



Landfills 101 Webinar

DEQ's 2025 Virtual Education Series

Virginia Department of Environmental Quality

March 11, 2025

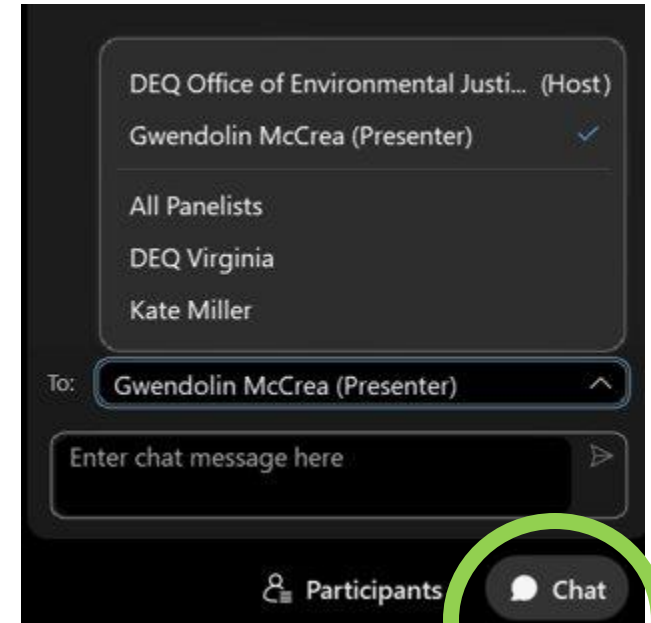
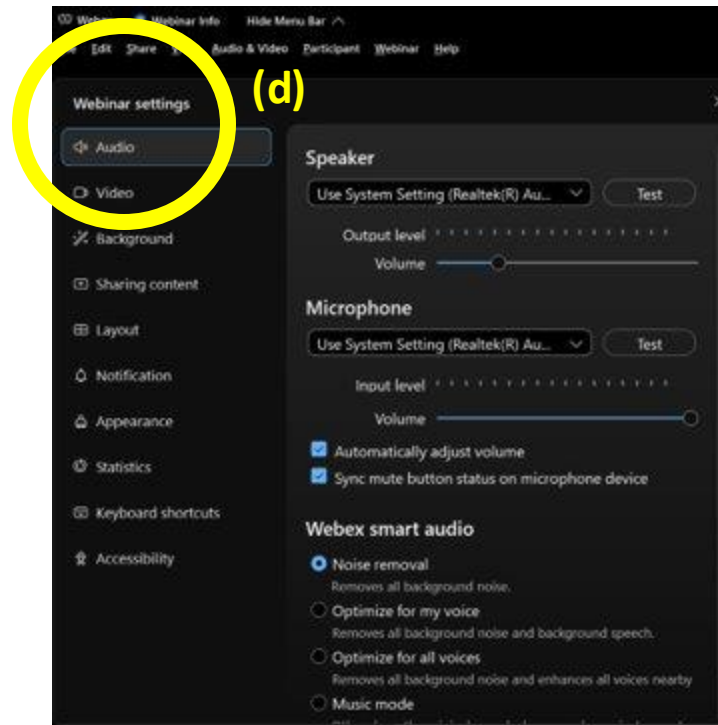
How to use WebEx

(a) Mute button

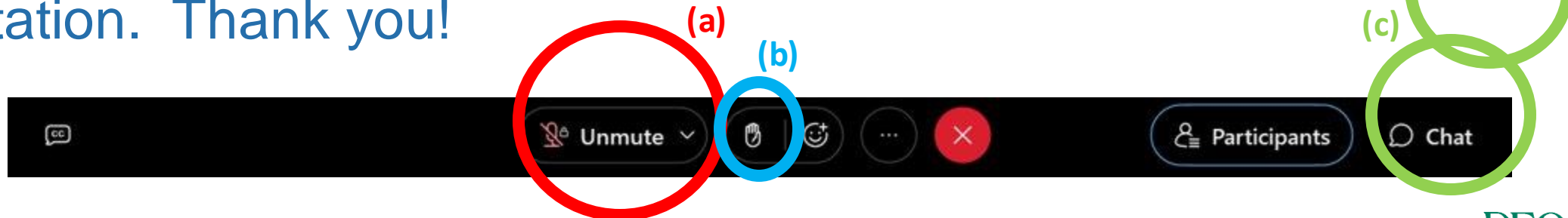
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(d) Webinar Settings



Please be sure to mute yourself during the presentation. Thank you!



Welcome & Agenda:

Landfills vs.
Dumps

Landfill Types

Regulations &
Permits

Landfill siting,
design,
planning &
engineering

Landfill lifecycle

DEQ's role in
regulating
landfills

Objectives

- What goes into developing a landfill
- Understand DEQ's role in regulating landfills
 - Air, Water, Land
- Learn about DEQ's online landfill resources
 - PEEP
 - DEQ programs webpages
 - VA Environmental Data Hub

Acronyms & Abbreviations

CCR

- Coal Combustion Residuals (coal ash)

CDD

- Construction & Demolition Debris

DEQ

- Virginia Department of Environmental Quality

EPA

- U.S. Environmental Protection Agency

PCC

- Post-Closure Care (Plan)

SWP

- Solid Waste Permit

When you see the word ‘dump,’ what do you think of?



When you see the word 'landfill,' what do you think of?



Dumps

vs.

Landfills

- Not regulated
- Unattended (no employees)
- No surface or groundwater protections
- Uncovered waste
- Higher risk of open fires
- Attracts pests
- Prohibited under Code of VA



- Highly regulated
- Landfill staff present
- Engineered structures that contain waste and waste byproducts
- Different landfills to accommodate different wastes
- Planning for the life of a landfill - from siting to post-closure
- Required to have permits, inspections, monitoring, financial assurance, etc.

Solid Waste Landfills Types

Sanitary/Municipal
Solid Waste



Construction
/ Demolition
/ Debris (CDD)



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Industrial

- Coal Combustion Residuals (CCR)



Coal Combustion Residuals (CCR) / Coal Ash Regulations

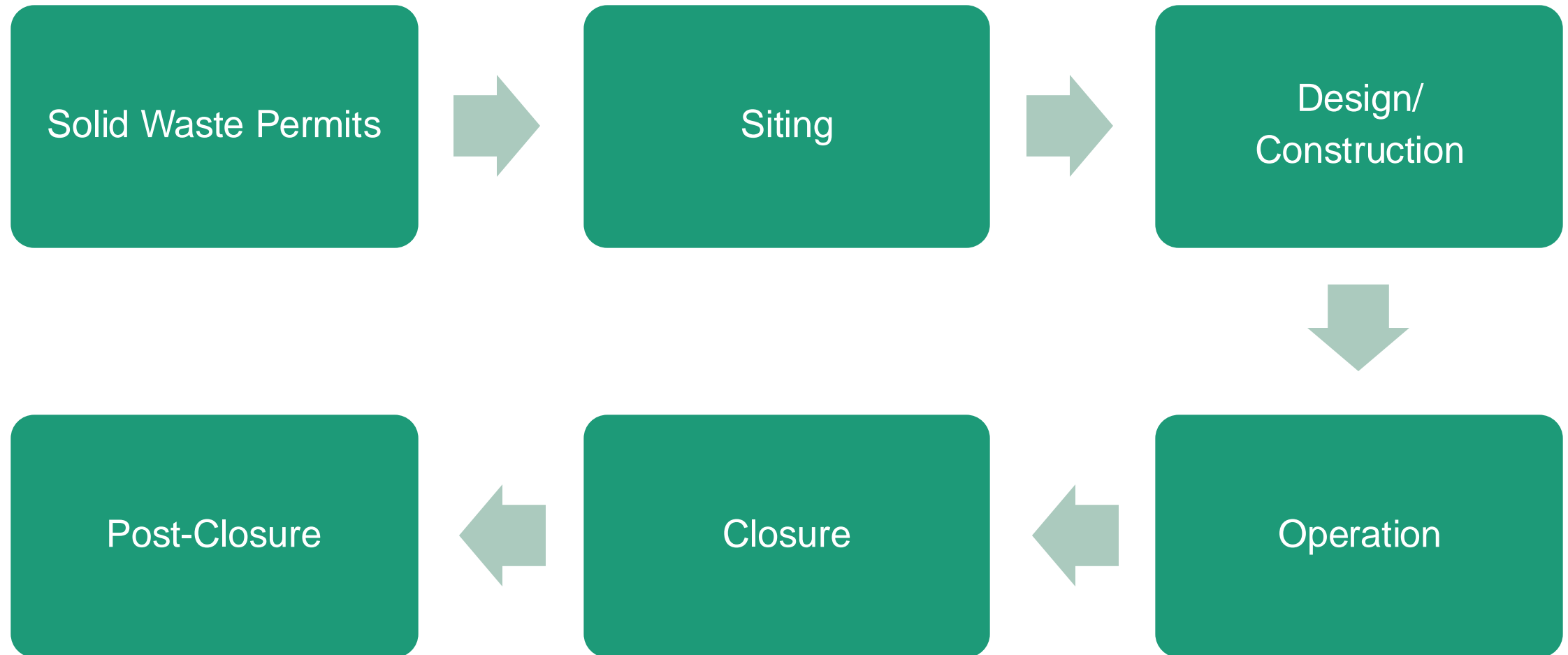
- VA Solid Waste Management Regs. - incorporates 2020 version of EPA CCA Rule
- Legislation requiring closure by removal of certain CCR units in the Chesapeake Bay Watershed
- Legislation requiring closure by removal of certain CCR units in Giles and Russell Counties



Landfills 101 – Who Builds Solid Waste Landfills?

- Municipality / local governing body
 - Board of Supervisors
 - Town/City Council
- Regional Authority Approach
- Private waste management companies
- Commercial and industrial entities

Solid Waste Landfill Process





Permitting

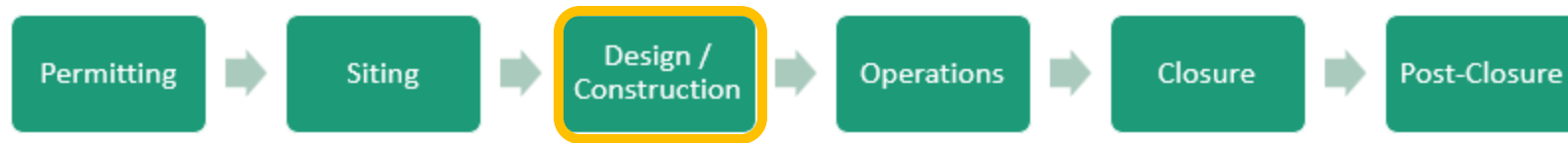
- Notice of Intent
- New landfills – go through entire permitting process
- Types of permits needed for a landfill may include:
 - Solid Waste Permit
 - Air
 - Water (3 types)
- Permit modifications



Siting of Landfills (9VAC20-81-120)

- New landfills must be sited in geologically stable areas, not in 100-yr. floodplain
- “Distance from” requirements
- Must be located where groundwater monitoring can be conducted
- Cannot impact more than 2 acres of nontidal wetlands
- Require adequate area and terrain for leachate management
- Airport safety
- Role of local government
- Historical siting problems





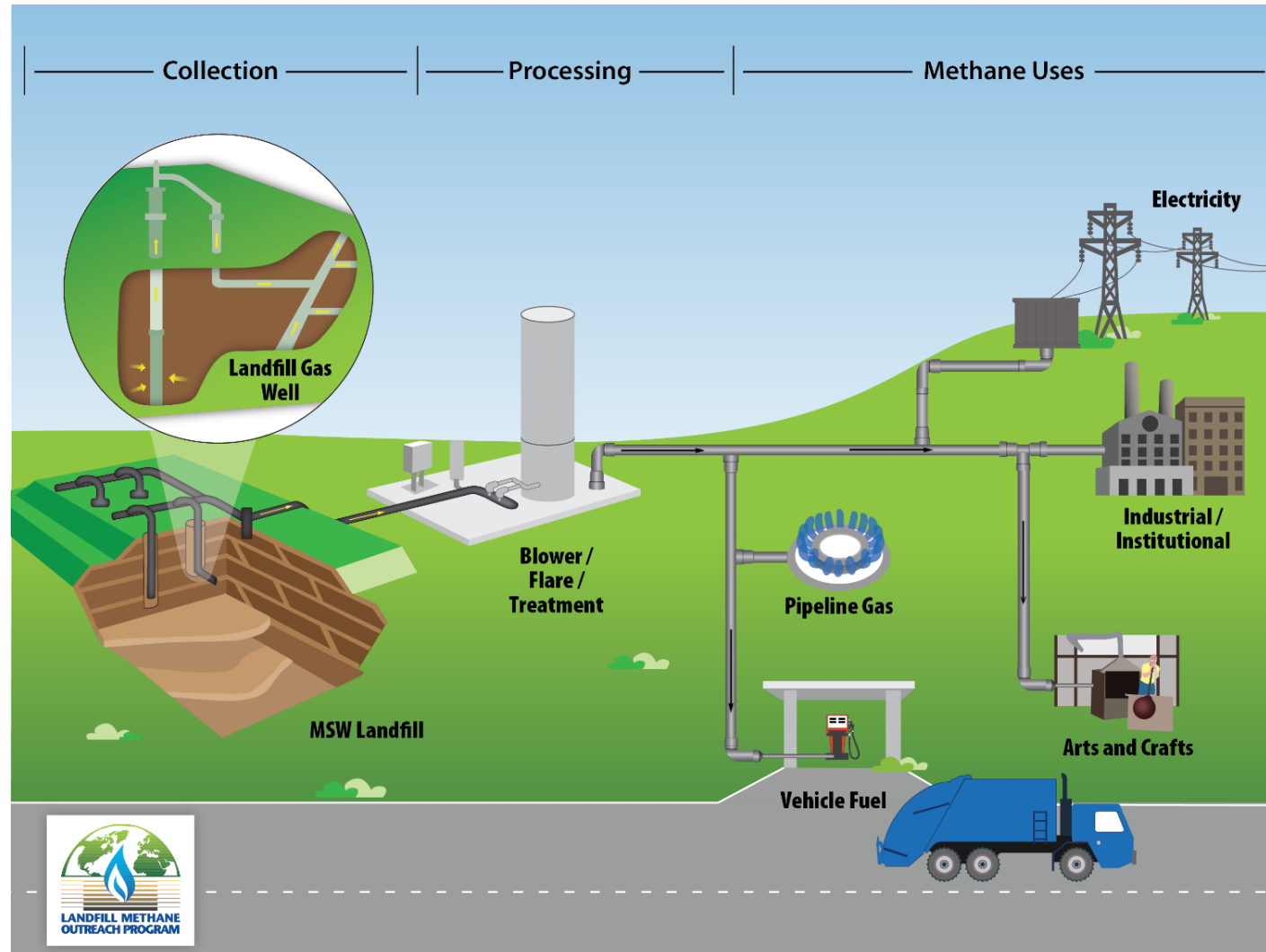
Design & Construction Requirements (9VAC20-81-130)

Design standards provided for:

- Specified landfill features
 - Access barriers
 - Screening & aesthetics
 - Stormwater runoff
 - Fire break
 - Leachate collection systems
 - Gas and groundwater monitoring
- Landfill bottom liner and closure cap
- Gas collection & control system
- Future growth
- Construction quality assurance program



Gas Control & Collection Systems (GCCS)





Operations

- Solid waste operations manual
- Random load inspections
- Daily disposal limit
- Compaction and cover
- Run-on/run-off control
- Weekly litter pick-up
- Monthly self-inspections
- Licensed operators

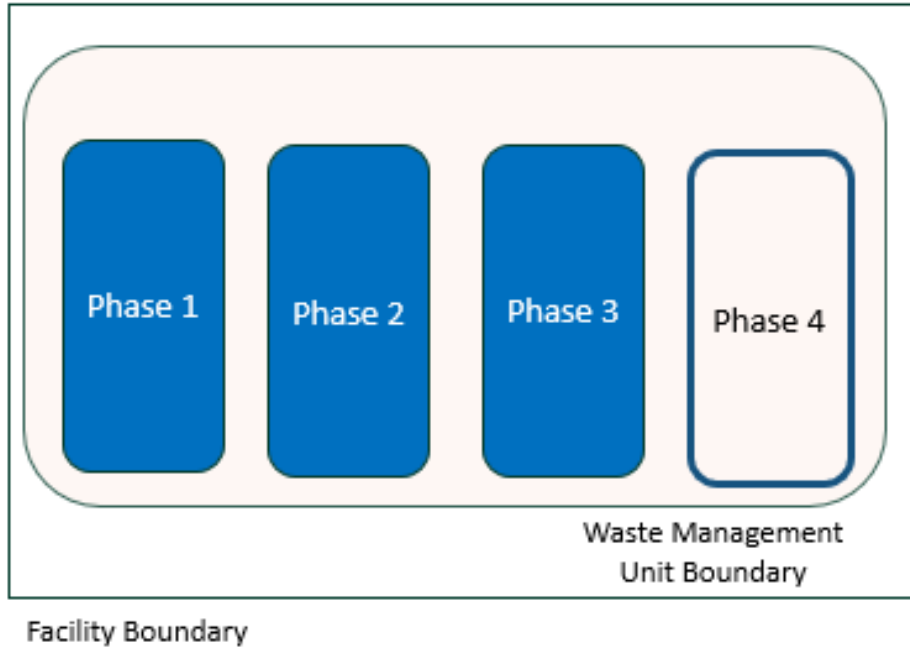


Types of Landfill Permit Modifications, Build-Out vs. Expansion, etc.

- Modifications
 - Major
 - Minor
 - Permittee change
- Build-Out
- Expansion

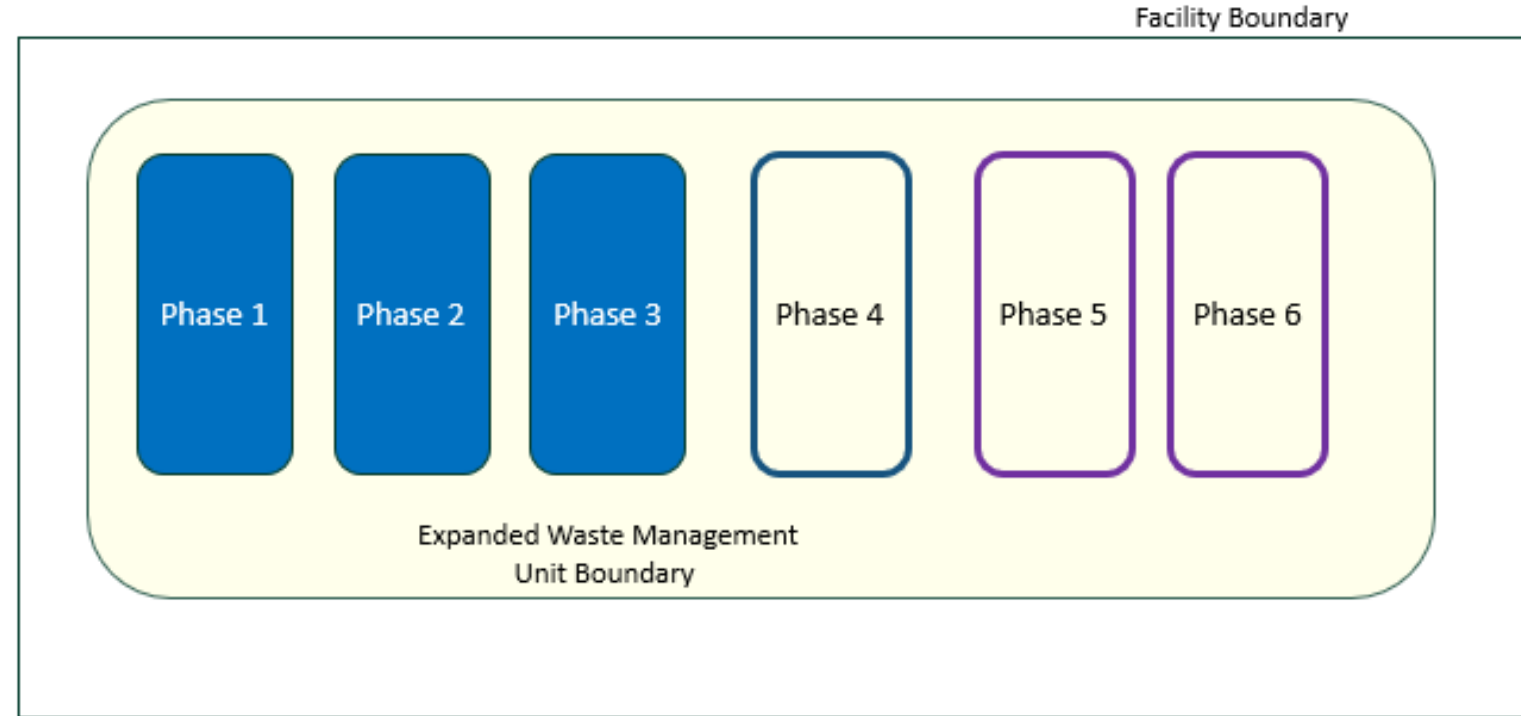


Landfill Build-Out Expansion



vs.

Landfill



When public can comment / participate

- Solid Waste Permit Part A (siting)
- Solid Waste Permit Part B (design and construction)
- Air Minor NSR, dependent on size
- Air Title V, dependent on size
- Stormwater Management (while under construction)
- VPDES (industrial stormwater)
- VWP / USACE permit – if wetlands or streams are impacted

*landfill size/location may generate high public interest and prompt additional public meetings

Pause!

Time for a little feedback...

- Discussed landfill siting, design / construction, operations so far
- Anything you're learning about for the 1st time?

Questions?



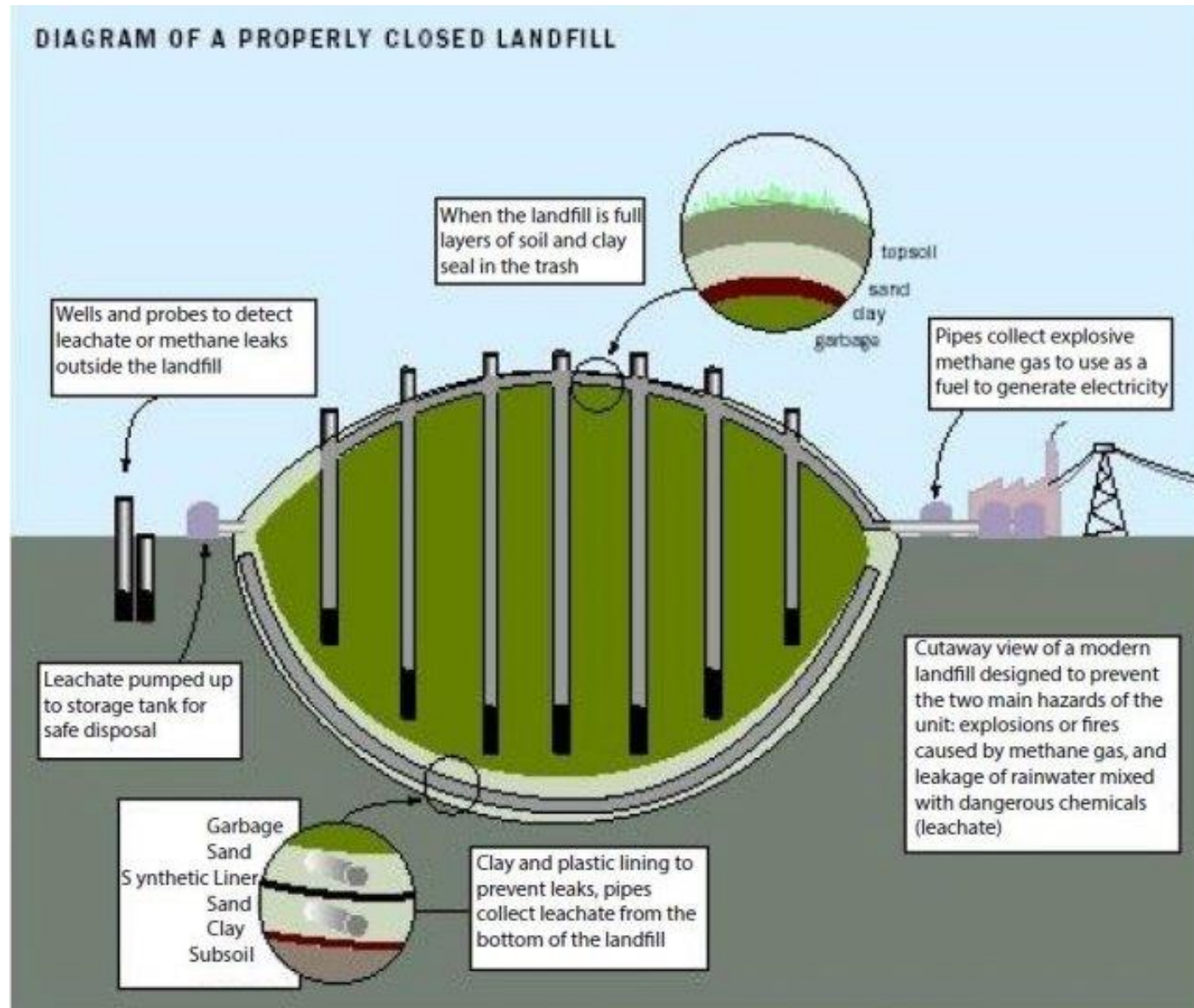


Closure Requirements

- Regulations – closure requirements applicable to all landfills
 - Time allowed for closure
 - Allowable final cover designs
 - Steps to complete final cover construction
- Closure Plans
 - Site-specific closure procedures and design
 - Must be modified if changes in operation or landfill design affect approved Closure Plan
 - Deed restriction on property



Landfills: Source Type DEQ Inspects





Post-Closure Requirements

- Post-Closure Care (PCC) Plan
 - Operate leachate and landfill gas systems
 - Perform landfill gas and groundwater monitoring
 - Maintain and repair landfill final cover system as needed
 - Other monitoring and maintenance activities as outlined in site-specific Post-Closure Care Plan
- CDD & Industrial Landfills - 10 yr. PCC minimum
- Sanitary & CCR Landfills - 30 yr. PCC minimum
- Redevelopment of closed landfill sites
 - DEQ's Voluntary Remediation Program (VRP)
 - Examples: parks, open spaces, casinos, solar projects

Landfill modifications may require revisions to Post-closure Plans



Financial Assurances & Recordkeeping

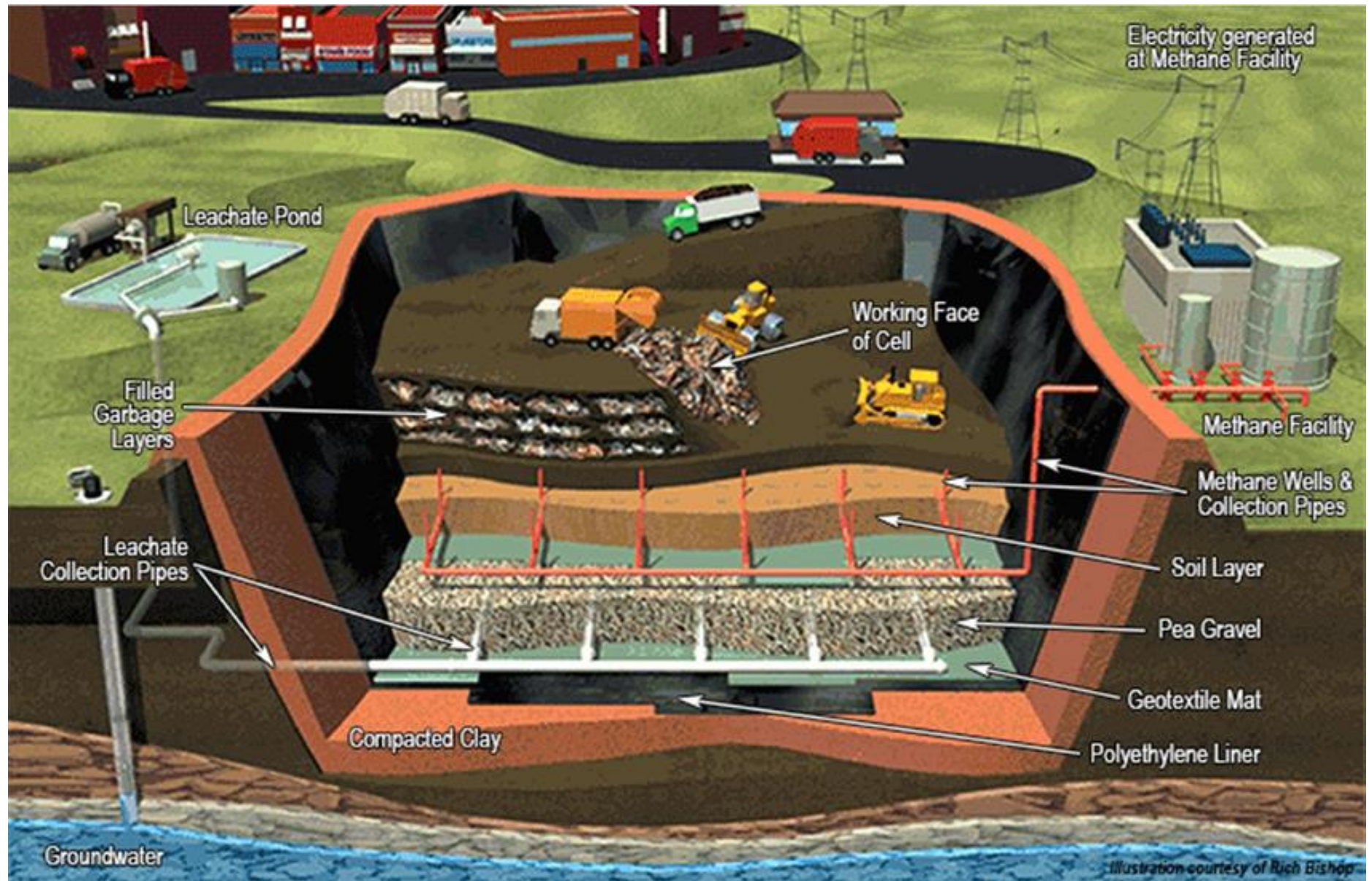
- Financial Assurance Regulations for Solid Waste Disposal, Transfer & Treatment Facilities
- Covers the cost of:
 - Closure
 - Post-Closure Care
 - Groundwater Corrective Action (if applicable)
- Financial assurance cost estimate adjusted annually for inflation
- Self-inspection
- Monitoring (as applicable)
- Unauthorized waste control
- Notification to DEQ
 - Permittee is required to notify DEQ of any noncompliance or unusual condition that may endanger health or the environment
 - Annual Solid Waste Information & Assessment report

Thoughts?

- What types of uses would you like to see at a former landfill site?



Landfill Protections



Landfill Protections

Land
regulations

Air regulations

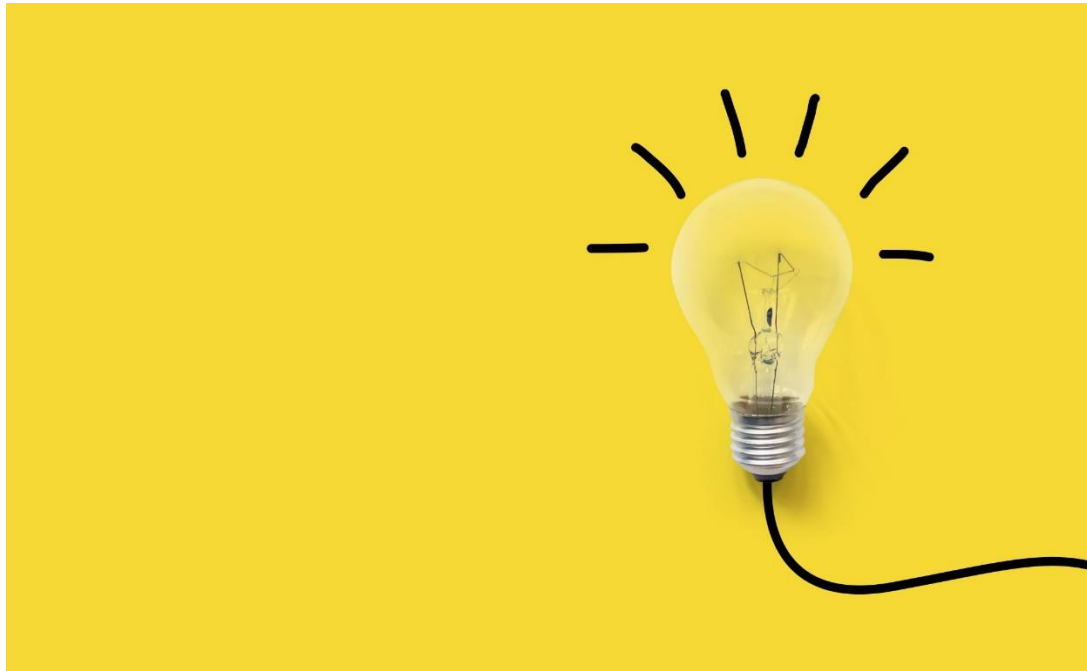
Water
regulations

Virginia Waste Management Board

- Policy: All designated regions in the Commonwealth are required to develop a comprehensive, integrated solid waste management plan (SWMP)
 - Source reduction
 - Reuse
 - Recycling
 - Resource recovery / Waste-to-Energy
 - Incineration
 - Landfilling

Keeping it contained

- What's one landfill protection measure that you were introduced to this evening?



Questions?



So – what's DEQ's role in all of this?



Review plans



Public notices



Issue permits



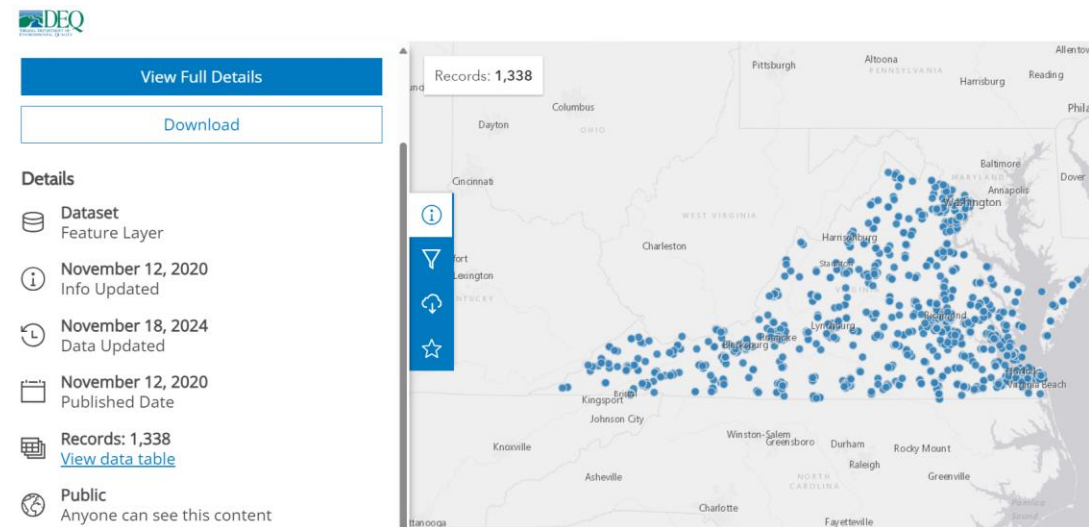
Conduct
inspections



Confirm financial
assurances

DEQ Resources

- DEQ's online landfill resources
 - View solid waste planning unit locations
 - Landfill applications – Permitting Enhancement & Eval. Platform (PEEP): [myDEQ Portal](#)
 - DEQ website / Land Protection / Solid & Hazardous Waste Permits: [Land Protection | Virginia DEQ](#)
 - Virginia Environmental Data Hub: [Solid Waste Permits | Virginia Environmental Data Hub](#)
- Other Resources
 - Virginia Regulatory Town Hall



What DEQ cannot do...

- Cannot have regulations less stringent than Federal regulations
- Cannot determine where the waste comes from
- Cannot force a landfill to accept or to turn away specific wastes that are allowed in a landfill
- Cannot deny a permit application if it meets statutory and regulatory requirements

Common Compliance Issues & How They're Addressed

- Compliance Issues vs. Local Ordinance Violations (zoning issues)
- Complaints from the public
 - Complaints processed directly through the locality
 - Complaints processed through DEQ

Common Compliance Issues at Landfills



Run-off control, erosion rills, exposed trash, cover maintenance



Monitoring well maintenance issues



Excessive blowing litter



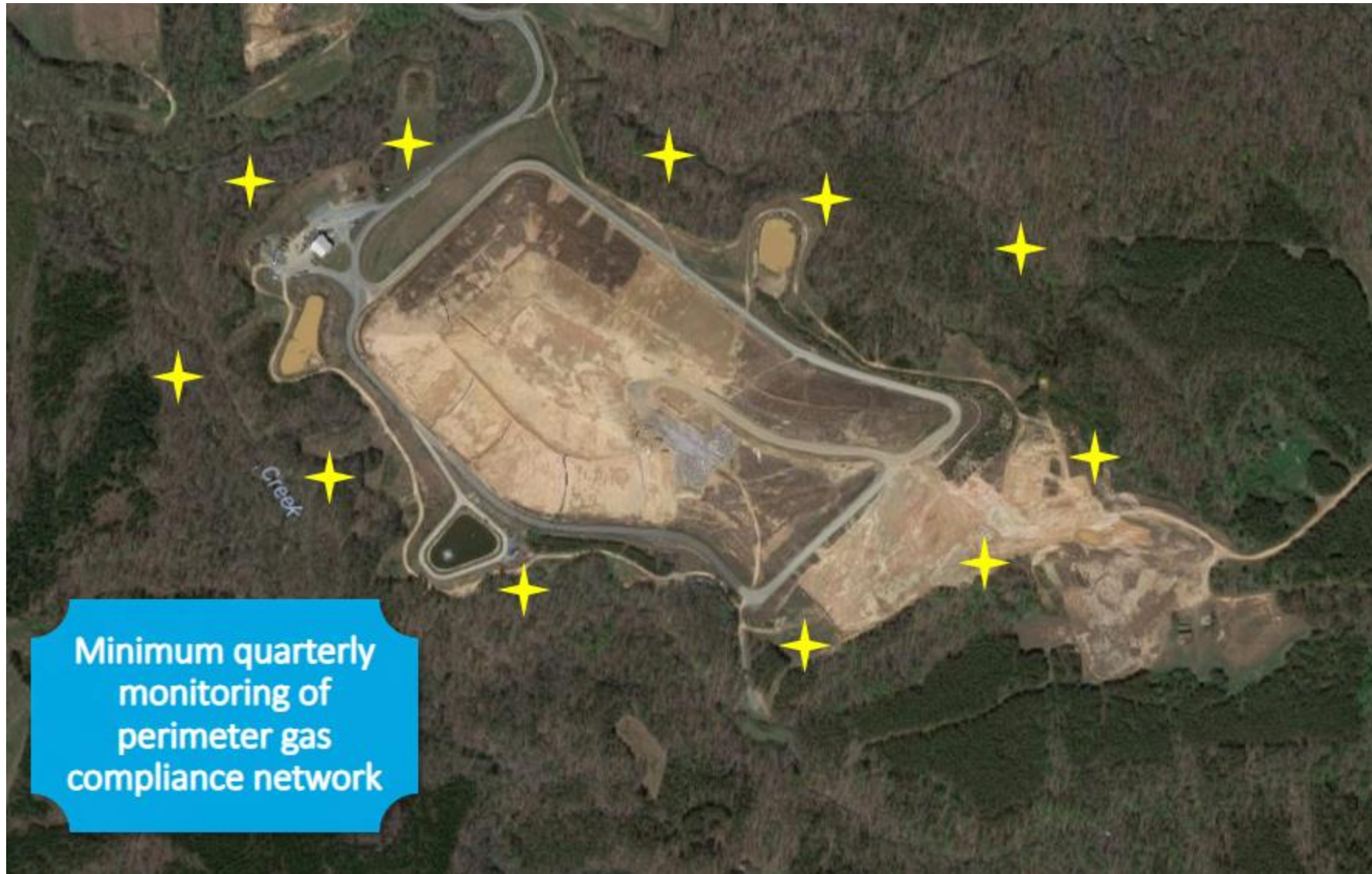
Excessive odors migrating offsite

Missing cover (soil, tarps, spray-applied) at end of operating day

Landfill Leachate Seeps



Landfill Gas Perimeter Monitoring




Groundwater Monitoring

- For potential solid waste impacts
- Regulations outline required design and performance of landfill groundwater monitoring network
- Groundwater Corrective Action Program
 - Required if solid waste landfill impacts groundwater above regulatory standards, or beyond groundwater point of compliance
 - Plan includes:
 - Design, installation, maintenance of groundwater compliance well network around landfill perimeter
 - Routine groundwater sampling and analysis
 - Comparison of sampling results to site background, groundwater protection standards (where applicable)
 - Initiation and completion of groundwater corrective action
 - Routine reporting of groundwater monitoring activities



Objectives – How did we do?

- What goes into a landfill
 - Understand DEQ's role in regulating landfills
 - Learn about DEQ's online landfill resources
- 

2025 Education Series Webinars

- Register by individual webinar, or for the whole series!
- Even if you can't participate live – registering gets you a link to the recorded webinar

Link: www.deq.virginia.gov/get-involved/education-series

2025 VIRTUAL EDUCATION SERIES

Learn more about DEQ programs & resources



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Webinars are recorded & posted online
Visit deq.virginia.gov/eduseries

REGISTER NOW



LANDFILLS 101 | March 11, 6:30 p.m. - 8 p.m.

Curious about how landfills are built, what happens when they're full, or how they're permitted and inspected? Join our free webinar to learn about DEQ's role in regulating Virginia's landfills.

CHESAPEAKE BAY | June 10, 6:30 p.m. - 8 p.m.

The Chesapeake Bay, the largest estuary in the U.S., is home to diverse plant and animal life but faces water quality challenges. Its watershed spans six states and D.C., making its preservation critical. Virginia plays a key role in its recovery. Join our free webinar to learn about DEQ's efforts to protect and restore the Bay.



WATER PLANNING | Sep. 9, 6:30 p.m. - 8 p.m.

Virginia boasts over 100,000 miles of rivers and streams, 1 million acres of wetlands, 240+ public lakes, and 120 miles of coastline. Balancing the demands on these resources—from protecting aquatic life to supporting public use and industry—is essential. Join our free webinar to learn about Virginia's water resources and DEQ's efforts in managing and planning for their sustainable use.

GRANTS | Dec. 9, 6:30 p.m. - 8 p.m.

Looking for grants for litter prevention, recycling, water quality monitoring, or watershed projects? DEQ offers funding for these and more. Join our free webinar to learn about available grants in Virginia and how to apply.



Wrap-Up & Final Questions

