



Workshop on Draft Landfill Methane Control Measure

California Air Resources Board
March 24, 2008 – Cal/EPA Headquarters

Agenda

- Introduction and Workshop Overview
- Applicability
- Gas Collection and Control Requirements
- Monitoring Requirements

Agenda

- Recordkeeping and Reporting Requirements
- Test Methods and Procedures
- Revisions and Clarifications to be Considered
- Next Steps
- Discussion

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Introduction and Workshop Overview

- Initial draft regulatory language
- Looking for feedback from stakeholders
 - Lower surface emission standard
 - Landfill threshold cut-off
 - Increased monitoring frequencies

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Applicability

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Applicability

- All MSW landfills
- $\geq 400,000$ tons of WIP
 - Install a GCCS, unless exemption requirements are met
 - Comply with statewide standards
- $< 400,000$ tons of WIP
 - Comply with specified reporting requirements

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Applicability

Limited Exemptions

- $\geq 400,000$ tons of WIP
 - No surface methane leak exceeding 200 ppmv over 6-month monitoring period
 - Landfill gas heat input capacity < 2.5 MMBtu/hr
 - Comply with annual reporting requirements

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Applicability

Limited Exemptions

- $< 400,000$ tons of WIP
 - If landfill is active with future design capacity
 - Comply with annual reporting requirements

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Applicability

Limited Exemptions

- <400,000 tons of WIP
 - If landfill is closed with no future design capacity
 - Comply with one-time reporting requirements

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Gas Collection and Control Requirements

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Gas Collection and Control Requirements

GCCS Design Plan

- Must submit 1 year after effective date of regulation
- Provide for control of collected methane to meet standards
- Conform to specifications for active collection system

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Gas Collection and Control Requirements

GCCS Design Plan

- Address practices to further minimize emissions and maximize methane collection efficiencies
- Alternatives to the requirements based on site-specific conditions may be included (subject to approval)

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Gas Collection and Control Requirements

GCCS Requirements

- To be operated continuously, except under certain conditions
- 200 ppmv component leak standard
- Gas control devices (other than lean burn engines) must achieve a methane DE of at least 99%
- Lean burn engines must meet an outlet methane ppm standard (TBD)

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Gas Collection and Control Requirements

GCCS Requirements

- Emissions from any treatment system must be routed to the control device
- Annual source test for gas control devices
- Wellhead raising
- GCCS Inspection and Maintenance

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Gas Collection and Control Requirements

GCCS Requirements

- Temporary Shutdown of Gas Collection System Components
- Construction Activities
- Permanent Shutdown and Removal of GCCS
- Permanent Landfill Closure
- Wellhead Requirements

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Gas Collection and Control Requirements

Surface Methane Emission Standard

- ARB's proposed 200 ppmv standard based on a preliminary review of District surface monitoring data
- SCAQMD's 500 ppmv Instantaneous Surface Standard (57 reports, 27 landfills):
 - 500 ppmv instantaneous standard was exceeded a little more than half of the time

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Gas Collection and Control Requirements

Surface Methane Emission Standard (cont.)

- SCAQMD's 50 ppmv Integrated Surface Sampling Standard (57 reports, 27 landfills):
 - 50 ppmv appeared to be rarely exceeded (only 2 times out of a sample of 27 landfills)
 - The highest recorded measurement was only 90 ppmv

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Gas Collection and Control Requirements

Surface Methane Emission Standard

- BAAQMD – query of surface leak violations from 2002 – 2008:
 - 31 violations of the 500 ppmv surface leak standard
- Continuing to Analyze Data

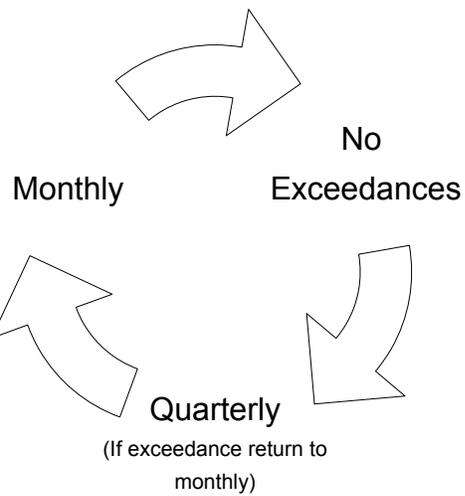
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Monitoring Requirements

Monitoring Requirements

Surface Monitoring
Frequencies

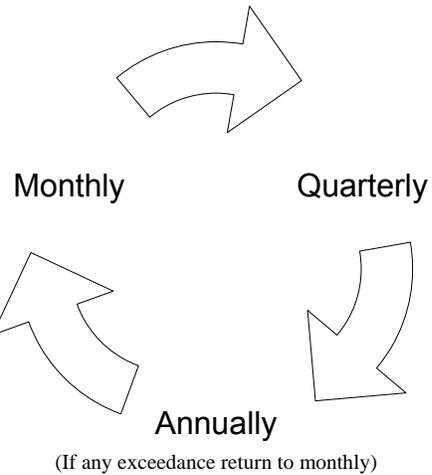
Active Landfills



Monitoring Requirements

Surface Monitoring
Frequencies

Closed and
Inactive Landfills



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Monitoring Requirements

Gas Control System Monitoring
Requirements

- Enclosed combustors
- Alternative control devices
- Monthly monitoring for component leaks

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Recordkeeping and Reporting Requirements

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Recordkeeping and Reporting Requirements

Recordkeeping

- GCCS operational data, exceedances, and shutdown times

Reporting

- Annual Report
- Closure Report
- Equipment Removal Report

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Recordkeeping and Reporting Requirements

Reporting (Cont.)

- Simplified Reporting Requirements for Exempted Landfills
 - Estimated waste-in-place
 - Percentage of area with final cover and a geomembrane
 - Percentage of area with final cover but without a geomembrane

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Test Methods and Procedures

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Test Methods and Procedures

- Determination of Concentration
- Determination of Maximum Expected Gas Generation Rate
- Control System Efficiency Determination
- Determination of Rated Heat Capacity
- Instantaneous Surface Methane Monitoring

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Revisions and Clarifications to be Considered

- Exemption Criteria – subsections (c)(2)(A) and (c)(2)(B)
- Specifications for Active Collection Systems
- Enforcement Agency
- Monitoring Exceedance Violation
- Recordkeeping and Reporting Requirements

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Next Steps

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Next Steps

- ARB is seeking comments and will continue to work with stakeholders
- Landfill Technical Review Workgroup meetings
- Late Sept. 2008 – Staff report (Initial Statement of Reasons), will be available for a 45-day formal public review and comment period

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Next Steps

- November 2008 – Board hearing to consider the adoption of the landfill methane control measure
- Fall 2009 – Anticipated effective date of the control measure

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





Thank you.

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Questions about Draft Landfill
Methane Control Measure?



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