SCS ENGINEERS






Odor Management at Solid Waste Facilities

A&WMA Mother Lode Chapter
Dinner Meeting
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Topics to Cover

- Background
- Regulatory Requirements
- Recology Hay Road/Jepson Prairie Organics Odor Management Program
- Case Studies
- Final Thoughts

Background

- Solid waste management facilities can emit odorous substances—that's a given
- Organics, sulfur-containing materials, and other odorous substances in the waste drive odor
- Impacts to neighboring properties possible for any type of solid waste facility
- Diversion of organics away from landfills will lead to odor issues at other facilities
- Odor issues have led to lawsuits, regulatory action, difficulty in CEQA/project permitting, and early facility closures

Regulatory Requirements

- General
  - State solid waste agencies have general odor/nuisance requirements
  - Every air jurisdiction has similar requirements
  - Requirements are non-numeric and subjective
  - Driven by odor complaints by citizens or inspections
  - Enforcement action is highly variable and driven by agency policy not regulation (and sometimes politics)
  - No agreed upon approach for testing, modeling, and threshold limits

Regulatory (cont.)

- Cal Recycle/LEAs (Landfills)
  - 27 CCR "**Nuisance**" for Cal-Recycle-promulgated sections includes anything which is injurious to human health or is indecent or offensive to the senses and interferes with the comfortable enjoyment of life or property, and affects at the same time an entire community, neighborhood, household or any considerable number of persons although the extent of annoyance or damage inflicted upon an individual may be unequal and which occurs as a result of the storage, removal, transport, processing or disposal of solid waste.

Regulatory (cont.)

- Cal Recycle/LEAs (Compost Facilities)
- 14 CCR "**Nuisance**" includes anything which:
  - (A) is injurious to human health or is indecent or offensive to the senses and interferes with the comfortable enjoyment of life or property, and
  - (B) affects at the same time an entire community, neighborhood or any considerable number of persons. The extent of annoyance or damage inflicted upon an individual may be unequal.

Regulatory (cont.)

- Cal Recycle/LEAs (cont.)
  - 27 CCR Section 20760. CIWMB - Nuisance Control.
    - Each disposal site shall be operated and maintained so as not to create a public nuisance
    - Same for all solid waste facilities
  - Landfill: JTD must include section on odor/nuisance control
    - Usually accomplished by odor management plans
  - Compost:
    - Odor Impact Minimization Plan (OIMP)
    - Odor BMP Feasibility Report

Regulatory (cont.)

- Cal Recycle/LEAs (cont.)
  - Odor Verification
    - Operational Challenges Assessment Procedure
  - Odor Monitoring Circuit Procedure
  - Standard Threshold Odor Monitoring Plan (STOMP)
  - Coordination with air agencies
  - Can issue NOVs
  - Can require implementation of BMPs for odor
  - Unique authority over composting facilities

Regulatory (cont.)

- SMAQMD Rule 402-Nuisance (example)
  - PURPOSE: To protect the public's health and welfare from the emission of air contaminants which constitute a nuisance.
  - STANDARDS-NUISANCE: A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

Regulatory (cont.)

- District Enforcement
  - Inspections to follow-up on complaints
  - Wide variety of criteria to determine whether odor constitutes NOV; examples:
    - Based on number of citizen complaints
    - Verification of odor by inspector with qualitative nuisance determination
    - Verification using rating system for magnitude and offensiveness of odor
    - Correlation of odor back to specific facility w/ and w/o inspection of facility

Regulatory (cont.)

- State CEQA Guidelines Appendix G
  - Will the project create objectionable odors affecting a substantial number of people?
- SMAQMD CEQA Guidance (example)
  - No quantitative or formulaic methods
  - Focus on full disclosure of relevant information
    - Nature of odor sources
    - Buffer zone
    - Meteorology
    - Odor complaint history

Regulatory (cont.)

- SMAQMD CEQA Guidance (cont.)
  - Significance Determination
    - Case-by-case
    - Review of relevant information
    - Recommended Odor Screening Distances
  - Mitigation Measures
    - Planning-based
    - Technology/Design-based Odor Control Measures
- Other jurisdictions are similar
  - Have seen use of dilution to threshold (D/L)

Case Studies-General

- Regulatory action is always possible
  - Although most defendant landfills were in compliance at the time of lawsuit
- Defending a facility can be expensive even if the facility prevails
  - Recovery of legal fees unusual
- Various tools are available/have been used to:
  - Confirm the impact is from solid waste
  - Assess the magnitude of release/off-site migration
  - Determine level of impact at receptor locations

Facility #1 – Lawsuit

- Facility #1 is an active solid waste facility in California with landfill, composting, and MRF
  - Similar cases in CA, OK, PA, and MA
- Plaintiff attorneys used publicly-available records to identify facilities with odor complaints/NOVs
- Fliers sent to neighborhoods surrounding facility seeking participation in lawsuit---very provocative
- Litigation was brought against the facility owner in 2013 for odor/nuisance impacts on nearby properties---class action

Facility #1 (cont.)

- The defendant was able to demonstrate that the methodology used by the plaintiff had serious flaws
- Through on-site flux testing, the defendant was able to refute the findings of the plaintiff and demonstrate much lower emissions and impacts.
- Defendant's analyses also identified other potential sources of odor and nuisance ignored by plaintiff

Facility #1 (cont.)

- Ruling in favor of the defendant: proposed class was not certified for a class action lawsuit
  - Not all similar cases have ended in same fashion
- Despite this success, the facility owner has borne significant costs for the litigation defense
- And the litigation has had a detrimental effect on a proposed expansion of the facility
- Community opposition to facility was incited and is now organized
  - Odor complaints increased by 5-fold

Facility #2 - Odor Assessment

- Facility #2 is an active solid waste facility in California with landfill, composting, and MRF
- History of odor complaints, increasing as new residential developments encroached on facility
- Concerned about escalation of problem, so performed odor assessment program, including:
  - Emissions estimation and air modeling
  - Sampling and analysis of ambient air
  - Interviews of residents who have previously complained
  - Review of facility operations and update of facility odor plans

Facility #2 (cont.)

- Odor assessment program, including (cont.):
  - Installation of on-site weather station; ability to get real-time wind speed/direction
  - Curtailment of certain operations during worst-case wind conditions
  - Correlation of odor complaints, wind conditions, and on-site operations
  - Improvements to LFG system, composting BMPs, and handling of odorous waste loads
  - Expanded odor complaint response program
  - Final reports presented in public meeting---engagement of public

Facility #2 (cont.)

- Outcome
  - Reduced number of complaints
  - Better response to complaints
  - Clearer understanding of sources of odor and how to best control them
  - Understanding of linkage between odor impacts and wind/met conditions
  - Engagement of operations personnel in the process
  - Impetus for facility improvements

Final Thoughts

- Solid waste facilities are easy targets
- Odor emissions/off-site migration can/do occur
  - But off-site impacts are not always from solid waste sources
  - And not all impacts cause odor/nuisance
  - The level of exposure matters
- Assessment tools exist:
  - Sampling/monitoring for odor/chemical presence
  - Modeling for odor generation/emission

Final Thoughts (cont.)

- Assessment tools (cont.)
  - Emissions testing and measurement
    - Methods for surface emissions flux (e.g., optical remote sensing, flux chambers, etc.)
  - Exposure and air dispersion models
  - Gas/air "fingerprinting" and comparisons
  - Tracer studies
  - Odor sampling/analysis, field monitoring, panels, etc.
  - Ambient air testing

Final Thoughts (cont.)

- Defend yourself against litigation
  - Difficult for plaintiffs to show definitive impacts
  - Burden of proof is on plaintiff
  - Many plaintiffs are hoping for quick settlement; make them work for it
- Understand the value and limitations of the various assessment techniques
- Recognize litigation can be costly even if you win
  - But more costly if you lose

Final Thoughts (cont.)

- It is always better to be proactive
- Things can get out of hand quickly if you are reactive only
  - Odor issues can take on a life of their own
- Develop/implement comprehensive plans for odor management
- Take complaints seriously
- If you have an issue, deal with it

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