Climate Intervention, CWA and RCRA/CERCLA:
Balancing Pollution Protection and Environmental Intervention

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Clean Water Act and Climate Intervention

» Basics of Clean Water Act system:
   » Discharges of pollutants into a water of the United States through a point source require a permit
   » Covers direct and indirect discharges
   » Permit limits set by technology standards
   » Also requires permits to dredge or fill certain wetlands under U.S. jurisdiction
   » As a failsafe, states must set a total maximum daily load (TMDL) of pollutants for impaired waters
Question 1: Can the Clean Water Act require permits for certain types of climate interventions?

- Byproducts of specific technologies (DAC wastewaters)
- Marine cloud brightening spraying operations (spray up or down?)
- Stratospheric Aerosol Injection precipitation onto jurisdictional waters (pesticide cases)
- Deep current upwelling (movement of water within same watershed)
Question 2: Can the Clean Water Act require, or allow, the use of climate intervention to restore waters?

- TMDLs for heat, oxygen, pH
- Direct adjustment of coastal water pH
- Natural Resource Damages Assessment and Restoration (under Oil Pollution Act as well)
- Technology selection (UARG for water)
Superfund, Climate Change, and Climate Intervention
CERCLA Basics

- Comprehensive Environmental Response, Compensation & Liability Act of 1980

- Target – orphan waste sites and contaminated areas

- But covers much more
  - Emergency response
  - Operating facilities
  - Natural Resource Damages
CERCLA’s Core Elements

- REPORTING
- REMOVAL AND EMERGENCY RESPONSE
- REMEDIATION AND PERMANENT CLEANUP
- LIABILITY
CERCLA Elements: Release Reporting

- CERCLA Section 103(a): must report a
  - “Release” or “substantial threat of release”
  - Of a “hazardous substance”
  - Into the environment
  - Above a “Reportable Quantity” within a 24 hour period
- So what’s a “release”? 
- So what’s a “threatened release”? 

- So what’s a “threatened release”? 

The petroleum exclusion and climate intervention

- CERCLA excludes from the definition of “hazardous substance” any petroleum, natural gas, or constituents thereof
- Federal reporting required by Clean Water Act and Oil Pollution Act of 1990
- Affects CERCLA responses to natural gas, methane, and other natural constituents in petroleum
CERCLA Removal and Emergency Response

- CERCLA cleanups come in two flavors: removals vs. remedial actions

- Removal actions
  - Limited in duration (1-2 years)
  - Limited in amount spent ($1 - $2 million)
  - Meant for quick response to dangerous conditions, but also allowed for “non-time critical” action
CERCLA Cleanups

- Remedial actions –
  - Long-term cleanups meant to achieve permanent reduction in risk

- Process:
  - Hazardous Ranking Score (HRS)
  - Preliminary Assessment/Site Investigation (PA/SI)
  - Remedial Investigation/Feasibility Study (RI/FS)
  - Record of Decision (ROD)
  - Remedial Design/Remedial Action (RD/RA)
  - Five-year Remedy Reviews
Choosing the Remedy

• “Nine Criteria” of National Contingency Plan: 40 C.F.R. Section 300.430

• Key Criteria include:
  - Protect human health and environment
  - Comply with Applicable or Relevant and Appropriate Requirements (ARARs)
  - Cost
  - State acceptance
  - Public comments
Adapting CERCLA to Climate Intervention: Fundamental Issues

• Can CERCLA impose liability for releases of hazardous substances due to climate change? Climate interventions?

• Can EPA select remedial actions that incorporate elements of climate intervention (marine pH; phytoremediation with CO2 drawdown)?

• Can EPA or state emergency response authorities undertake emergency actions that include climate intervention strategies?

• Can a state require use of climate intervention policy preferences via ARARs in CERCLA remedy choices
CERCLA’s Sleeping Giant: Natural Resource Damages and Climate Intervention

- CERCLA allows for large potential liabilities for lost use of natural resources due to spills or contamination, even if eventually restored
  - Fishing losses
  - Injured birds, vegetation, wildlife
  - Wetlands, ecosystem services

- Climate change cuts in many ways
  - Pay for restoration of resources – include repair of climate damages?
  - Pay for natural resources restoration if climate change will inevitably doom them?
  - Pay for climate intervention if needed to restore resources?
CERCLA Liability: an Engine for Environmental Restoration

- Liability:
  - Release
  - Hazardous Substance
  - Caused Incurral
  - Response Costs
  - Consistent with National Contingency Plan

AND

- Potentially responsible party
  - Owner or Operator
  - Prior Owner or Operator if Disposal Occurred
  - Transporter who selected site
  - Arranger for treatment or disposal
Defenses to CERCLA Liability

- Act of God
- Act of War
- Act of Third Parties (with no contractual relationship)
- Or any combination of the three
- What counts if climate change forseeable, and climate intervention available?
RCRA and Climate Intervention

• Resource Conservation and Recovery Act: the primary federal statute governing solid and hazardous waste disposal

• Requires permit or approval if you generate, transport, or treat/store/dispose of hazardous wastes
  • Must meet management and technology standards for handling the waste
  • Must identify and correct historical contamination at TSD facilities
  • Includes emergency planning requirements and spill planning and prevention
RCRA and Climate Intervention

- RCRA permits for climate intervention projects
  - Waste streams from projects (DAC condensate, fuel production)
  - What to do with captured CO$_2$ (waste?)
  - Emergency planning for spills and releases
RCRA and Climate Intervention

- RCRA mandates for climate intervention action
  - Selected technologies for waste remediation (mine tailings)
  - Corrective action (SWMUs)
  - Emergency response authority (Section 7003) and omnibus permit authority
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