Avoidance Landfills....

Unleashing the Potential

SWANA – VA Chapter
July 15, 2010

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Outline

- Evolution of Landfill Siting Rules
  - “Sanitary” Landfill Rules
  - 40 CFR Part 258
  - State Rules
- Example No. 1 – Johnston County, NC
- Example No. 2 – Newton County, GA
- Example No. 3 – Perry County, AL
- Questions & Discussion
RCRA (1976)

- Goals – Protect, Conserve, Reduce
- Subtitle D – Disposal of Non-Hazardous Solid Waste
  - State Solid Waste Plans
  - Sanitary Landfill Criteria
  - Closing or Upgrading of Open Dumps
"Sanitary" Landfill Rules
(Typical State)

Siting Criteria Included:

- 100-Yr Floodplain
- Endangered/Threatened Species
- Archaeological/Historical Site
- State Park/Recreation/Scenic Area/Etc.
- Airports (5,000 ft./10,000 ft.)
- Wetlands
- 50’ to Property Lines
- 500’ to Residences/Wells
- 50’ to Streams/Rivers
New Siting Criteria Included:

- Fault Areas
- Seismic Impact Zones
- Unstable Areas
Not In My Back-Yard!!!
Decisions, Decisions
avoidance landfill $n$ 1: a landfill which is designed to stay away from conflicts with siting criteria.
NC – Solid Waste Management Act of 2007
(A.K.A. – Senate Bill 1492)

Siting Criteria Include (for New “Green” Site Landfills:

- Wetlands & Perennial Streams Buffer: 200 feet
- National Wildlife Refuge Buffer: 5 Miles
- State Gameland Buffer: 1 Mile
- State Park Buffer: 2 Miles

Size Restrictions Also Added
Pre-Solid Waste Act of 2007

[Map of North Carolina with various markers indicating different waste sites and locations.]
Example No. 1
Johnston County, NC Landfill
Johnston County, NC - Original Design

Red = Unlined Unit
Green = Lined Unit
Johnston County, NC
Revised Design – Capacity Summary

Original Design

MSW & C&D:
- Phases 5-8: 3.0M Tons (= Total Capacity)

Revised Design

MSW:
- Phase 4A: 1.8M Tons
- Phases 5-8: 3.0M Tons
- Phases 9-10: 5.7M Tons

C&D:
- Area 1: 0.3M Tons
- Area 2: 0.5M Tons

Total = 8.3M Tons
(277% Increase)
Johnston County, NC
Permitting Issues

- Wetlands (1.8 Acres)
- Streams (490 LF)
- Piggyback Landfills
Johnston County, NC
Technical Issues

- Piggybacking of Unlined Units
  - Double Liner System
  - Evaluation of Liner System Strain
  - Interface Shear Strength Requirements
  - Landfill Gas (LFG) Concerns
Johnston County, NC
Double Liner System

Leachate Collection Flow: 250 gallons/acre/day
Leak Detection Flow: 2 gallons/acre/day
Piggyback Landfills: LFG Concerns

Passive LFG Collection Trenches @ 100’ Spacing

LFG Collection Trench
Johnston County, NC
Phase 4A MSW Piggyback Unit

Cell 1 - 2002

Cell 2 - 2005

Cell 3 - 2009
Example No. 2
Newton County, GA
Lower River Road Landfill
Newton County, GA – Original Design

Red = Unlined Unit
Green = Lined Unit
Newton County, GA – Revised Design

Revised Design: 6.8M Ton Capacity (Accounts for Waste/Soil Relocation)
166% Increase Over Original Design

Red = Unlined Unit
Green = Lined Unit
Permitting Issues:
- Floodplain Modification
- Wetlands (0.4 Acres) & Streams (1,550 LF)
- Stream Buffer Variance
- Waste Removal & Relocation

Technical Issues:
- Redesign of Site 2 – Phase 3
  - Compatible with Long-Term Plan
- Waste Removal and Relocation
Newton County, GA
Waste Removal & Relocation – Key Aspects

Sequencing:

- In Harmony with Landfill Development
  - Manpower/Equipment Concerns
  - Time to Remove and Verify Cleanup
- Keep Existing Buildings Operational
Newton County, GA
Waste Removal & Relocation Plan

- Health & Safety
- Community Relations
- Environmental Controls & Monitoring
- Site Preparation Activities
- Excavation
- Material Segregation
- Redisposal Procedures
- Quality Assurance
- Testing to Confirm Clean Subgrade
Example No. 3
Perry County (AL) Associates Landfill
Perry County, AL – Original Design
Perry County, AL – Revised Design
Perry County, AL
Permitting Issues

- Wetlands
- Streams
- Cultural Resources
Conclusion

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Questions & Discussion
Thank You!

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