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PCLU SYMPOSIUM LEGAL AND ECONOMIC ISSUES SESSION



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*Liability from Closed Landfills
Issues Confronting Private Landowners*

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Developer's Landfill “Closure” Issues

- ❑ SWAT (Solid Waste Assessment Test)
Investigation
- ❑ Soil Impacts
- ❑ Groundwater Impacts
- ❑ Methane Gas
- ❑ Leachate
- ❑ Other Issues (e.g. storm water runoff, refuse related nuisances etc.)

SWAT Investigation

□ Components:

- > Soil Borings (Sampling & Testing)
- > Groundwater Monitoring Wells (Sampling & Testing)
- > Soil Vapors (Sampling & Testing)
- > Hazardous Substances
- > Hazardous Wastes
- > Methane Gas
- > Poisonous Gasses (e.g. Hydrogen Sulfide)

Soil & Groundwater Impacts

- Soil Remediation

(cost & complexity can vary widely)

- Groundwater Remediation

(cost & complexity can vary widely)

- Leachate Remediation

(cost & complexity can vary widely)

Methane Gas: Most Common Issue

□ METHANE:

Decaying Materials = Gas Production

□ Decay Process = 30+ Years

□ Methane is non-poisonous (unless combined with another gas)

□ Methane is explosive

□ Methane causes asphyxiation

□ E.g. "Sago Mine"

Methane Gas: Most Common Issue

METHANE "MANAGEMENT":

- ❑ Methane Gas Collection (Passive or Active gas collection via subsurface piping with "Treatment" System ("Flare" or "Filtration"))
- ❑ Methane Gas Monitoring
- ❑ Structural Modifications
- ❑ "Outreach" & Education

Developer's Landfill “Closure” Issues

- Remediation Plan
- Regulatory Approvals
- Capital Improvements
- Operations & Maintenance
- Monitoring
- Institutional Controls
- Financial Assurance

Remediation Plan

- ❑ Groundwater and/or Leachate and/or Methane Collection Treatment (monitoring wells, recovery wells & treatment system)
- ❑ Capital Costs:
 - > Environmental Consultant's Site Investigation
 - > Engineering Design
 - > Field Construction
 - > Agency Oversight Costs

Operation & Maintenance Plan

Operations & Maintenance Costs:

- ❑ Quarterly Air (GW) Sampling, Testing & Reporting
- ❑ Annual Systems Inspections & Testing
- ❑ Periodic Repairs
- ❑ Retrofit (10-15 year life span)

Developer's Landfill "Closure" Costs

Capital Costs and O&M Costs: Examples

- Oil Landfill, Monterey Park
- Superfund Site
- Groundwater, Leachate, Methane Gas Recovery & Remediation
- Cost: Capital Costs= \$17.6MM
O&M Annual Costs= \$6.3MM
Total Costs (NPV)= \$162MM

Developer's Landfill "Closure" Costs

Capital Costs and O&M Costs: Examples

- Orange County Residential Area Landfill
- Quarry Site filled with "Non-Haz" Solid Refuse
- Methane Gas Recovery & Remediation
- Cost: Capital Costs= \$1.5MM
O&M Annual Costs= \$100k
Total Costs (NPV)= \$3.5MM

Developer's Landfill "Closure" Issues

Institutional Controls:

*"**Institutional controls** are actions, such as legal controls, that help minimize the potential for human exposure to contamination (or environmental risk) by ensuring appropriate land or resource use."*

Institutional Controls: Examples

Institutional Controls:

- ❑ Structure use restrictions
- ❑ Land use restrictions
- ❑ Natural resource use restrictions
- ❑ Well restriction areas
- ❑ Excavation restriction areas
- ❑ Deed restrictions
- ❑ Deed notices
- ❑ Declaration of environmental restrictions, registries.
- ❑ Access controls
- ❑ Monitoring requirements
- ❑ Site posting requirements
- ❑ Information distribution
- ❑ Notification in closure letter
- ❑ Restrictive covenants
- ❑ Federal/State/county/local Registries

Institutional Controls: Costs

Cost Issues:

- ❑ Recurrent Costs: Quarterly, Annually, Semi-Annually
- ❑ Involves Government Oversight
- ❑ Involves Government and Private Consultant/Contractor Costs
- ❑ Who is responsible to perform long term?
- ❑ Who is responsible to pay long term?
- ❑ Cost range: \$10k-\$50k annually

Financial Assurance

Key issues:

- ❑ Passing on responsibility for a 30 year problem
- ❑ Longevity concerns: What company or organization can predict its longevity?
- ❑ Corporate/Project Dissolution & Wind Down Constraint
- ❑ HOA Management Personnel & "Attitudes" change frequently
- ❑ HOA "Institutional Knowledge" dissipates over time
- ❑ Is today's budget realistic for tomorrow??
- ❑ What Developer wants to sock away \$2MM-\$5MM of Project profit for future O&M Costs??

Developer's Landfill “Closure” Issues

- ❑ Building Code Compliance
- ❑ Methane Vapor Migration
- ❑ Building Design Issues
- ❑ Utility Design Issues
- ❑ Open Space Design Issues

Building Code Compliance

Common Issues:

- ❑ Methane migration zone soils characteristics
- ❑ Methane source setback ordinances
- ❑ Methane levels
- ❑ “Active” Residential Structure Methane Barrier System (\$7k-\$10k per unit)
- ❑ “Active” Residential Structure Methane Barrier System (\$2k-\$5k per unit)

Utility Design & Construction

Common Issues:

- ❑ Wet Utilities: Trenching danger
- ❑ Dry Utilities: Spark danger
- ❑ Utility Vaults: Spark danger & asphyxiation danger
- ❑ Venting and barrier design components

Open Space Design & Construction

Primary Issue:

- ❑ Future excavation
- ❑ Greenbelts = methane barrier
- ❑ Methane gas collection pockets
- ❑ Excavation explosion risk
- ❑ Warning Signage

Developer's Landfill Disclosure Issues

Theme: One can never OVER-DISCLOSE!!!

- ❑ DRE "White Report"
- ❑ Covenants, Conditions & Restrictions ("CC&Rs")
- ❑ HOA Bylaws
- ❑ Sales Literature Disclosures
- ❑ Deed Restrictions
- ❑ Deed Notices/Disclosures
- ❑ Institutional Controls

Developer-HOA Dilemmas

WHERE DOES THE BUCK (\$) STOP???:

- ❑ Who is to bear anticipated Future Costs (Developer vs. HOA)
- ❑ How to Fund Future Costs (Trust Deposit: HOA Assessments)
- ❑ Who is to bear unanticipated Future Costs (Developer vs. HOA)
- ❑ Who is to implement Future O&M (Developer, HOA, Third Party)
- ❑ What happens if HOA reneges on responsibilities?
- ❑ What is role of CIWMB or CUPA re financial assurance?

QUESTIONS

&



ANSWERS

THE END



THANK YOU
FOR
LISTENING!!