SOLID WASTE REGULATIONS
AND
LANDFILL CASE STUDIES

* INTRODUCTION

* SOLID WASTE
  Municipal
  Residual
  Hazardous

* LEGISLATION & EVOLUTION OF REGULATIONS

* MUNICIPAL WASTE LANDFILL PERMITTING PROCESS

* MUNICIPAL WASTE LANDFILL SITING CRITERIA

* LANDFILL DESIGN
  Geosynthetics
    Geotextile
    Geomembrane
    Geogrid
    Geonet

* LEACHATE MANAGEMENT

* GROUNDWATER MONITORING

* GAS MANAGEMENT

* SLIDES

* MOSTOLLER LANDFILL CASE STUDY
SOLID WASTE:

Waste, including, but not limited to, Municipal, Residual, or Hazardous Waste, including solid, liquid, semisolid, or contained gaseous material.

Code Section 271.1

Annual Generation: 3 cu yd. / 700 lb/year
0.4 lb/person/day
MUNICIPAL WASTE

Solid

Liquid →

Semi-solids

Contained gaseous material

EX: • Household garbage
    • Recyclables
    • Home Demolition Waste
    • Furniture / Appliances / Lumber

\[ \eta A = 10 \text{m}^2 / \text{r} \text{dyn} \]
RESIDUAL WASTE

Solid → Industrial
Liquid → Mining
Semi-solids → Agricultural

Contained gaseous material

EX: • Fly / Bottom Ash
    • Slag
    • Foundry Sands
    • Sand Blasting Waste
    • Mill Scale / Sludges

** PA generates 18 million tons/yr

40% of total = combustion residue
HAZARDOUS WASTE

Solid

Liquid

Semi-solids

Contained gaseous material

Municipal
Commercial
Industrial
Mining
Agricultural

• Quantity
• Concentration

** PA is the 4th largest generator of Hazardous Waste at 750,000 tons/yr – 16,516 sites in PA

Waste which because of:

May Either:

(1) ↑ mortality or morbidity = TOXIC
(2) Pose Hazard to human health or ENV'T due to: ignitable corrosive reactive

QUANTITY
Concentration
Physical
Chemical
Infectious Characteristic
REGULATIONS IN REVIEW

1965 -- 1st Federal Solid Waste Statute

1968 -- Act 241 - Solid Waste Management Act


1980 -- Fed. CERCLA - "SUPERFUND"

1980 -- Act 97 - Solid Waste Management Act

1988 -- Act 108 - Hazardous Sites Cleanup

1988 -- Municipal Waste Regulations

1990 -- Hazardous Waste Regulations

1992 -- Residual Waste Regulations

Process:
- Legislature develops law > Act
- PA DER drafts regulations
- Environmental Quality Board reviews
- Draft regulations published for public notice
- Public hearings + reviews
- EQB, Attorney General
- Final approved by EQB - published, effective
PHASE I PERMIT APPLICATION
REQUIREMENTS FOR GROUNDWATER LANDFILLS

- FACILITY PLAN AND DESCRIPTION
- SITE MAPS WITH PHYSICAL FEATURES
- GEOLOGY AND GROUNDWATER DESCRIPTION
- GROUNDWATER QUALITY DESCRIPTION
- SOIL DESCRIPTION
- SURFACE WATER INFORMATION
- ALTERNATIVE WATER SUPPLY INFORMATION
- MINERAL DEPOSITS INFORMATION

PHASE II PERMIT APPLICATION
REQUIREMENTS FOR GROUNDWATER LANDFILLS

- OPERATION PLAN
- DETAILED SITE MAPS
  - COMPACTATION AND COVER PLAN
- REVEGETATION PLAN
- SOIL EROSION AND SEDIMENTATION CONTROL PLAN
- WATER QUALITY MONITORING PLAN
- GAS MONITORING AND CONTROL PLAN
- CONTINGENCY PLAN
- CLOSURE PLAN
- POST-CLOSURE LAND USE PLAN
AREAS EXCLUDED FROM LANDFILL SITING

- WITHIN 100 YEAR FLOODPLAINS*
- IN OR WITHIN 300 FEET OF AN EV WETLAND
- IN OR WITHIN 100 FEET OF WETLAND
- IN COAL-BEARING AREAS (UNLESS OPERATOR OWNS COAL)
- IN VALLEYS THAT IMPACT PERENNIAL STREAMS*
- AREAS UNDERLAIN BY LIMESTONE >5 FEET THICK AS TOP ROCK
- WITHIN 300 TO 500 FEET OF AN OCCUPIED DWELLING (CAN BE WAIVED)*
- WITHIN 100 FEET OF A PERENNIAL STREAM*
- WITHIN 100 FEET OF PROPERTY LINE
- WITHIN 25 FEET OF COAL SEAM, OUTCROP, OR COAL REFUSE
- WITHIN 1/4 MILE UPGRADE/NT AND 300 FEET* DOWNGRADE/NT
  OF PUBLIC OR PRIVATE WATER SOURCE (CAN BE MODIFIED)
- 5,000 - 10,000 FEET FROM AIRPORTS (PUTRESCIBLE WASTES
  ONLY)

- within 300 yds of:
  School
  Park
  Playground