Management of Marcellus Shale Waste
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Marcellus Shale Permits Issued & Wells Drilled
(Revised - July, 2011)
OIL AND GAS, AND WELL DRILLING WASTES

- **801** Drilling Fluids, Residuals
- **802** Brine (natural salt water separated at oil & gas wells)
- **803** Drilling Fluid Waste (oil & gas drilling mud, other drilling fluids other than fracking fluid and spent lubricant)
- **804** Fracking Fluid Waste (oil & gas drilling fracturing fluid, flow-back fracturing fluid, flow-back treatment liquid)
- **807** Basic Sediment (oil & gas production storage impurities, sediment from produced oil at storage tank battery)
- **808** Servicing Fluid (oil & gas production well maintenance/work over fluids, oil/water-based mud and foam)
- **809** Spent Lubricant Waste (spent oil & gas drilling lubricants, spent plug drilling lubricants)
- **810** Drill Cuttings (oil & gas drill cuttings using a drilling mud formula)

Laws and Regulations

- Oil and Gas Act
- Coal and Gas Resource Coordination Act
- Oil and Gas Conservation Law
  - 25 Pa Code Chapter 78
- Clean Streams Law
  - 25 Pa Code Chapters 91-102
- Dam Safety and Encroachments Act
  - 25 Pa Code Chapter 105
- Solid Waste Management Act (residual waste)
- Air Pollution Control Act
- Storage Tank and Spill Prevention Act
- Environmental Laboratory Accreditation Act

Chapter 78 Design Requirements (examples)

- Pits and tanks for temporary containment (78.56):
  - [http://www.pacode.com/secure/data/025/chapter78/c78.56.html](http://www.pacode.com/secure/data/025/chapter78/c78.56.html)
- Control, storage and disposal of production fluids (78.57):
  - [http://www.pacode.com/secure/data/025/chapter78/c78.57.html](http://www.pacode.com/secure/data/025/chapter78/c78.57.html)
- Existing pits used for the control, storage and disposal of production fluids (78.58):
  - [http://www.pacode.com/secure/data/025/chapter78/c78.58.html](http://www.pacode.com/secure/data/025/chapter78/c78.58.html)
- Disposal of drill cuttings (78.61):
  - [http://www.pacode.com/secure/data/025/chapter78/c78.61.html](http://www.pacode.com/secure/data/025/chapter78/c78.61.html)
- Disposal of residual waste – pits (78.62):
Freshwater Impoundment
Centralized Impoundment

Residual Waste Regulations

- 25 PA Code Chapters 287-299 (pacode.com)
  - 287.2(g) – structure used for the disposal, storage or processing of residual waste located on the well site is managed under Chapter 78 (oil and gas wells)
- Generator Requirements
  - Chapter 287.51-287.55
- Transportation and Storage Requirements
  - Chapter 299
- Treatment, Processing, Disposal
  - Chapters 287, 299
  - Chapter 271.611

Management of Marcellus Shale Wastes

- Drill cuttings/Wastewater Treatment Sludges
  - Drill cuttings: vertical/horizontal/mixed, bulking materials
  - Form U/Landfill disposal
    - 1 million tons/year at municipal and commercial residual waste landfills
    - Double liner system with one liner composite liner, leachate collection
    - 271.611 (compatible with other wastes, liner system and leachate collection and treatment system)
    - Reduced analytical possible
      - Facility basis, same generator and drilling fluids
      - Statistical analysis/certification
    - Radiation monitoring/TENORM tracking
    - Drill Cuttings beneficial use?
Management of Marcellus Shale Wastes

- Wastewater Processing
  - CWT/General Permit for Processing and Beneficial Use
  - General Permits
    - GP R119, R121, R123
    - Treated wastewater used to frack wells
      - Managed as waste until used to frack well
    - R123 draft modifications
      - Consolidation
      - Treatment standards for storage as fresh water
    - Radiation monitoring

Marcellus Shale Wastes Storage

- Storage & Transportation Requirements (Chapter 299)
  - Stored and transported as residual waste
  - Wastewater stored as residual waste after processing
  - Tanks and Impoundments
    - Double lined (60 mil, one liner composite)
    - Leak detection
    - Limited time
    - Piping

Transportation of Waste

- Signs on Vehicles
- 299.219 Recordkeeping and Reporting
  - Daily operational record (log)
    - Kept in cab
    - Type and weight or volume
    - Name, address and tel. number of generator
    - Name and location of destination facility
    - Name and address of person transporting
    - The license plate number of trailer
  - Records of daily operational logs kept by transporter for 5 years (kept in office)
    - Including 26R analysis to be accepted at WWTP
Questions