



Area Source Methodology Technical Documentation

Section 7.19 **Other (Miscellaneous Processes),** **Domestic Ammonia**

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Section 7.19
Other (Miscellaneous Processes),
Domestic Ammonia

Emission Inventory Source Category

Miscellaneous Processes / Domestic Ammonia

Emission Inventory Codes (CES Codes) and Description

EIC Codes (CES Codes)	Description
699-990-2002-0000 (90480)	Domestic Ammonia

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Source Category Description

The domestic ammonia category includes ammonia emissions from unspecified sources not included in other ammonia categories such as agricultural fertilizers or livestock husbandry. This methodology estimates emissions of ammonia (NH₃) resulting from these miscellaneous sources. This source category includes emissions from human respiration and perspiration, household ammonia usage, and volatilization of ammonia from pet and untreated human waste.

At the time of this methodology's development, several other domestic ammonia methodologies were in use or under development by other agencies, which are listed below. These served as useful references for the development of this methodology.

- Battye R., Battye W., Overcash C., and Fudge S., 1994. Development and selection of ammonia emissions factors. Final report prepared for U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC, by Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC, EPA Contract No. 68-D3-0034, Work Assignment 0-3, August.
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- Roe S.M., Spivey M.D., Lindquist H.C., Thesing K.B., and Strait R.P., 2004. Estimating ammonia emissions from anthropogenic nonagricultural sources. Draft final report prepared for the Emission Inventory Improvement Program by E.H. Pechan & Associates, Inc., April. https://www.epa.gov/sites/default/files/2015-08/documents/eiip_areasourcesnh3.pdf
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<https://www.sciencedirect.com/science/article/abs/pii/S1352231099003623>
- South Coast Air Quality Management District methodology (SCAQMD 2025).
<https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/emissions-inventory-methodology/domestic-ammonia.pdf>

Changes in This Update

Staff have updated several emission factors based on newly available studies. The most significant changes are to the emission factors for human respiration and perspiration, as well as pet waste. In addition, staff incorporated 2023 activity data.

Emission Estimation Inputs

This document details the calculations for estimating the ammonia emissions from domestic sources. Staff have identified five different primary sources of domestic ammonia: human emissions, pet waste, untreated human waste, household ammonia usage, and household fertilizers. The emissions from these activities are calculated by multiplying the activity data by the emissions factors for each source.

I. Activity Data

The activity data used for domestic ammonia is shown in Table 1.

Table 1: Activity data for domestic ammonia sources.

Activity	Value	Sources
Population (P_{COABIS})	39,123,861 State level. Per County-Air Basin-District (COABDIS)	California Department of Finance P-2a, 2023
Households ($H_{COABDIS}$)	14,707,092 State level. Per County-Air Basin-District (COABDIS)	California Department of Finance E-1H, 2023
Dogs per household (P_D) Cats per household (P_C)	0.6105 Dogs per household 0.5015 Cats per household Based on 2023 data	American Veterinary Medical Association Pet Ownership and Demographics Sourcebook 2024
Unsheltered Homeless Population (P_{UH})	120,625 Statewide population as of 2023	US Department of Housing and Urban Development, 2023 Annual Homelessness Assessment Report, Point-in-time Estimates.

Staff calculated COABDIS level unsheltered homeless population from U.S. Department of Housing and Urban Development, 2023; Annual Homelessness Assessment Report, Point-in-time Estimates by Continuums of Care (CoC). Staff then mapped these CoC to counties and used the same population split for COABDIS level. These values are tabulated in Appendix A.

II. Emissions Factors

The emissions factors used for domestic ammonia are shown in Table 2. Details on the calculations of these emissions factors are found in the next several sections.

Table 2: Emissions factors used to estimate domestic ammonia emissions.

Miscellaneous Ammonia Sources	Emissions Factor
Human Perspiration and Respiration (EF _{HP})	0.08 pounds per person·year
Dog Waste (EF _D)	3.8 pounds per animal·year
Cat Waste (EF _C)	0.40 pounds per animal·year
Household Products (EF _{HP})	0.05 pounds per person·year
Household Fertilizer (EF _{HF})	0.1 pounds per person·year
Untreated Human Waste (EF _{UHW});	11 pounds per unsheltered person·year
Untreated Human Waste (EF _{OW})	0.05 pounds per person·year

A. Human Perspiration and Respiration

Humans produce ammonia emissions from respiration and perspiration. Staff reviewed multiple studies to produce a single emissions factor estimate. All studies mention that this factor is heavily dependent on external factors such as clothing, temperature, activity, etc. A summary of the low and high emissions factors is listed in Table 3.

Table 3: Table of human respiration and perspiration emissions factors (pounds per person·year).

Reference	Low	High
Sutton et al., 2000	0.01	0.18
Battye et al., 1994	0.01	2.90
Yang et al., 2024 (Low end: seated; high end active)	0.05	0.16
Li et al., 2020 (low end: "long sleeved closes, moderate temp, low rh (relative humidity)"; high end: "high temp, in shorts")	0.01	0.10

The most recent studies, Yang et al. 2024 and Li et al. 2020 are based on experimental data while historical studies utilize several assumptions and estimates on nitrogen emissions. Staff choose to take the average of the two most recent studies to calculate a value of **0.08 pounds per person·year** which falls within the ranges of the studies provided.

B. Dog Waste

Domesticated dogs are included in domestic ammonia emissions from waste excretion. CARB's previous emissions factors used for this category were 2.17 pounds per dog-year (Chitjian and Koizumi, 2000). Staff updated this value based on a new study in this area (Cowan et al., 2024). Staff only used emissions from urine as it is expected that fecal matter is disposed of and eventually part of landfill emissions. For the volatilization rates, staff used the study's assumption that 36% of urinary nitrogen would be volatilized. The values used to update the dog waste emissions factors are shown in Table 4.

Table 4: Assumptions used to estimate the dog waste emissions factor (Cowan et al. 2024).

Nitrogen Excretion Rate (grams NH₃ per kilogram·day)	Average Animal Weight (kilogram)	N → NH₃ Volatilization
0.5	21.6	36%

To estimate the ammonia emissions factor from dog waste, staff used the following equation:

$$EF_D = E_{Dog} \times M_{Dog} \times V_{Dog} \times F_{Mass} \times F_{Day} \times F_{Pounds}$$

Where:

EF_D = Ammonia Emissions Factor for dog waste (pounds NH₃ per dog·year)

E_{Dog} = Nitrogen excretion rate (grams NH₃ per kilogram·day)

M_{Dog} = Average weight of dog (kilogram)

V_{Dog} = Volatilization of N into NH₃ (%)

F_{Mass} = Mass fraction of 17.031 grams NH₃ per 14.007 grams N

F_{Day} = Factor of 365 days per 1 year

F_{Pounds} = Factor of 1 pounds per 453.592 grams

Resultant:

$$EF_D = 0.5 \times 21.6 \times 0.36 \times 1.22 \times 365 \times 0.002$$

$$EF_D = 3.8 \text{ pounds NH}_3 \text{ per dog·year}$$

C. Cat Waste

Domesticated cats are included in domestic ammonia emissions from waste excretion. CARB's previous emissions factors used for this category were 0.35 pounds per cat-year (Chitjian and Koizumi, 2000). Staff updated this value based on a new study in this area

(Cowan et al., 2024). Staff only used emissions from urine as it is expected that fecal matter is disposed of and eventually part of landfill emissions. While the study’s assumed volatilization rates were 36%, staff scaled this factor by 50% for cats since many cat litter materials include ammonia blockers. The values used to update the cat waste emissions factors are shown in Table 5.

Table 5: Assumptions used to estimate the cat waste emissions factor (Cowan et al. 2024).

Nitrogen Excretion Rate (grams NH ₃ per kilogram·day)	Average Animal Weight (kilogram)	N → NH ₃ Volatilization
0.6	3.75	18%

To estimate the ammonia emissions factor from cat waste, staff used the following equation:

$$EF_C = E_{Cat} \times M_{Cat} \times V_{Cat} \times F_{Mass} \times F_{Day} \times F_{Pounds}$$

Where:

- EF_D = Ammonia Emission Factor for cat waste (pounds NH₃ per dog·year)
- E_{Cat} = Nitrogen excretion rate (grams NH₃ per kilogram·day)
- M_{Cat} = Average weight of cat (kilogram)
- V_{Cat} = Volatilization of N into NH₃ (%)
- F_{Mass} = Mass fraction of 17.031 grams NH₃ per 14.007 grams N
- F_{Day} = Factor of 365 days per 1 year
- F_{Pounds} = Factor of 1 pounds per 453.592 grams

Resultant:

$$EF_C = 0.6 \times 3.75 \times 0.18 \times 1.22 \times 365 \times 0.002$$

EF_C = 0.40 pounds NH₃ per cat·year

D. Household Product

Staff included emissions from ammonia volatilization from cleaning solutions and other chemicals used by the general population. CARB’s emissions factor used for this category is **0.05 pounds NH₃ per person·year** (Chitjian and Koizumi, 2000).

E. Household Fertilizer

Staff included emissions from ammonia volatilization of nitrogenous fertilizers applied to household vegetation: grass, trees, etc. by the general population. The percent of ammonia emissions from nitrogen applied is dependent on the type of fertilizer used (Yara 2022). A previous study (Sutton 2000) uses a 2.5% nitrogen loss for domestic fertilizer; however, Yara

shows much higher values for most fertilizer types. This led staff to choose 3% for the fertilizer loss rate, which is a conservative estimate. To estimate household fertilizer activity, staff used reported nitrogen fertilizer for non-farm applications and divided this value by the statewide population (CDFA 2023). The values used to update the cat waste emissions factors are shown in Table 6.

Table 6: Assumptions used to estimate Household Fertilizer Usage.

Fertilizer Loss Rate	Non-Farm Nitrogen usage (July 2022 - June 2023) tons	California Population (2023)
3%	62,420	39,123,861

To estimate the ammonia emissions factor from household fertilizer usage, staff used the following equation:

$$EF_F = U \times L_{Rate} \times F_{Pounds} \times F_{Mass}$$

Where:

EF_F = Emission Factor for household fertilizer (pounds NH_3 per person·year)

U = Non-farm application of N (62,420 tons per 39,123,861 people)

L_{Rate} = Fertilizer nitrogen loss rate (%)

F_{Pounds} = Fraction of 2000 pounds per 1 ton

F_{Mass} = Mass fraction of 17.031 grams NH_3 per 14.007 grams N

Resultant:

$$EF_F = .002 \times 0.03 \times 2000 \times 1.22$$

$EF_F = 0.1$ pounds NH_3 per person·year

F. Untreated Human Waste

Staff included ammonia emissions from untreated human waste. This includes both unsheltered homeless population and other untreated waste (Chitjian and Koizumi, 2000). Other untreated waste includes emissions from waste of housed populations in locations where facilities are unavailable.

Table 7: Untreated Human Waste emissions factor.

Category	Emissions Factor (pounds NH_3 per person·year)
Unsheltered Homeless Population	11

Other Untreated Human Waste	0.05
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Emissions Estimation Methodology

The emissions estimations used for domestic ammonia are shown in Appendix A. Details on the calculations of these emissions factors are found in the next several sections. Examples are provided, showing rounded results for the Sacramento-Sacramento Valley-Sacramento Metropolitan AQMD (Sacramento) County-Air Basin-District region.

I. Human Perspiration and Respiration

To estimate the emissions from human perspiration and respiration, staff used the following equation:

$$E_{HP} = P_{COABDIS} \times EF_H \times F_{Tons}$$

Where:

E_{HP} = Ammonia emissions from human respiration and perspiration (tons NH_3 per year)

$P_{COABDIS}$ = Population of County-Air Basin-District (people)

EF_H = The emission factor of human respiration and perspiration (pounds NH_3 per person·year)

F_{Tons} = Factor of 1 ton per 2000 pounds

A. Example

The Sacramento region has 1,578,904 people and an emissions rate of 0.08 pounds of NH_3 per person

Therefore:

63 tons per year of NH_3 =

1,578,904 people ×

0.08 pounds NH_3 per person·year ×

0.0005 tons per pound

II. Pet Waste

To estimate the emissions of ammonia from pets, staff used the following equation:

$$E_P = H_{COABDIS} \times (P_D \times EF_D + P_C \times EF_C) \times F_{Tons}$$

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Where:

E_P = Ammonia emissions from pets (tons NH_3 per year)

H_{COABDIS} = households in County-Air Basin-District (households)

P_D = Percentage of dog population per household (dogs per household)

EF_D = Ammonia emissions factor for dogs (pounds NH_3 per dog·year)

P_C = Percentage of cat population per household (cats per household)

EF_C = Ammonia emissions factor for cats (pounds NH_3 per cat·year)

F_{Tons} = Factor of 1 ton per 2000 pounds

A. Example

The Sacramento region has 601,226 households, 61.05% Dogs per household and 50.15% Cats per household, an emissions rate of 3.8 pounds NH_3 per dog·year, and an emissions rate of 0.40 pounds NH_3 per cat·year.

Therefore:

758 tons NH_3 per year =

601,226 households ×
(0.6105 dogs per household ×
3.8 pounds NH_3 per dog·year +
0.5015 cats per household ×
0.40 pounds NH_3 per cat·year) ×
0.0005 tons per pound

III. Household Product Usage

To estimate the ammonia emissions from household products, staff used the following equation:

$$E_{\text{HP}} = P_{\text{COABDIS}} \times EF_{\text{HP}} \times F_{\text{Tons}}$$

Where:

E_{HP} = Ammonia emissions from household products (tons NH_3 per year)

P_{COABDIS} = Population of County-Air Basin-District (people)

EF_{HP} = Ammonia emission factor of household products (pounds NH_3 per person·year)

F_{Tons} = Factor of 1 ton per 2000 pounds

A. Example

The Sacramento region has 1,578,904 people and an emissions rate of 0.05 pounds NH₃ per person·year.

Therefore:

$$\begin{aligned} 39 \text{ tons NH}_3 \text{ per year} = & \\ & 1,578,904 \text{ people} \times \\ & 0.05 \text{ pounds NH}_3 \text{ per person} \cdot \text{year} \times \\ & 0.0005 \text{ tons per pound} \end{aligned}$$

IV. Household Fertilizer Usage

To estimate the ammonia emissions from fertilizer usage, staff used the following equation:

$$E_{HF} = P_{COABDIS} \times EF_F \times F_{Tons}$$

Where:

$$\begin{aligned} E_{HF} &= \text{Ammonia emissions from household fertilizers (tons NH}_3 \text{ per year)} \\ P_{COABDIS} &= \text{Population of County-Air Basin-District (people)} \\ EF_F &= \text{Ammonia emission factor of household fertilizers (pounds NH}_3 \text{ per person} \cdot \text{year)} \\ F_{Tons} &= \text{Factor of 1 ton per 2000 pounds} \end{aligned}$$

A. Example

The Sacramento region has 1,578,904 people and an emissions rate of 0.1 pounds NH₃ per person·year.

Therefore:

$$\begin{aligned} 79 \text{ tons NH}_3 \text{ per year} = & \\ & 1,578,904 \text{ people} \times \\ & 0.1 \text{ pounds NH}_3 \text{ per person} \cdot \text{year} \times \\ & 0.0005 \text{ tons per pound} \end{aligned}$$

V. Untreated Human Waste

To estimate the ammonia emissions from untreated human waste from the unsheltered homeless population and other human waste, staff used the following equation:

$$E_{HW} = (P_{UH} \times EF_{UHW} + P_{COABDIS} \times EF_{OW}) \times F_{Tons}$$

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Where:

E_{HW} = Ammonia emissions from untreated human waste from the unsheltered homeless population and others (tons NH_3 per year)

P_{UH} = Unsheltered homeless population (persons)

EF_{UHW} = Ammonia emission factor of untreated human waste from the unsheltered homeless population (pounds NH_3 per person·year)

$P_{COABDIS}$ = Population of County-Air Basin-District (people)

EF_{OW} = Ammonia emission factor of untreated human waste from others (pounds NH_3 per person·year)

F_{Tons} = Factor of 1 ton per 2000 pounds

A. Example

The Sacramento region has 1,578,904 people, of which 6,664 are unsheltered homeless, an untreated waste from unsheltered homeless emissions rate of 11 pounds NH_3 per person·year and untreated waste from others emission rate of 0.05 pounds NH_3 per person·year.

Therefore:

76 tons NH_3 per year =

(6,664 people ×

11 pounds NH_3 per person·year +

1,578,904 people ×

0.05 pounds NH_3 per person·year) ×

0.0005 tons per pound

VI. County-Air Basin-District Total

To calculate the total emissions for a region staff used the following equation:

$$E_{Total} = E_{HP} + E_P + E_{HP} + E_{HF} + E_{HW}$$

Where:

E_{Total} = Total NH_3 emissions in The Sacramento region (tons NH_3 per year)

E_{HP} = Ammonia emissions from human respiration and perspiration (tons NH_3 per year)

E_P = Ammonia emissions from pets (tons NH_3 per year)

E_{HP} = Ammonia emissions from household products (tons NH_3 per year)

E_{HF} = Ammonia emissions from household fertilizers (tons NH_3 per year)

E_{HW} = Ammonia emissions from untreated human waste from the unsheltered homeless population and others (tons NH_3 per year)

A. Example

Using the Sacramento region results from the examples:

1015 tons NH_3 per year =

63 tons per year of NH_3 +

758 tons NH_3 per year +

39 tons NH_3 per year +

79 tons NH_3 per year +

76 tons NH_3 per year

Statewide Emissions Estimation

Using this methodology, staff calculated the total statewide emissions for 2023 to be 24,824.37 tons of ammonia per year which averages to 68.01 tons of ammonia per day.

The emissions at COABDIS level are shown in Appendix A.

Temporal Activity

To accurately represent the temporal variation of emissions from dairy silage sources, this methodology utilizes the temporal profiles defined by ARB Codes 24 and 7. The following temporal allocations are applied:

- **Daily Variation (ARB Code 24):** Emissions are equally distributed throughout a 24-hour day.
- **Weekly Variation (ARB Code 7):** Dairy silage emissions are distributed uniformly across all seven days of the week, reflecting consistent operations.
- **Monthly Variation:** Emissions are evenly distributed throughout the year, with each month accounting for 8.33% of the annual activity.

Growth Forecasting

Growth factors are used to estimate emissions in future years. An analysis of the activity data and emissions show that the ammonia from pet waste dominates the total emissions. Since pet waste account for 75% of the total Domestic Ammonia emissions and is based on households, staff will use the Department of Finances projection of households (California Department of Finance, April 2025c) to scale future emissions from this category.

Assumptions and Limitations

The methodology assumes ammonia emissions factors that include a high degree of uncertainty. Staff therefore used the best available data and averaged over several studies. Staff will continue to review household fertilizer usage to analyze if there is a more valid nitrogen loss rate for household fertilizers.

Comments and Recommendations

At this time, staff does not recommend any near-term work related to domestic ammonia emissions. The current methodology reflects the best available data and incorporates recent updates to emission factors and activity data. However, staff recognizes that the field of ammonia emissions research is evolving, and new studies may emerge that could inform future improvements.

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Appendix A

The following table gives COABDIS-level activity and ammonia emissions for 2023.

County	Air Basin	Air District	Population	Households	Unsheltered Homeless Population	Total Ammonia Emissions (tons per year)
Alameda	San Francisco Bay Area	Bay Area AQMD	1,644,199.00	641,809.00	7,135.00	1,078.27
Alpine	Great Basin Valleys	Great Basin Unified APCD	1,166.00	1,550.00	2.65	2.13
Amador	Mountain Counties	Amador County APCD	40,028.00	19,070.00	125.57	30.33
Butte	Sacramento Valley	Butte County AQMD	205,741.00	93,243.00	580.00	149.50
Calaveras	Mountain Counties	Calaveras County APCD	44,616.00	27,741.00	142.16	41.99
Colusa	Sacramento Valley	Colusa County APCD	21,981.00	8,229.00	58.95	13.77
Contra Costa	San Francisco Bay Area	Bay Area AQMD	1,148,745.00	430,712.00	1,653.00	712.72
Del Norte	North Coast	North Coast Unified AQMD	26,320.00	11,227.00	122.80	18.51
El Dorado	Lake Tahoe	El Dorado County AQMD	30,078.52	15,134.65	69.58	23.67
El Dorado	Mountain Counties	El Dorado County AQMD	159,276.48	80,143.35	368.42	125.33
Fresno	San Joaquin Valley	San Joaquin Valley APCD	1,017,152.00	346,456.00	2,384.58	592.14
Glenn	Sacramento Valley	Glenn County APCD	28,596.00	11,043.00	77.91	18.35
Humboldt	North Coast	North Coast Unified AQMD	133,968.00	63,142.00	1,309.00	105.53
Imperial	Salton Sea	Imperial County APCD	182,090.00	58,541.00	1,146.00	105.57

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County	Air Basin	Air District	Population	Households	Unsheltered Homeless Population	Total Ammonia Emissions (tons per year)
Inyo	Great Basin Valleys	Great Basin Unified APCD	18,740.00	9,527.00	42.42	14.86
Kern	Mojave Desert	Eastern Kern APCD	133,016.14	45,158.71	148.94	76.35
Kern	San Joaquin Valley	San Joaquin Valley APCD	775,280.86	263,206.29	868.06	445.02
Kings	San Joaquin Valley	San Joaquin Valley APCD	152,548.00	47,205.00	263.18	82.29
Lake	Lake County	Lake County AQMD	66,875.00	34,354.00	259.00	54.08
Lassen	Northeast Plateau	Lassen County APCD	28,137.00	12,238.00	131.43	20.09
Los Angeles	Mojave Desert	Antelope Valley AQMD	404,248.99	150,970.79	2,158.27	258.73
Los Angeles	South Coast	South Coast AQMD	9,407,214.01	3,513,217.21	50,224.73	6,020.78
Madera	San Joaquin Valley	San Joaquin Valley APCD	159,892.00	51,268.00	373.42	89.05
Marin	San Francisco Bay Area	Bay Area AQMD	254,301.00	112,183.00	830.00	181.55
Mariposa	Mountain Counties	Mariposa County APCD	16,862.00	9,788.00	53.79	14.99
Mendocino	North Coast	Mendocino County AQMD	89,556.00	41,718.00	410.00	67.37
Merced	San Joaquin Valley	San Joaquin Valley APCD	288,589.00	91,465.00	390.00	157.82
Modoc	Northeast Plateau	Modoc County APCD	8,540.00	4,763.00	39.55	7.42
Mono	Great Basin Valleys	Great Basin Unified APCD	13,008.00	13,675.00	28.93	19.21

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County	Air Basin	Air District	Population	Households	Unsheltered Homeless Population	Total Ammonia Emissions (tons per year)
Monterey	North Central Coast	Monterey Bay Air Resources District	437,174.00	146,346.00	1,412.45	253.41
Napa	San Francisco Bay Area	Bay Area AQMD	135,107.00	55,910.00	349.00	91.30
Nevada	Mountain Counties	Northern Sierra AQMD	100,711.00	54,369.00	227.00	83.87
Orange	South Coast	South Coast AQMD	3,148,555.00	1,149,943.00	3,057.00	1,906.83
Placer	Lake Tahoe	Placer County APCD	10,312.15	4,512.92	10.15	7.19
Placer	Mountain Counties	Placer County APCD	26,351.46	11,532.21	25.93	18.37
Placer	Sacramento Valley	Placer County APCD	376,954.39	164,966.87	370.92	262.71
Plumas	Mountain Counties	Northern Sierra AQMD	19,078.00	14,845.00	87.82	21.86
Riverside	Mojave Desert	Mojave Desert AQMD	21,346.61	7,602.08	21.26	12.69
Riverside	Mojave Desert	South Coast AQMD	272.08	96.90	0.27	0.16
Riverside	Salton Sea	South Coast AQMD	451,260.87	160,705.60	449.39	268.18
Riverside	South Coast	South Coast AQMD	1,978,305.86	704,525.58	1,970.09	1,175.68
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	1,578,904.00	601,226.00	6,664.00	1,015.39
San Benito	North Central Coast	Monterey Bay Air Resources District	65,783.00	21,576.00	212.55	37.57
San Bernardino	Mojave Desert	Mojave Desert AQMD	553,258.78	189,122.17	754.45	319.95
San Bernardino	South Coast	South Coast AQMD	1,629,110.22	556,883.83	2,221.55	942.11
San Diego	San Diego County	San Diego County APCD	3,289,885.00	1,256,497.00	5,171.00	2,072.52
San Francisco	San Francisco Bay Area	Bay Area AQMD	838,251.00	418,139.00	4,397.00	668.50

Section 7.19
Other (Miscellaneous Processes),
Domestic Ammonia

County	Air Basin	Air District	Population	Households	Unsheltered Homeless Population	Total Ammonia Emissions (tons per year)
San Joaquin	San Joaquin Valley	San Joaquin Valley APCD	792,088.00	262,955.00	1,355.00	449.73
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	278,976.00	126,234.00	1,156.00	204.50
San Mateo	San Francisco Bay Area	Bay Area AQMD	740,929.00	287,979.00	1,092.00	472.66
Santa Barbara	South Central Coast	Santa Barbara County APCD	442,152.00	161,456.00	1,202.00	271.99
Santa Clara	San Francisco Bay Area	Bay Area AQMD	1,900,834.00	701,539.00	7,401.00	1,190.94
Santa Cruz	North Central Coast	Monterey Bay Air Resources District	263,775.00	107,165.00	1,426.00	179.83
Shasta	Sacramento Valley	Shasta County AQMD	179,348.00	80,211.00	835.27	130.79
Sierra	Mountain Counties	Northern Sierra AQMD	3,162.00	2,140.00	14.78	3.22
Siskiyou	Northeast Plateau	Siskiyou County APCD	43,099.00	23,216.00	202.34	36.40
Solano	Sacramento Valley	Yolo-Solano AQMD	141,073.99	52,115.49	290.51	87.03
Solano	San Francisco Bay Area	Bay Area AQMD	305,689.01	112,927.51	629.49	188.58
Sonoma	North Coast	Northern Sonoma County APCD	49,837.44	21,652.46	134.24	35.00
Sonoma	San Francisco Bay Area	Bay Area AQMD	429,454.56	186,581.54	1,156.76	301.63

Section 7.19
Other (Miscellaneous Processes),
Domestic Ammonia

County	Air Basin	Air District	Population	Households	Unsheltered Homeless Population	Total Ammonia Emissions (tons per year)
Stanislaus	San Joaquin Valley	San Joaquin Valley APCD	548,838.00	185,622.00	949.00	315.99
Sutter	Sacramento Valley	Feather River AQMD	99,824.00	34,882.00	371.40	59.98
Tehama	Sacramento Valley	Tehama County APCD	64,786.00	27,548.00	247.00	45.15
Trinity	North Coast	North Coast Unified AQMD	15,871.00	8,047.00	43.15	12.60
Tulare	San Joaquin Valley	San Joaquin Valley APCD	478,192.00	154,698.00	825.82	266.45
Tuolumne	Mountain Counties	Tuolumne County APCD	53,195.00	31,589.00	172.48	48.21
Ventura	South Central Coast	Ventura County APCD	826,745.00	296,892.00	1,633.00	498.88
Yolo	Sacramento Valley	Yolo-Solano AQMD	221,202.00	83,172.00	378.00	137.86
Yuba	Sacramento Valley	Feather River AQMD	83,405.00	30,893.00	310.60	52.32