Workshop to Discuss Proposals for Defining Large Confined Animal Facilities

California Air Resources Board
March 2, 2005

Workshop Agenda

- Introductions
- Summary of SB700 Requirements
- Livestock Research Symposium Summary
- Proposals for Defining Large Confined Animal Facilities (large CAFs)
- Comments and Discussion of Options
- Next Steps

Meeting Locations

- Workshop hosted in Fresno
- Workshops broadcast to four locations:
  - Modesto
  - Bakersfield
  - Diamond Bar
  - Sacramento
- Telephone access available
  - 888-549-9134, Pass code 148277
- For full details see http://www.arb.ca.gov/ag/caf/largecaf/largecaf.htm

Summary of SB 700 Requirements

ARB Large CAF Responsibilities

- On or before July 1, 2005, the state Air Resources Board shall develop a definition for the source category of a "large confined animal facility" (SB700 (Florez) - H&SC 40724.6 (a))
- In developing the definition, the Board shall review available scientific information including:
  - Effect of those facilities on air quality
  - All emissions as they may affect attainment and maintenance of air quality standards
  - Emission factors for confined animal facilities
  - Other relevant scientific information

District Large CAF Responsibilities

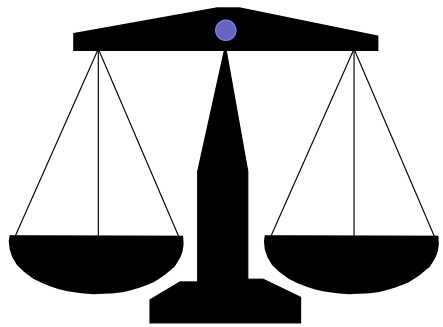
- **In ozone federal nonattainment areas:**
  - Adopt, implement, and submit for inclusion in the SIP, a rule requiring large CAFs to submit a plan to reduce air contaminants to the extent feasible (H&SC 40724.6(b))
- For severe and extreme areas, large CAFs will use Best Available Retrofit Control Technology (BARCT) to reduce emissions
- In moderate and serious areas, large CAFs will use Reasonably Available Control Technology (H&SC 40724.6(d)(1)(B))

District Large CAF Responsibilities

- **In ozone federal attainment areas:**
  - Adopt a rule requiring large CAFs to reduce air contaminants to the extent feasible
  - **Unless** a district board makes finding in public hearing that large CAFs will not contribute to a violation of any state or federal standard (H&SC 40724.7(a) & 40724.6(b))
- No specific standard of control specified for ozone attainment areas
  (CAPCOA SB 700 Summary & Implementation V(c), April 2004)

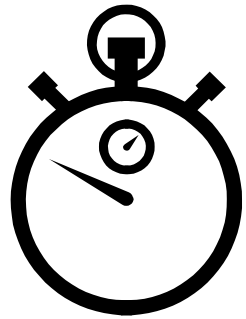
District Large CAF Rules

- In developing large CAF rules, districts shall perform an assessment of the impacts of the rule or regulation to include:
  - Number and size of affected sources
  - Nature and size of emissions
  - Emissions reduction potential
  - Impacts on employment
  - Probable costs
  - Availability & cost effectiveness of alternatives
  - Technical & practical feasibility



H&SC 40724.6(d)

Timeline for Large CAFs



January 1: SB700 effective

July 1: Deadline to define "large CAF"

January 1 (or 6 months within rule adoption): Large CAF emissions mitigation plans due

2004	2005	2006	2007	2008

July 1:

- **Ozone federal nonattainment areas** must adopt, implement, and submit for inclusion in the SIP a rule requiring large CAFs to submit a mitigation plan to reduce air contaminants to the extent feasible
- **Ozone federal attainment areas** must adopt a similar rule unless the district board makes finding in a public hearing that large CAFs will not contribute to violations of state or federal standards

July 1 (or 6 months within receipt of plan): Districts approve mitigation plans

July 1 (or 1 year within receipt of plan): Large CAF must comply with mitigation plan

Livestock Research Symposium Summary

Livestock Research Projects

- Multiple research projects are ongoing to quantify and characterize livestock air emissions
- Much of the work is among the first of its kind for evaluating livestock organic gases
- Each project provides a piece of the puzzle for understanding livestock emissions
- The bulk of the research focuses on dairies

Summary of Symposium

- All results presented were preliminary
- Substantial progress has been made in characterizing livestock emissions
- It is premature to draw any specific conclusions about overall livestock emissions
- Studies must be completed, reviewed, and integrated to get the full emissions picture for livestock

What Was Presented

- Livestock operations produce many different organic gases
- Researchers observed a wide range of overall emissions from dairy activities
- Different emission sources at dairies (lagoons, corrals, etc.) produced different emissions levels
- Emissions are produced directly from cows, as well as from their wastes and waste handling systems

Livestock Emissions Updates

- The current research provides the first snapshot of new livestock emissions data
- The completed research needs to be considered in total to effectively update livestock emissions
- All stakeholders must be involved in evaluating and developing credible new livestock emissions data
  - Periodic changes to livestock emissions will be needed to incorporate new data or to meet regulatory needs
  - The SJV Dairy Permitting Advisory Group is currently evaluating dairy ROG studies

ARB Symposium Presenters

- On Farm Measurements of Methane and Select Carbonyl Emission Factors for Dairy Cattle
  - Terry Cassel, University of California, Davis
- Process-based Approach to Estimate Air Emissions from California Dairies
  - Dr. Frank Mitloehner, University of California, Davis
- Reactive Organic Gases (ROG) and Amine Emissions from a Northern California, Flushed Lane Dairy
  - *Dr. CE Schmidt, Independent Environmental Consultant*
- Monitoring and Modeling of ROG and Ammonia at Three California Dairies
  - *Dr. Charles Krauter, Dr. Dave Goorahoo, B. Goodrich, and Matt Beene, California State University, Fresno*

ARB Symposium Presenters (cont.)

- Ammonia and Hydrogen Sulfide Emissions from Beef Cattle Feedlots
  - Dr. Jacek Koziel, Iowa State University
- Use of Laser Technology to Monitor Ammonia
  - Dr. Dave Goorahoo, Dr. Charles Krauter, B. Goodrich, and Matt Beene, California State University, Fresno
- Treatment of Dairy Manure with Anaerobic Digestion and Aeration Technologies for Reducing Gaseous Emissions
  - Dr. Ruihong Zhang, University of California, Davis
- A Process Based Approach to Measure Ammonia from Dairy Operations Using a Flux Chamber Protocol"
  - Dr. Saqib Mukhtar, Texas A&M University
- Emissions from Poultry Production
  - Matt D. Summers, California Department of Food and Agriculture

Additional Research Information

- To see the researcher's presentations:
  http://www.arb.ca.gov/ag/agadvisory/lersymp.htm
- For an overall California agricultural research summary
  http://www.arb.ca.gov/ag/research/research.pdf

Proposals for Defining Large Confined Animal Facilities (large CAFs)

Defining Large CAFs

- In working with stakeholders over the past year, two primary approaches for defining large CAFs have been identified:
  - A definition based on the aggregate emissions from livestock operations, and expressed as the number of animals at individual livestock facilities
  - A definition based on individual facility emissions, and expressed as those facilities emitting 12.5 tons per year or more of reactive organic gas

Aggregate Emissions Definition

	Possible Large CAF Threshold
Dairy	700 milk producing cows or equivalent
Beef Feedlots	1,000 beef cattle or their equivalent
Broilers	125,000
Layers	82,000 for dry manure systems 30,000 for liquid manure systems
Turkeys	55,000
Swine	2,500
Sheep	10,000
Goats	10,000
Horses	500
Ducks, Rabbits, Others	30,000

* For discussion, the workshop materials also included the option of 2000 head as a possible dairy threshold

Facility Emissions Definition

- A large confined animal is any confined animal facility that emits 12.5 tons per year or more of reactive organic gas
- Emissions threshold based on the major source threshold for the San Joaquin Valley as of January 1, 2004

Aggregate Emissions Definition

- Potential to address majority of regional livestock emissions, independent of specific emission factor values
- Provides ongoing consistency and predictability to facilities and regulators
- Easy to understand and implement
- Avoids issues of changing emissions data
- Potential to bring in facilities that may not significantly affect air quality

Facility Emissions Definition

- Ties applicability directly to individual facility emissions
- May provide incentives for voluntary emissions reductions & performance
- As emission estimates change, facilities defined as “large” will vary
- Could create facility inequities as emission calculations change
- Requires facility emissions calculation
  - Different calculations could be used at individual facilities to reflect technology or process differences

Regional Variations

- Variations in the large CAF definitions could be used to account for the regional urgency of air quality problems:
- Example:
  - For extreme and serious federal ozone non-attainment regions, the dairy threshold might be 700 head
  - For other regions with better air quality, the threshold might be 2000 head
- The same approach could be used for the facility emissions based definition

Discussion and Comments

- Aggregate Emissions versus Facility Emissions Definitions
- Discussion of thresholds
  - Head count thresholds for aggregate approach
  - Emissions thresholds for facility approach
- Regional variations in definitions
- Other detail issues
  - How is head count determined
  - Animal equivalency factors

Schedule - What's Next

- Preparing Staff Report for Large CAF definition
  - Describes staff recommendations, rationale, and background information
  - Final staff report due for release May 6, 2005
- Providing Comments
- Board meeting June 23, 2005
  - Staff present recommendations and justification
  - Respond to comments received
  - Receive testimony
  - Board takes appropriate action

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  - http://www.arb.ca.gov/ag/caf/largecaf/largecaf.htm (see upcoming meetings)