EPA United States Environmental Protection Agency

Radiation Protection Program

Radiation 101: EPA Programs and Authorities

Implications for Waste Management

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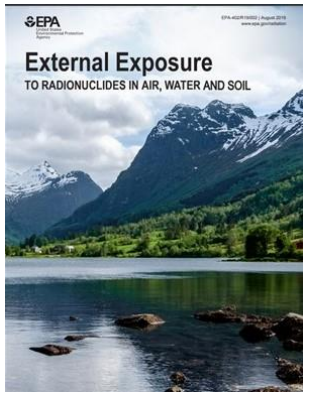
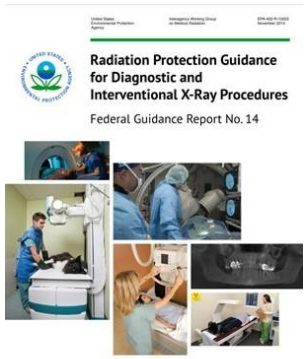
Outline of Presentation

- EPA statutory authorities for radiation
- Resource Conservation and Recovery Act (RCRA)
- EPA's emergency responsibilities
- Working with the Nuclear Regulatory Commission (NRC)
- Working with States

EPA's Creation in 1970

- Reorganization Plan No. 3 transferred multiple programs and authorities to EPA, including:
  - Functions of the Atomic Energy Commission, under the Atomic Energy Act of 1954 (AEA), for "establishing generally applicable standards for the protection of the general environment from radioactive material"
    - Applicable outside the boundaries of sites where radioactive material is being used
    - Typically implemented by NRC and the Department of Energy (DOE)
    - Standards for uranium fuel cycle for electricity production
    - Standards for spent nuclear fuel, high-level and transuranic radioactive waste
  - Functions of the Federal Radiation Council to provide advice to the President in radiation matters, including guidance to Federal agencies
    - Federal Guidance reports (technical and policy)





Additional Radiation-Specific Authorities

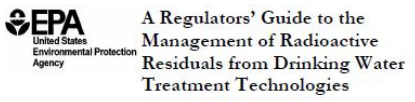
- Congress built on EPA's basic AEA authority:
  - Uranium Mill Tailings Radiation Control Act of 1978
    - Standards for managing wastes from uranium or thorium milling
    - Amended the Atomic Energy Act
  - Nuclear Waste Policy Act of 1982 (amended 1987)
    - Generally applicable standards for spent fuel and high-level waste repositories
  - Energy Policy Act of 1992
    - Site-specific standards for Yucca Mountain
  - Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act of 1992
    - Oversight and certification of WIPP

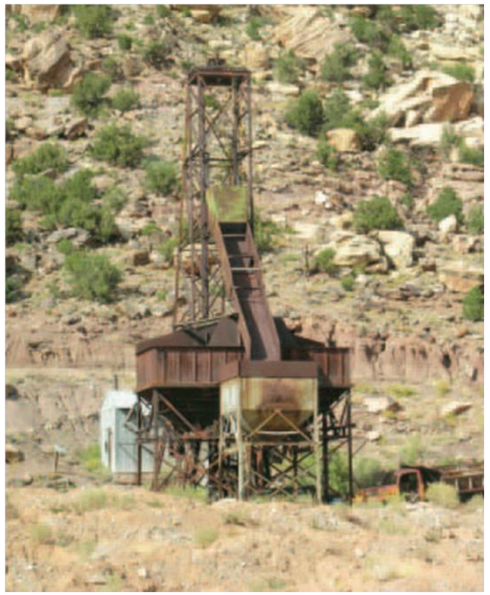
Other EPA Authorities

- EPA has authority over radionuclides under other environmental statutes, including:
  - Clean Air Act
    - Dose/emission limits on radon and other radionuclides
  - Clean Water Act
    - Discharge limits on uranium/radium mines/mills
  - Safe Drinking Water Act
    - Underground injection control
    - Drinking water treatment
  - Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
    - “Off-Site Rule” for disposal

TENORM Largely Falls to States

- Technologically Enhanced Naturally-Occurring Radioactive Material does not fall under the AEA:
  - Often large volume but not highly radioactive
  - Often other hazardous substances present
  - Mining and (non-AEA) mineral processing
  - Oil and gas exploration and treatment
  - Drinking water treatment
  - Geothermal energy
  - Industrial byproducts (e.g., coal ash)
  - States have addressed disposal in permits
- EPA focus on technical studies and assistance

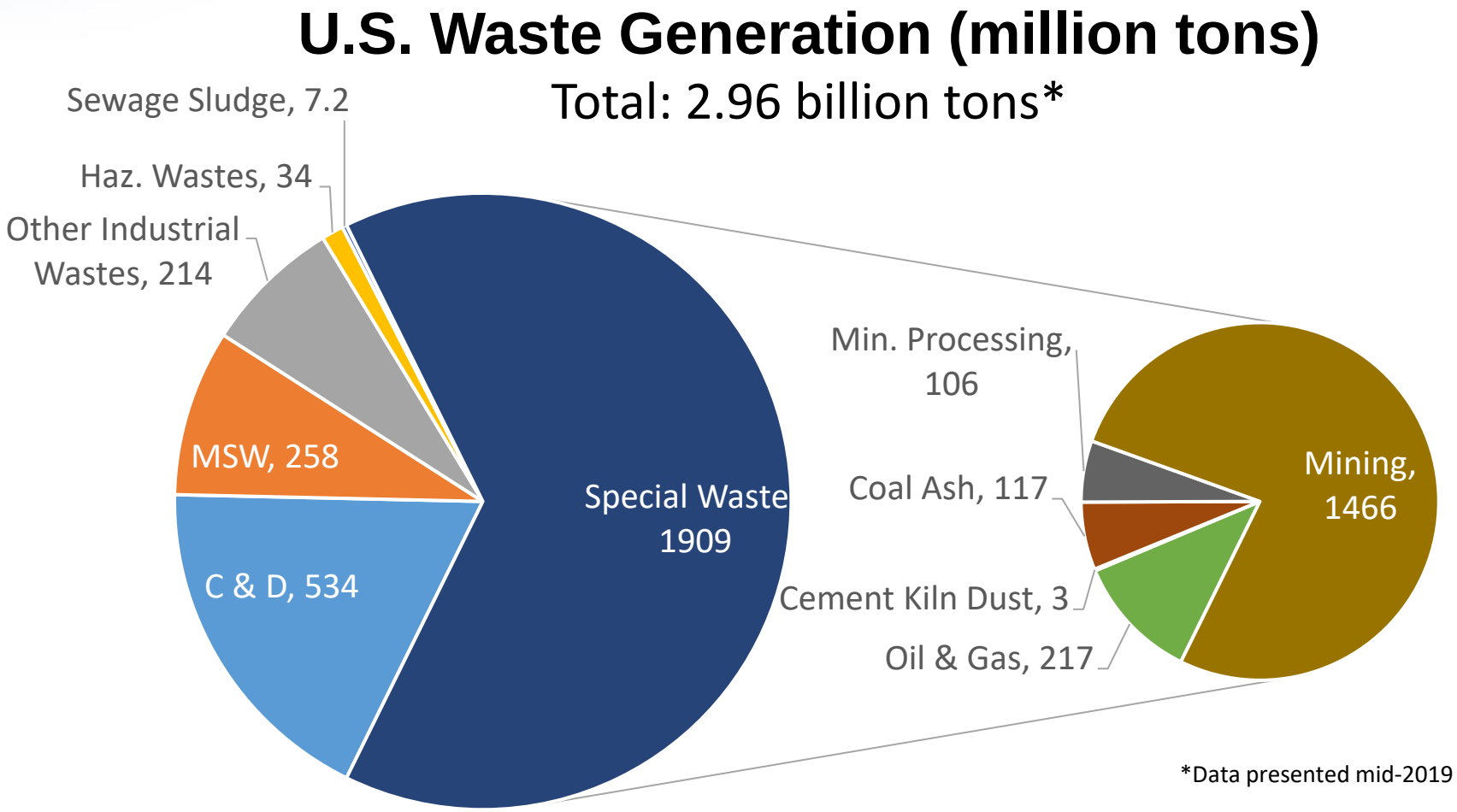




Resource Conservation and Recovery Act

- Federal statute controlling solid and hazardous waste management
  - Solid waste (and thus hazardous waste) does not include "*source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended*"
- Subtitle C – hazardous waste
  - Cradle-to-grave requirements
- Subtitle D – non-hazardous (solid) waste
  - Federal minimum criteria for "solid waste facilities & practices"
  - Municipal Solid Waste Landfill regulations
  - Coal Combustion Residuals regulations
  - Special wastes

RCRA Statistics

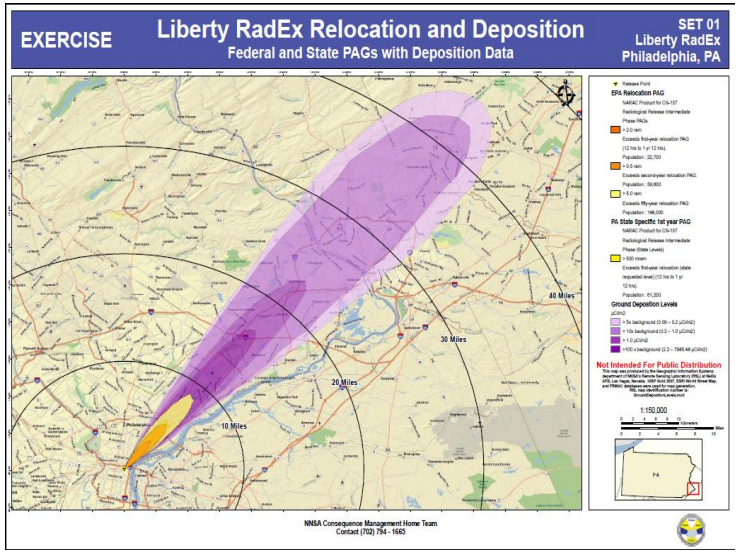


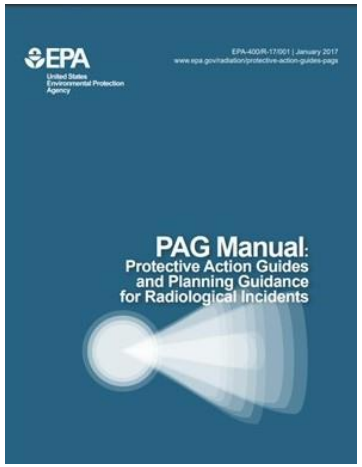
RCRA Waste Topics

- Mixed waste
  - Hazardous waste + (AEA) radioactive waste
- TENORM
  - Oil and gas exploration and production wastes
- Landfill Disposal
  - Hazardous waste, industrial waste, municipal waste
  - CERCLA
    - Off-Site Rule (CERCLA 121(d)(3)) – Wastes removed from Superfund sites must be disposed in compliant facilities
    - Protective analysis for planned disposal of CERCLA waste at a non-NRC licensed facility

After an Incident

- Under the National Response Framework, EPA is lead coordinating Federal agency for Emergency Support Function 10, “Oil and Hazardous Materials Response”
  - Long-term cleanup and waste management
  - Natural disasters, accidents, international events
  - EPA emphasizing planning to prepare for waste/debris management
- A radiological incident could generate waste volumes in excess of licensed capacity
  - Much will have limited contamination
  - Potentially complex decision-making framework
  - Late phase planning guidance in 2017 Protective Action Guides (PAG) Manual



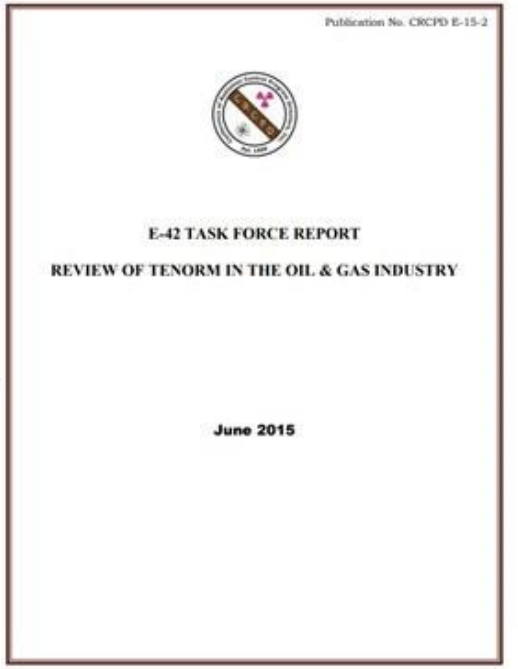


How EPA and NRC Work Together

- As co-regulators, EPA and NRC work closely in several ways:
  - To develop regulated programs
    - EPA develops environmental standards
    - NRC implements and enforces those standards
  - To avoid/limit dual regulation, e.g., through Memoranda of Understanding (MOU)
    - “Guiding Principles” for interactions in 1992
    - CERCLA-specific groundwater MOU in 2002
    - EPA rescinded parts of two Clean Air Act rules in the 1990s
  - To explore new approaches
    - 2003 low-activity waste Advance Notice of Proposed Rulemaking
    - Mixed waste guidance in late 1980s

Working with States on Radiation Issues

- EPA works with states in several ways:
  - Through delegated programs
  - ASTSWMO Radiation Task Force
    - Presentations and products (e.g., TENORM guidance)
  - Conference of Radiation Control Program Directors
    - Suggested State Regulations (e.g., Part N – NORM)
    - Subcommittees/working groups (e.g., E-42 on oil and gas)
  - Interagency Steering Committee on Radiation Standards (ISCORS)
    - Eight federal agencies (EPA and NRC co-chair)
    - State representation (currently PA and WA)
  - Regions typically have more direct contact
    - Each region has a radiation lead


Publication No. CRCPD E-15-2

E-42 TASK FORCE REPORT

REVIEW OF TENORM IN THE OIL & GAS INDUSTRY

June 2015

Waste Generation and Disposal:

Awareness, Management, and Disposal Guidance
for
Solid Waste Containing Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)

February 2018

Radiation Task Force
Materials Management Subcommittee

Association of State and Territorial Solid Waste Management Officials
1101 17th Street, N.W.
Washington, D.C.

Questions?

- Useful links:

- RCRA:
  - https://www.epa.gov/environmental-topics/land-waste-and-cleanup-topics

- CERCLA:
  - https://www.epa.gov/superfund
  - https://www.epa.gov/superfund/radiation-superfund-sites

- Radiation:
  - https://www.epa.gov/radiation