



Presentation Overview

- Background
- Major Revisions
- Scope of the Measure
- Discussion Items
- Next Steps
- Questions

Background

ARB Proposed Control Measure

- Discrete early action under AB 32
- Enhanced control of methane emissions
- Require new collection systems at uncontrolled landfills
- Improve capture efficiencies

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Background

Emissions

- Landfills represent 1 to 2 percent of statewide GHG emissions
 - 1990: 6.26 MMTCO₂E
 - 2006: 5.80 MMTCO₂E
 - 2020: 7.64 MMTCO₂E (forecast)
- 20 uncontrolled landfills with 450,000 tons WIP or more by 2020
- Estimated emission reduction in 2020: 0.8 MMTCO₂E

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ARB Proposed Control Measure

Major Revisions

- Applicability
 - Accepted Waste After January 1, 1977
 - 400,000 tons WIP to 450,000 tons WIP
- Exemption Conditions
 - Based on Landfill Gas Heat Input Capacity

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ARB Proposed Control Measure

Major Revisions (Cont.)

- Surface Emissions Monitoring Requirements
 - 500 ppm - Instantaneous Surface Methane Emission Limit
 - 25 ppm – Integrated Surface Methane Emission Limit
 - Monthly to Quarterly Surface Monitoring

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ARB Proposed Control Measure

Major Revisions (Cont.)

- Calculations to Determine Landfill Gas Heat Input Capacity
- Time Requirement for Installing GCCS at Closed or Inactive MSW Landfills
 - Revised from 18 months to 30 months
- Cover Integrity Monitoring
 - Deleted, part of instantaneous monitoring

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ARB Proposed Control Measure

Major Revisions (Cont.)

- Component Leak Testing Standard
 - Revised from 200 ppm to 500 ppm
- Methane Outlet Concentration for Lean Burn Engines
 - Proposed at 3,000 ppm, dry basis, corrected to 15 percent

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ARB Proposed Control Measure

Scope of the Measure

- Affects all MSW landfills that received waste after January 1, 1977
- $\geq 450,000$ tons of WIP
 - Install a gas collection and control system, unless exemption requirements are met
 - Comply with statewide standards
- $< 450,000$ tons of WIP
 - Must comply with specified reporting requirements

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ARB Proposed Control Measure

Scope of the Measure (Cont.)

- Exemption allowed if owner or operator can demonstrate:
 - Landfill gas heat input capacity of $< 3.0\text{MMBtu/hr}$; and
 - Meets specified reporting requirements

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ARB Proposed Control Measure

Scope of the Measure (Cont.)

- Prepare a Design Plan subject to approval (12 months)
- Install and operate GCCS 18 months after approval of Design Plan; 30 months for closed or inactive MSW landfills
- Flexible control options including enclosed flares and landfill gas-to-energy facilities
- Open flares allowed only under temporary conditions

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ARB Proposed Control Measure

Scope of the Measure (Cont.)

- Performance Based Standards
 - 500 ppm instantaneous surface methane emission limit
 - 25 ppm integrated surface methane emission limit
 - 500 ppm component leak limit
 - Higher destruction efficiencies for gas control devices

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ARB Proposed Control Measure

Scope of the Measure (Cont.)

- **Surface Monitoring**
 - Quarterly surface emission measurements for active landfills
 - Quarterly surface emission measurements reduced to annual (if in compliance) for inactive or closed landfills, or areas of active landfills that are closed or inactive
 - 25-foot walking pattern spacing increased to 100-foot spacing (if in compliance)

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ARB Proposed Control Measure

Scope of the Measure (Cont.)

- **Recordkeeping**
 - Records to be kept for 5 years
 - Records to be kept for life of the control device
- **Reporting**
 - Initial Performance Test and Annual Report
 - Closure Report
 - Equipment Removal Report

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ARB Proposed Control Measure

Scope of the Measure (Cont.)

- Test Methods and Procedures
 - Hydrocarbon Detector Instrument Specifications - U.S. EPA Method 21
 - Expected Gas Generation Flow Rate and Heat Input Capacity – IPCC Emissions Model (2006)
 - Control System Efficiency – U.S. EPA Reference Method 18 or 25

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Discussion Items

- Implementation and Enforcement of the Draft Control Measure
- Economic Analysis
 - Examine Incremental Cost of Compliance
 - Monitoring, Recordkeeping, and Reporting Costs
 - Control Cost Scenarios
 - Other Costs

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Next Steps

- Continue to work with stakeholders
- March 6, 2009 – Staff Report available for a 45-day formal public review and comment period
- April 23, 2009 – Air Resources Board hearing to consider control measure adoption
- December 2009 – Anticipated effective date of the control measure

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Landfill Methane Control Measure Website:
<http://www.arb.ca.gov/cc/landfills/landfills.htm>



Questions about the Draft Landfill Methane Control Measure?

