Manure Management Strategies

Stationary Source Division
April 14, 2008

Overview

- Today's Goal
- Background
- Information Gathered to Date
- Request Stakeholder Feedback
- Next Steps

Today's Goal

- Present Information Gathered to Date
  - Cost of practices and technologies
  - Research
  - Existing voluntary agreement
- Request Stakeholder Feedback

Assembly Bill 32 (AB 32)

- AB 32 aims to reduce greenhouse gas (GHG) emissions to 1990 levels by the year 2020.
- Requires that the ARB develop GHG reduction strategies that do not interfere with existing air pollution control measures.

AB 32 Scoping Plan

- The AB 32 Scoping Plan will outline the main strategies California will use to reduce GHGs.
  - Draft plan will be released for public review and comment.
  - Needs to go to the Board for adoption.
- Manure Management Strategies is one of the GHG reduction measures being evaluated for the agriculture sector of the Scoping Plan.

Activities To Date

- First Public Consultation Meeting
- Getting Out Into the Field (14 tours)
- Agriculture Related Conferences
- Information Gathering
  - Associations
  - Government agencies
  - Producers
  - Researchers
  - Vendors

Information Gathering

- Affected Operations
- Existing Regulations
- Practices
- Technologies
- Cost
- Research
- Existing Voluntary Agreements

Manure Management Emissions

- GHGs
  - 1990 Levels
    - 5 MMT CO_2 E (1.2% of total GHG inventory)
  - 2004 Levels
    - 7 MMT CO_2 E (1.4% of total GHG inventory)

Potential Options

- Reduce uncontrolled methane emissions (by maximizing **aerobic** conditions).
- Optimize the production of methane (by maximizing **anaerobic** conditions).
- Optimize resource recovery by collecting and cleaning digester gas.
- Optimize resource recovery by drying the solid fraction of manure prior to use in a conversion process.
- Maximize the on-site use and off-site sale of residuals.
- Optimize resource recovery by using efficient engines and waste heat recovery.

Information Gathering

- Affected Operations
- Existing Regulations
- Practices
- Technologies
- **Cost ✓**
- **Research ✓**
- **Existing Voluntary Agreements ✓**

Cost Information

- Who Was Contacted:
  - AgSTAR Industry Directory
  - Construction/Earthmovers
  - Dairy Methane Digester System Program Evaluation Report (CEC PIER Program)
  - Equipment Manufacturers/Distributors
  - Project Developers
  - Utility Companies

Cost Information

- What We Talked About:
  - Construction
  - Digester and gas production enhancements
  - Energy conversion
  - Gas handling
  - Manure collection and pretreatment
  - Utility interconnection

Research

- Who We Talked to:
  - ARB Research Division
  - ASABE
  - San Joaquin Valley APCD
  - USDA
  - Universities
  - Industry Associations

Research

- Categories We Identified:
  - Air modeling
  - Air monitoring
  - Practices evaluation
  - Technology evaluation

Existing Voluntary Agreement

- **Rocky Mountain National Park Nitrogen Deposition Reduction Plan**
  - Emphasis on voluntary reductions, best management practices, and benefits from current practices
  - Planned contingency measures
  - Continuous evaluation of progress towards plan goals, effectiveness of mitigation measures, and future needs of mitigation measures

Request Stakeholder Feedback

- Evaluate Our Information
- Identify Additional:
  - Practices and technologies
  - Cost information
  - Voluntary agreements
  - Research

Request Stakeholder Feedback

- Get Back to Us by May 16, 2008
  - Ms. Lea Yamashita (916.708.1461) lyamashi@arb.ca.gov
  - Mr. Dan Weller (916.327.0481) sweller@arb.ca.gov

Next Steps

- Follow-up on Stakeholder Feedback
- Additional Field Visits
- AB 32 Scoping Plan
- Propose Strategies