk cows
heifers (1yr-bred)	960	134.6	65	considered replacement cows from 12 -24 months
3mo-1yr calves	800	45.5	18	considered replacement cows from 0-12 months
baby calves	160	45.5	4	considered replacement cows from 0-12 months
Total	4,220		**372**	
5,000 milk cow dairy				
milk cows	5,000	262.5	656	considered mature cows
dry cows&bred	750	152	57	used beef cattle mature cows since these cows are not milk cows
heifers (1yr-bred)	2,400	134.6	162	considered replacement cows from 12 -24 months
3mo-1yr calves	2,000	45.5	46	considered replacement cows from 0-12 months
baby calves	400	45.5	9	considered replacement cows from 0-12 months
Total	10,550		**929**	

Notes:
Emission factors obtained from CARB and Radian Report
Support stock for existing, 500-, 2,000-, and 5,000-cow dairy conditions were determined using the ratio of milk cow to support stock for total capacity in Kings County, as provided in Table No. 5B (Theoretical Dairy Capacity of Kings County).

Future Capacity PM10 Emissions from Corrals

Assumes All New Future and Expanded Dairies Subject to Dairy Element 50% Reduction Control Measure

	Uncontrolled Emissions					50% Controlled Emission Reduction from Future New and Expanded Dairies							Controlled Future Conditions	
Animal Type	Existing Head	Future Total Head Capacity	Emissons from Existing Head (tons/year)	Emissons from Future Total Head Capacity (tons/year)	Net Increase in Emissons under Future Conditions (tons per year)	Emissions from Future Expanded and New Dairies (tons/year)	Emissions from Future Expanded and New Dairies (tons/month)	Zero % reduction in Jan and Feb (tons/2months)	25% further reduction in Dec. & Mar. (tons/2 months)	50% reduction from Apr through Nov (tons/8 months)	50% reduction year round (tons/year)	Total Controlled Emission Reduction (tons/year)	Total Future Conditions (tons/year)	Total Net Emission Increase under Future Conditions (tons/year)
Scenario 1														
Milk cows	124,668	381,980	-	-	-	-	-	-	-	-	NA	-	-	-
Dry Cows & bred heifers	18,700	57,297	401	1,230	828	828	69	138	91	276	NA	505	907	505
Heifers (1 yr to breeding)	59,841	183,351	1,284	3,935	2,651	2,651	221	442	292	884	NA	1,617	2,901	1,617
Calves (3 mos. To 1 year)	49,867	152,792	-	-	-	-	-	-	-	-	NA	-	-	-
Baby Calves (<3 months)	9,973	30,558	-	-	-	-	-	-	-	-	NA	-	-	-
Total	263,049	**805,978**	1,686	5,165	3,479	3,479	290	580	383	1,160	NA	2,122	3,808	2,122
Scenario 2														
Milk cows	124,668	381,980	-	-	-	-	-	NA	NA	NA	-	-	-	-
Dry Cows & bred heifers	18,700	57,297	459	1,405	947	947	79	NA	NA	NA	473	473	932	473
Heifers (1 yr to breeding)	59,841	183,351	1,468	4,497	3,029	3,029	252	NA	NA	NA	1,515	1,515	2,983	1,515
Calves (3 mos. To 1 year)	49,867	152,792	1,223	3,748	2,525	2,525	210.38	NA	NA	NA	1,262	1,262	2,485	1,262
Baby Calves (<3 months)	9,973	30,558	245	750	505	505	42.08	NA	NA	NA	252	252	497	252
Total	263,049	**805,978**	3,394	10,400	7,006	7,006	584	NA	NA	NA	3,503	3,503	6,897	3,503
Scenario 3														
Milk cows	124,668	381,980	-	-	-	-	-	-	-	-	NA	-	-	-
Dry Cows & bred heifers	18,700	57,297	60	183	123	123	10	21	14	41	NA	75	135	75
Heifers (1 yr to breeding)	59,841	183,351	191	586	394	394	33	66	43	131	NA	241	432	241
Calves (3 mos. To 1 year)	49,867	152,792	-	-	-	-	-	-	-	-	NA	-	-	-
Baby Calves (<3 months)	9,973	30,558	-	-	-	-	-	-	-	-	NA	-	-	-
Total	263,049	**805,978**	251	769	518	518	43	86	57	173	NA	316	567	316
Scenario 4														
Milk cows	124,668	381,980	-	-	-	-	-	NA	NA	NA	-	-	-	-
Dry Cows & bred heifers	18,700	57,297	68	209	141	141	12	NA	NA	NA	70	70	139	70
Heifers (1 yr to breeding)	59,841	183,351	218	669	451	451	38	NA	NA	NA	225	225	444	225
Calves (3 mos. To 1 year)	49,867	152,792	182	558	376	376	31.31	NA	NA	NA	188	188	370	188
Baby Calves (<3 months)	9,973	30,558	36	112	75	75	6.26	NA	NA	NA	38	38	74	38
Total	263,049	**805,978**	505	1,548	1,043	1,043	87	NA	NA	NA	521	521	1,026	521

Future Capacity Methane Emissions from Manure Decomposition

Assumes Only New Future Dairies Subject to Dairy Element 50% Methane Reduction Control Measure;
Existing Dairies and Expansion Limits are Exempt from Dairy Element Methane Control Measures

Animal Type	Emission Factor (lb/head-yr)	Existing Dairies					
		Existing Head	Future Expansion Head Limit[1]	Total Dairy Head (Expansion and Existing)	Emissons from Existing Head (tons/year)	Emissons from Expanded Head (tons/year)	Total Uncontrolled Emissions[2] (tons/yr)
Milk cows	112.56	124,668	24,559	149,227	7,016	1,382	8,398
Dry Cows & bred heifers	112.56	18,700	3,684	22,384	1,052	207	1,260
Heifers (1 yr to breeding)	112.56	59,841	11,788	71,629	3,368	663	4,031
Calves (3 mos. To 1 year)	112.56	49,867	9,824	59,691	2,807	553	3,359
Baby Calves (<3 months)	112.56	9,973	1,965	11,938	561	111	672
Total		263,049	51,820	314,868	14,804	2,916	17,721

Animal Type	Emission Factor (lb/head-yr)	New Dairies/Dairy Expansion[3]				
		Total Head[4]	Uncontrolled Total Emission (lb/yr)	Uncontrolled Total Emission (ton/yr)	50% Emission Control (ton/yr)	Total Controlled Emissions (ton/yr)
Milk cows	112.56	232,753	26,198,711	13,099	6,550	6,550
Dry Cows & bred heifers	112.56	34,913	3,929,807	1,965	982	982
Heifers (1 yr to breeding)	112.56	111,722	12,575,422	6,288	3,144	3,144
Calves (3 mos. To 1 year)	112.56	93,101	10,479,484	5,240	2,620	2,620
Baby Calves (<3 months)	112.56	18,620	2,095,869	1,048	524	524
Total		491,110	55,279,293	27,640	13,820	13,820

	Future Conditions	
Animal Type	Total Emissions w/Implementation of Control Measure[5]	Total Net Increase in Emissions
Milk cows	**14,948**	**7,932**
Dry Cows & bred heifers	**2,242**	**1,190**
Heifers (1 yr to breeding)	**7,175**	**3,807**
Calves (3 mos. To 1 year)	**5,979**	**3,173**
Baby Calves (<3 months)	**1,196**	**635**
Total	**31,541**	**16,736**

Notes:

[1] Future expansion head limit reflects the cumulative maximum number of head that existing individual dairies can expand to, without exceeding the ROG threshold limit of 10 tons/year. Expansion of existing dairies which currently exceed the ROG threshold limit would be subject to the 50% Reduction Control Measure.

[2] Existing dairies which currently exceed the ROG threshold limit would not be subject to the 50% Reduction Control Measure.

[3] New dairies also include the expansion of existing dairies which currently exceed the ROG threshold limit.

[4] Total head reflects total future capacity minus head from existing dairies and head from expansion of existing dairies that are not required to implement the 50% Methane Control Measure.

[5] The 50% Control Measure would be required for all new dairies and expansion of existing dairies which currently exceed the ROG threshold limit.

Future Capacity ROG Emissions from Manure Decomposition

Assumes Only New Future Dairies Subject to Dairy Element 50% ROG Reduction Control Measure;
Existing Dairies and Expansion Limits are Exempt from Dairy Element ROG Control Measures

Animal Type	Emission Factor (lb/head-yr)	Existing Dairies					
		Existing Head	Future Expansion Head Limit[1]	Total Dairy Head (Expansion and Existing)	Emissons from Existing Head (tons/year)	Emissons from Expanded Head (tons/year)	Total Uncontrolled Emissions[2] (tons/yr)
Milk cows	12.88	124,668	24,559	149,227	803	158	961
Dry Cows & bred heifers	12.88	18,700	3,684	22,384	120	24	144
Heifers (1 yr to breeding)	12.88	59,841	11,788	71,629	385	76	461
Calves (3 mos. To 1 year)	12.88	49,867	9,824	59,691	321	63	384
Baby Calves (<3 months)	12.88	9,973	1,965	11,938	64	13	77
Total		263,049	51,820	314,868	1,694	334	2,028

Animal Type	Emission Factor (lb/head-yr)	New Dairies/Dairy Expansion[3]				
		Total Head[4]	Uncontrolled Total Emission (lb/yr)	Uncontrolled Total Emission (ton/yr)	50% Emission Control (ton/yr)	Total Controlled Emissions (ton/yr)
Milk cows	12.88	232,753	2,997,881	1,499	749	749
Dry Cows & bred heifers	12.88	34,913	449,682	225	112	112
Heifers (1 yr to breeding)	12.88	111,722	1,438,988	719	360	360
Calves (3 mos. To 1 year)	12.88	93,101	1,199,152	600	300	300
Baby Calves (<3 months)	12.88	18,620	239,827	120	60	60
Total		491,110	6,325,531	3,163	1,581	1,581

	Future Conditions	
Animal Type	Total Emissions w/Implementation of Control Measure[5]	Total Net Increase in Emissions
Milk cows	**1,710**	**908**
Dry Cows & bred heifers	**257**	**136**
Heifers (1 yr to breeding)	**821**	**436**
Calves (3 mos. To 1 year)	**684**	**363**
Baby Calves (<3 months)	**137**	**73**
Total	**3,609**	**1,915**

Notes:

[1] Future expansion head limit reflects the cumulative maximum number of head that existing individual dairies can expand to, without exceeding the ROG threshold limit of 10 tons/year. Expansion of existing dairies which currently exceed the ROG threshold limit would be subject to the 50% ROG Reduction Control Measure.

[2] Existing dairies which currently exceed the ROG threshold limit would not be subject to the 50% ROG Reduction Control Measure.

[3] New dairies also include the expansion of existing dairies which currently exceed the ROG threshold limit.

[4] Total head reflects total future capacity minus head from existing dairies and head from expansion of existing dairies that are not required to implement the 50% ROG Control Measure.

[5] The 50% ROG Control Measure would be required for all new dairies and expansion of existing dairies which currently exceed the ROG threshold limit.

ROG EMISSIONS FROM EXISTING DAIIRES AND LIMITED EXPANDED DAIRIES

	Existing Conditions[1]									Total Expansion Limit								
Dairy	Milk cows	Dry Cows & bred heifers	Heifers (1 yr to breeding)	Calves (3 mos. To 1 year)	Baby Calves (<3 months)	Total Head	ROG (lb/year)	ROG (ton/year)	Exceed ROG Threshold (ton/year)	Milk cows	Dry Cows & bred heifers	Heifers (1 yr to breeding)	Calves (3 mos. To 1 year)	Baby Calves (<3 months)	Total Expan-sion Head	ROG (lb/year)	ROG (ton/year)	Exceed ROG Threshold (ton/year)
Maximum Limit	*705*	*106*	*338*	*282*	*56*	*1,488*	*19,160*	*9.58*	*no*	--	--	--	--	--	--	--	--	--
1	81	12	39	*32*	*6*	171	2,201	1	no	624	94	300	250	50	1,317	16,958	8	no
2	98	15	47	*39*	*8*	207	2,663	1	no	607	91	291	243	49	1,281	16,496	8	no
3	110	17	53	*44*	*9*	232	2,989	1	no	595	89	286	238	48	1,255	16,170	8	no
4	118	18	56	*47*	*9*	248	3,197	2	no	587	88	282	235	47	1,239	15,962	8	no
5	118	18	56	*47*	*9*	248	3,197	2	no	587	88	282	235	47	1,239	15,962	8	no
6	133	20	64	*53*	*11*	281	3,615	2	no	572	86	275	229	46	1,207	15,545	8	no
7	164	25	79	*66*	*13*	346	4,457	2	no	541	81	260	216	43	1,142	14,703	7	no
8	166	25	80	*66*	*13*	350	4,511	2	no	539	81	259	216	43	1,137	14,648	7	no
9	176	26	85	*71*	*14*	372	4,796	2	no	529	79	254	211	42	1,115	14,364	7	no
10	176	26	85	*71*	*14*	372	4,796	2	no	529	79	254	211	42	1,115	14,364	7	no
11	176	26	85	*71*	*14*	372	4,796	2	no	529	79	254	211	42	1,115	14,364	7	no
12	176	26	85	*71*	*14*	372	4,796	2	no	529	79	254	211	42	1,115	14,364	7	no
13	183	27	88	*73*	*15*	386	4,973	2	no	522	78	251	209	42	1,101	14,186	7	no
14	200	30	96	*80*	*16*	422	5,435	3	no	505	76	242	202	40	1,066	13,724	7	no
15	235	35	113	*94*	*19*	496	6,395	3	no	470	70	225	188	38	991	12,765	6	no
16	235	35	113	*94*	*19*	496	6,395	3	no	470	70	225	188	38	991	12,765	6	no
17	235	35	113	*94*	*19*	496	6,395	3	no	470	70	225	188	38	991	12,765	6	no
18	235	35	113	*94*	*19*	496	6,395	3	no	470	70	225	188	38	991	12,765	6	no
19	236	35	113	*94*	*19*	498	6,414	3	no	469	70	225	188	38	990	12,746	6	no
20	259	39	124	*104*	*21*	546	7,034	4	no	446	67	214	178	36	941	12,126	6	no
21	294	44	141	*118*	*24*	621	7,993	4	no	411	62	197	164	33	867	11,167	6	no
22	298	45	143	*119*	*24*	629	8,099	4	no	407	61	195	163	33	859	11,061	6	no
23	318	48	153	*127*	*25*	671	8,642	4	no	387	58	186	155	31	817	10,517	5	no
24	324	49	155	*129*	*26*	683	8,793	4	no	381	57	183	153	31	805	10,367	5	no
25	326	49	156	*130*	*26*	688	8,860	4	no	379	57	182	152	30	800	10,300	5	no
26	334	50	160	*134*	*27*	705	9,077	5	no	371	56	178	148	30	783	10,083	5	no
27	340	51	163	*136*	*27*	717	9,240	5	no	365	55	175	146	29	770	9,920	5	no
28	341	51	164	*136*	*27*	720	9,272	5	no	364	55	175	146	29	768	9,888	5	no
29	352	53	169	*141*	*28*	743	9,566	5	no	353	53	169	141	28	745	9,593	5	no
30	353	53	169	*141*	*28*	745	9,592	5	no	352	53	169	141	28	743	9,568	5	no
31	353	53	169	*141*	*28*	745	9,592	5	no	352	53	169	141	28	743	9,568	5	no
32	353	53	169	*141*	*28*	745	9,592	5	no	352	53	169	141	28	743	9,568	5	no
33	363	54	174	*145*	*29*	766	9,865	5	no	342	51	164	137	27	722	9,295	5	no
34	376	56	181	*151*	*30*	794	10,231	5	no	329	49	158	131	26	693	8,928	4	no
35	376	56	181	*151*	*30*	794	10,231	5	no	329	49	158	131	26	693	8,928	4	no
36	388	58	186	*155*	*31*	819	10,545	5	no	317	48	152	127	25	669	8,615	4	no
37	388	58	186	*155*	*31*	819	10,551	5	no	317	48	152	127	25	668	8,609	4	no
38	389	58	187	*156*	*31*	821	10,572	5	no	316	47	152	126	25	667	8,588	4	no
39	400	60	192	*160*	*32*	844	10,871	5	no	305	46	146	122	24	644	8,289	4	no
40	408	61	196	*163*	*33*	861	11,088	6	no	297	45	143	119	24	627	8,072	4	no
41	412	62	198	*165*	*33*	869	11,191	6	no	293	44	141	117	23	619	7,969	4	no
42	412	62	198	*165*	*33*	869	11,191	6	no	293	44	141	117	23	619	7,969	4	no
43	412	62	198	*165*	*33*	869	11,191	6	no	293	44	141	117	23	619	7,969	4	no
44	412	62	198	*165*	*33*	869	11,191	6	no	293	44	141	117	23	619	7,969	4	no
45	427	64	205	*171*	*34*	901	11,605	6	no	278	42	133	111	22	587	7,555	4	no
46	441	66	212	*176*	*35*	931	11,985	6	no	264	40	127	106	21	557	7,175	4	no
47	449	67	216	*180*	*36*	947	12,202	6	no	256	38	123	102	20	540	6,957	3	no
48	457	69	219	*183*	*37*	964	12,420	6	no	248	37	119	99	20	523	6,740	3	no
49	459	69	220	*184*	*37*	968	12,474	6	no	246	37	118	98	20	519	6,686	3	no
50	465	70	223	*186*	*37*	981	12,637	6	no	240	36	115	96	19	506	6,522	3	no
51	471	71	226	*188*	*38*	993	12,789	6	no	234	35	113	94	19	495	6,371	3	no
52	471	71	226	*188*	*38*	993	12,789	6	no	234	35	113	94	19	495	6,371	3	no
53	483	72	232	*193*	*39*	1,019	13,126	7	no	222	33	107	89	18	468	6,033	3	no

ROG EMISSIONS FROM EXISTING DAIIRES AND LIMITED EXPANDED DAIRIES

	Existing Conditions[1]									Total Expansion Limit								
Dairy	Milk cows	Dry Cows & bred heifers	Heifers (1 yr to breeding)	Calves (3 mos. To 1 year)	Baby Calves (<3 months)	Total Head	ROG (lb/year)	ROG (ton/year)	Exceed ROG Threshold (ton/year)	Milk cows	Dry Cows & bred heifers	Heifers (1 yr to breeding)	Calves (3 mos. To 1 year)	Baby Calves (<3 months)	Total Expan-sion Head	ROG (lb/year)	ROG (ton/year)	Exceed ROG Threshold (ton/year)
54	486	73	233	*194*	*39*	1,025	13,208	7	no	219	33	105	88	18	462	5,952	3	no
55	496	74	238	*198*	*40*	1,047	13,480	7	no	209	31	100	84	17	441	5,680	3	no
56	497	75	239	*199*	*40*	1,049	13,507	7	no	208	31	100	83	17	439	5,653	3	no
57	503	75	241	*201*	*40*	1,061	13,670	7	no	202	30	97	81	16	426	5,490	3	no
58	517	78	248	*207*	*41*	1,091	14,050	7	no	188	28	90	75	15	397	5,109	3	no
59	518	78	249	*207*	*41*	1,093	14,078	7	no	187	28	90	75	15	395	5,082	3	no
60	531	80	255	*212*	*42*	1,120	14,431	7	no	174	26	84	70	14	367	4,729	2	no
61	547	82	263	*219*	*44*	1,154	14,866	7	no	158	24	76	63	13	333	4,294	2	no
62	550	83	264	*220*	*44*	1,161	14,947	7	no	155	23	74	62	12	327	4,212	2	no
63	553	83	265	*221*	*44*	1,167	15,029	8	no	152	23	73	61	12	321	4,131	2	no
64	559	84	268	*224*	*45*	1,179	15,187	8	no	146	22	70	58	12	308	3,973	2	no
65	562	84	270	*225*	*45*	1,186	15,273	8	no	143	21	69	57	11	302	3,886	2	no
66	565	85	271	*226*	*45*	1,192	15,355	8	no	140	21	67	56	11	295	3,805	2	no
67	571	86	274	*228*	*46*	1,205	15,518	8	no	134	20	64	54	11	283	3,642	2	no
68	579	87	278	*232*	*46*	1,222	15,735	8	no	126	19	60	50	10	266	3,424	2	no
69	588	88	282	*235*	*47*	1,241	15,986	8	no	117	18	56	47	9	246	3,173	2	no
70	588	88	282	*235*	*47*	1,241	15,986	8	no	117	18	56	47	9	246	3,173	2	no
71	595	89	286	*238*	*48*	1,255	16,170	8	no	110	17	53	44	9	232	2,989	1	no
72	600	90	288	*240*	*48*	1,266	16,306	8	no	105	16	50	42	8	222	2,854	1	no
73	601	90	288	*240*	*48*	1,268	16,333	8	no	104	16	50	42	8	219	2,826	1	no
74	632	95	303	*253*	*51*	1,334	17,176	9	no	73	11	35	29	6	154	1,984	1	no
75	637	96	306	*255*	*51*	1,344	17,312	9	no	68	10	33	27	5	143	1,848	1	no
76	642	96	308	*257*	*51*	1,355	17,448	9	no	63	9	30	25	5	133	1,712	1	no
77	645	97	310	*258*	*52*	1,361	17,529	9	no	60	9	29	24	5	127	1,631	1	no
78	650	98	312	*260*	*52*	1,372	17,665	9	no	55	8	26	22	4	116	1,495	1	no
79	651	98	312	*260*	*52*	1,374	17,692	9	no	54	8	26	22	4	114	1,468	1	no
80	676	101	325	*271*	*54*	1,427	18,384	9	no	29	4	14	11	2	60	775	0	no
81	680	102	326	*272*	*54*	1,435	18,480	9	no	25	4	12	10	2	53	679	0	no
82	689	103	331	*276*	*55*	1,454	18,725	9	no	16	2	8	6	1	34	435	0	no
83	696	104	334	*278*	*56*	1,469	18,915	9	no	9	1	4	4	1	19	245	0	no
84	700	105	336	*280*	*56*	1,477	19,024	10	no	5	1	2	2	0	11	136	0	no
85	706	106	339	*282*	*56*	1,490	19,187	10	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
86	715	107	343	*286*	*57*	1,509	19,432	10	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
87	737	111	354	*295*	*59*	1,555	20,029	10	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
88	749	112	360	*300*	*60*	1,580	20,356	10	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
89	752	113	361	*301*	*60*	1,587	20,437	10	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
90	765	115	367	*306*	*61*	1,614	20,782	10	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
91	800	120	384	*320*	*64*	1,688	21,742	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
92	801	120	384	*320*	*64*	1,690	21,769	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
93	803	120	385	*321*	*64*	1,694	21,823	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
94	811	122	389	*324*	*65*	1,711	22,041	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
95	820	123	394	*328*	*66*	1,730	22,285	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
96	824	124	395	*329*	*66*	1,738	22,381	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
97	824	124	395	*329*	*66*	1,738	22,381	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
98	824	124	395	*329*	*66*	1,738	22,381	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
99	830	125	398	*332*	*66*	1,751	22,557	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
100	833	125	400	*333*	*67*	1,758	22,638	11	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
101	869	130	417	*348*	*70*	1,834	23,617	12	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
102	882	132	424	*353*	*71*	1,862	23,980	12	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
103	882	132	424	*353*	*71*	1,862	23,980	12	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
104	882	132	424	*353*	*71*	1,862	23,980	12	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
105	885	133	425	*354*	*71*	1,867	24,052	12	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
106	931	140	447	*372*	*74*	1,964	25,302	13	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
107	968	145	465	*387*	*77*	2,042	26,307	13	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
108	979	147	470	*392*	*78*	2,066	26,606	13	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes

ROG EMISSIONS FROM EXISTING DAIIRES AND LIMITED EXPANDED DAIRIES

	Existing Conditions[1]									Total Expansion Limit								
Dairy	Milk cows	Dry Cows & bred heifers	Heifers (1 yr to breeding)	Calves (3 mos. To 1 year)	Baby Calves (<3 months)	Total Head	ROG (lb/year)	ROG (ton/year)	Exceed ROG Threshold (ton/year)	Milk cows	Dry Cows & bred heifers	Heifers (1 yr to breeding)	Calves (3 mos. To 1 year)	Baby Calves (<3 months)	Total Expan-sion Head	ROG (lb/year)	ROG (ton/year)	Exceed ROG Threshold (ton/year)
109	985	148	473	*394*	*79*	2,078	26,769	13	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
110	989	148	475	*396*	*79*	2,087	26,878	13	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
111	1,000	150	480	*400*	*80*	2,110	27,177	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
112	1,000	150	480	*400*	*80*	2,110	27,177	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
113	1,023	153	491	*409*	*82*	2,159	27,802	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
114	1,026	154	492	*410*	*82*	2,165	27,884	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
115	1,027	154	493	*411*	*82*	2,167	27,911	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
116	1,028	154	493	*411*	*82*	2,169	27,938	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
117	1,029	154	494	*412*	*82*	2,171	27,965	14	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
118	1,103	165	529	*441*	*88*	2,327	29,976	15	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
119	1,117	168	536	*447*	*89*	2,357	30,357	15	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
120	1,118	168	536	*447*	*89*	2,358	30,374	15	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
121	1,140	171	547	*456*	*91*	2,405	30,982	15	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
122	1,149	172	552	*460*	*92*	2,424	31,226	16	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
123	1,154	173	554	*462*	*92*	2,435	31,362	16	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
124	1,157	174	555	*463*	*93*	2,441	31,444	16	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
125	1,176	176	565	*471*	*94*	2,482	31,973	16	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
126	1,190	179	571	*476*	*95*	2,511	32,341	16	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
127	1,200	180	576	*480*	*96*	2,532	32,612	16	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
128	1,232	185	591	*493*	*99*	2,600	33,482	17	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
129	1,235	185	593	*494*	*99*	2,606	33,572	17	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
130	1,253	188	601	*501*	*100*	2,644	34,053	17	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
131	1,319	198	633	*528*	*106*	2,783	35,846	18	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
132	1,353	203	649	*541*	*108*	2,855	36,769	18	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
133	1,371	206	658	*548*	*110*	2,893	37,260	19	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
134	1,400	210	672	*560*	*112*	2,954	38,048	19	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
135	1,640	246	787	*656*	*131*	3,460	44,570	22	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
136	1,641	246	788	*656*	*131*	3,463	44,597	22	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
137	1,830	275	878	*732*	*146*	3,861	49,734	25	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
138	1,859	279	892	*744*	*149*	3,922	50,522	25	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
139	1,879	282	902	*752*	*150*	3,965	51,066	26	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
140	1,925	289	924	*770*	*154*	4,062	52,316	26	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
141	2,154	323	1,034	*862*	*172*	4,545	58,539	29	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
142	2,463	369	1,182	*985*	*197*	5,197	66,937	33	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
143	2,545	382	1,222	*1,018*	*204*	5,370	69,165	35	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
144	2,594	389	1,245	*1,038*	*208*	5,473	70,497	35	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
145	2,600	390	1,248	*1,040*	*208*	5,486	70,660	35	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
146	2,932	440	1,407	*1,173*	*235*	6,187	79,683	40	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
147	4,430	665	2,126	*1,772*	*354*	9,347	120,394	60	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
148	4,889	733	2,347	*1,956*	*391*	10,316	132,868	66	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
149	4,980	747	2,390	*1,992*	*398*	10,508	135,341	68	yes	NA	NA	NA	NA	NA	NA	NA	NA	yes
TOTAL	**124,668**	**18,700**	**59,841**	**49,867**	**9,973**	**263,049**	**3,388,091**	**1,694**		**24,559**	**3,684**	**11,788**	**9,824**	**1,965**	**51,820**		**334**	

[1] Herd size based on year 2000 milk cows in Kings County, obtained from Carol Collar, Farm Advisor U.C, Cooperative

Extension. Support stock based on ratio of milk cows to support stock, as identified in Table 5 of the Dairy Element.