NYS Geothermal Drilling Regulations
Perspectives on Changes

Moderator: Kevin Moravec / *Barney Moravec, Inc.*

Panel: Carrie Friello / *NYS DEC Division of Minerals Management*

Beth Guidetti / *NYS DEC Division of Water*

Kathy Prather / *NYS DEC Division of Materials Management*

David Rosick / *Rosick Well Drilling* • *ESWWDA*

NEW YORK STATE

Department of Environmental Conservation

UPDATE ON NYS GEOTHERMAL REGULTIONS

CARRIE FRIELLO / NYSDEC - DIVISION OF MINERAL RESOURCES

KATHY PRATHER / NYSDEC - DIVISION OF MATERIALS MANAGEMENT

BETH GUIDETTI / NYSDEC - DIVISION OF WATER

Dave Rosick – Past President ESWWDA

APRIL 24, 2025

ECL Article 23 Rule Making: Closed Loop Geothermal Wells Drilled Deeper Than 500 Feet

Rule Making Goals

- Protect groundwater, surface water and natural resources
- Protect public health and safety
- Reduce administrative burdens
- Reduce costs where possible
- Provide clear, consistent, transparent requirements
- Promulgate regulations as expeditiously as possible while ensuring an efficient permitting process

Rule Making Scope

Focus: Drilling and installation of deep (>500 feet) closed loop geothermal boreholes and closed loop stratigraphic wells.

The rule making will **not** address:

- Open-loop or standing column wells deeper than 500 feet
- Any type of shallow (≤ 500 feet) geothermal well
- Disposal of drilling fluids and wastes generated during drilling/completion
- Other DEC permits that may be required based on project location

Rule Making Proposal

Part 550

Revised General – revisions focus on the addition of definitions associated with geothermal boreholes/wells

Part 561

New Closed Loop Geothermal Boreholes

Part 563

New Stratigraphic Wells – focus on closed loop stratigraphic wells for now

Part 569

New Incorporation by Reference – requires compliance with the designated published reference(s)

Standards and Resources Considered

ANSI/CSA/IGSHPA C448 Series -16 Standards

Closed-Loop Geothermal Heat Pump Systems Design and Installation Standards

Guidelines for Construction of Loop Wells for Vertical Closed Loop Ground Source Heat Pump Systems

Specification for Cements and Materials for Well Cementing; Specification for Casing and Tubing

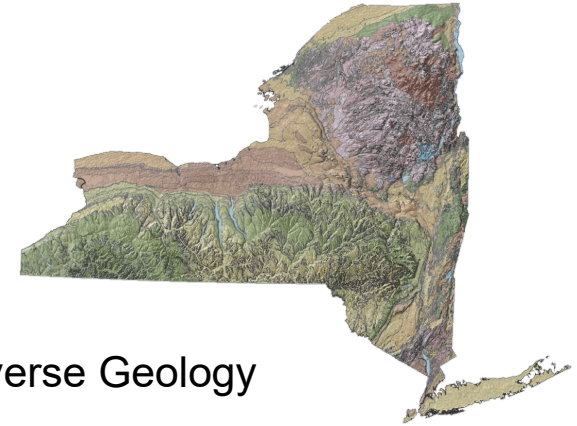
Standard Specification for Cold Form Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; Standard Specification for Portland Cement

Envisioned Rule Making Components

The requirements of the final regulations will be informed by stakeholders and the public through the rule making process.

- Permit application requirements
- Qualified Contractor registration
- Appropriate borehole setbacks and surface restrictions
- Borehole design, drilling and installation requirements
- Reporting (i.e., completion and decommissioning)
- Decommissioning requirements

Drilling, Design and Construction Considerations

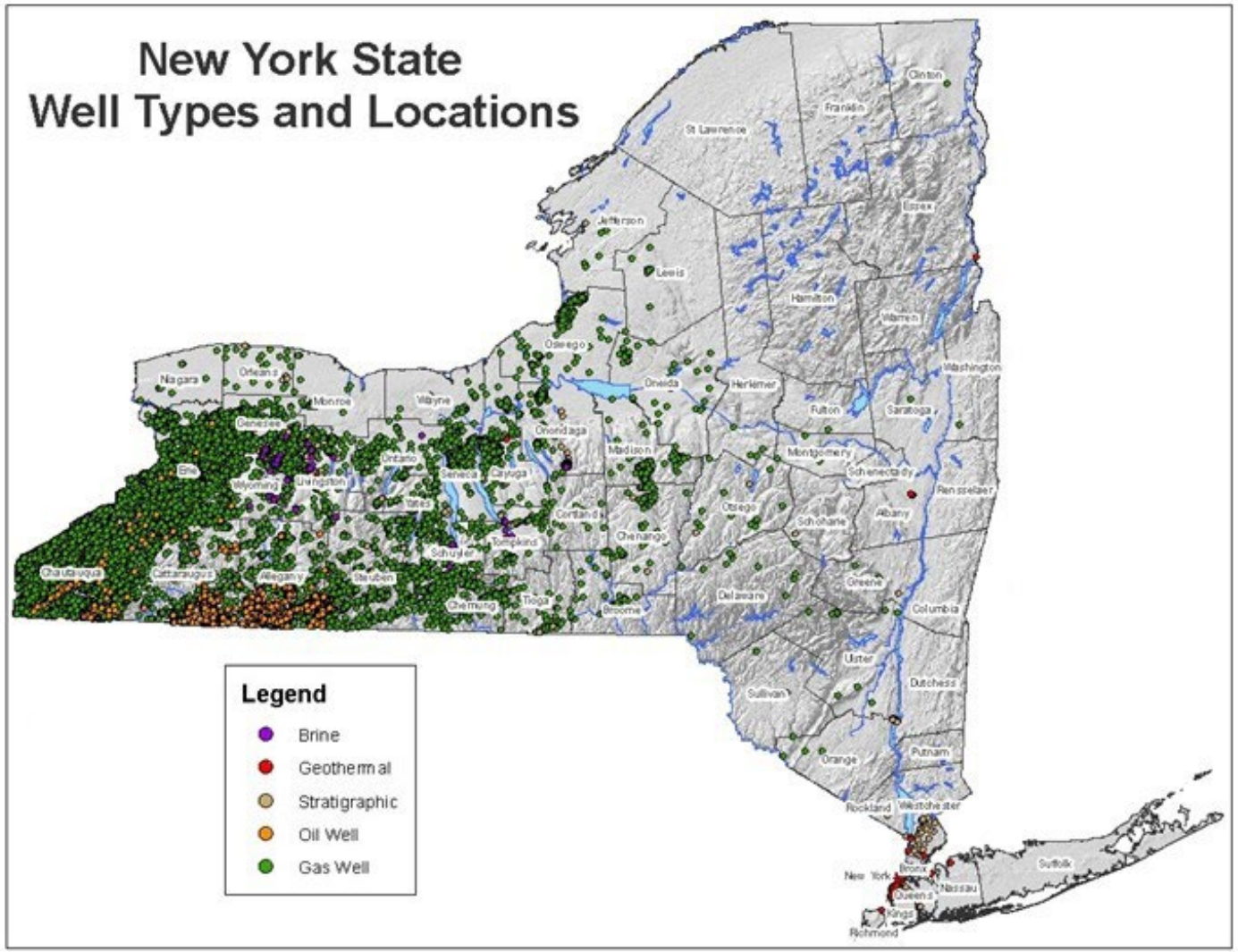


NY's Diverse Geology

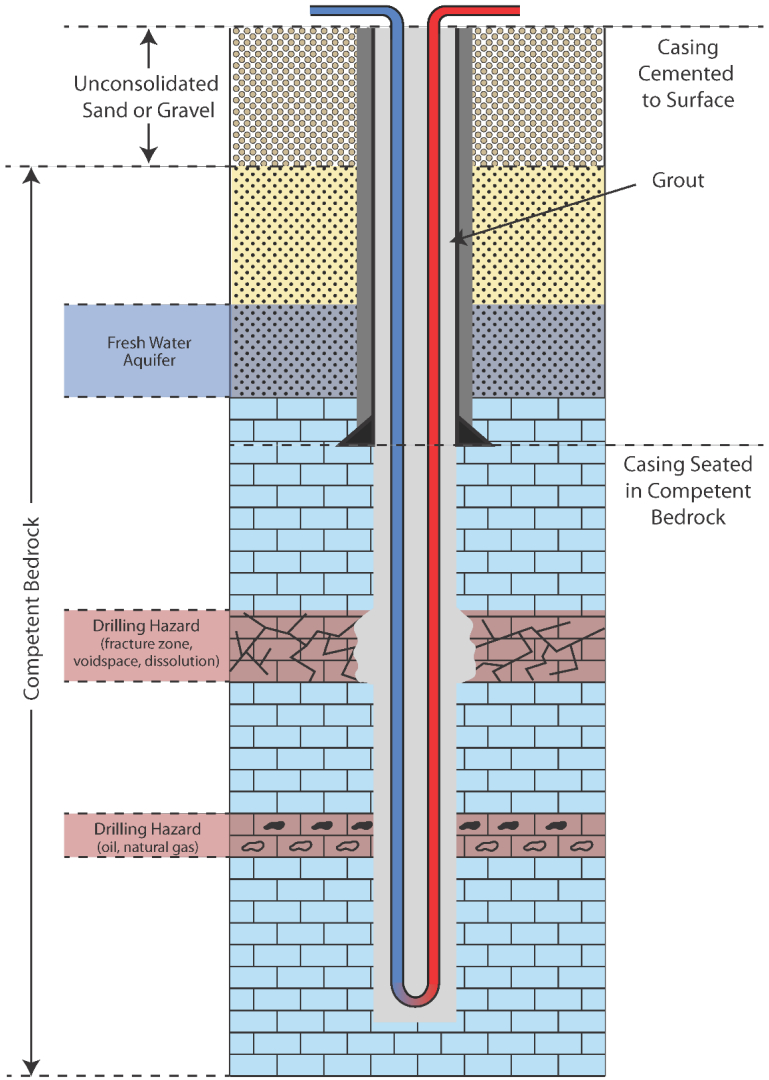
- In many areas, there is increased risk of encountering geologic hazards such as natural gas, oil or brine in the subsurface when drilling deeper than 500 feet.

NY's Drilling History

- An estimated 75,000 oil, natural gas and brine wells have been drilled in New York since the late 1800's.
- Over 14,000 of these wells are active today.
- Thousands of these wells target geologic formations less than 1,000 feet in depth.



Drilling, Design and Construction Considerations



Borehole drilling, design and construction standards are critical to protect aquifers, the environment and public safety.

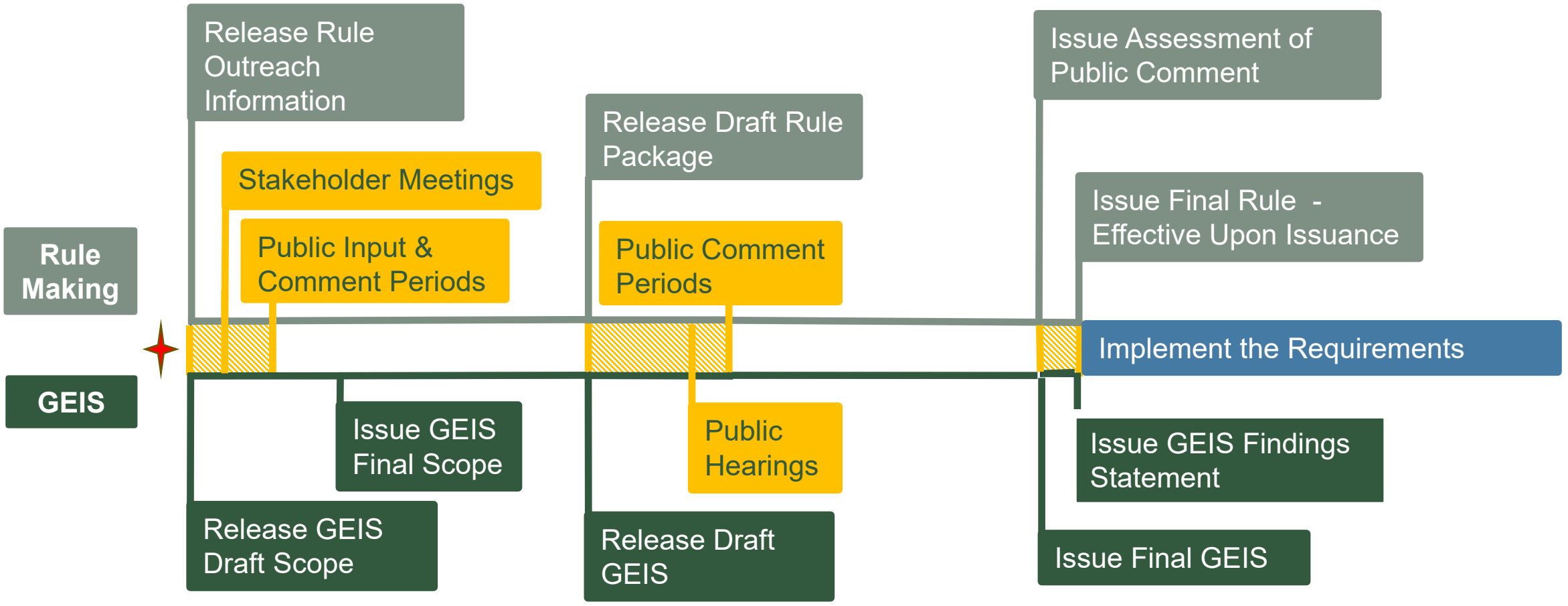
Considerations for areas with increased geologic risk:

- Permanent surface casing
  - Seated in competent bedrock
  - Seated below deepest fresh water
  - Cemented in place
  - Conforms to API/ASTM standards
- Grouting requirements
- Use of blow out preventers or diverters during drilling

Envisioned Cost Reduction and Efficiency Measures

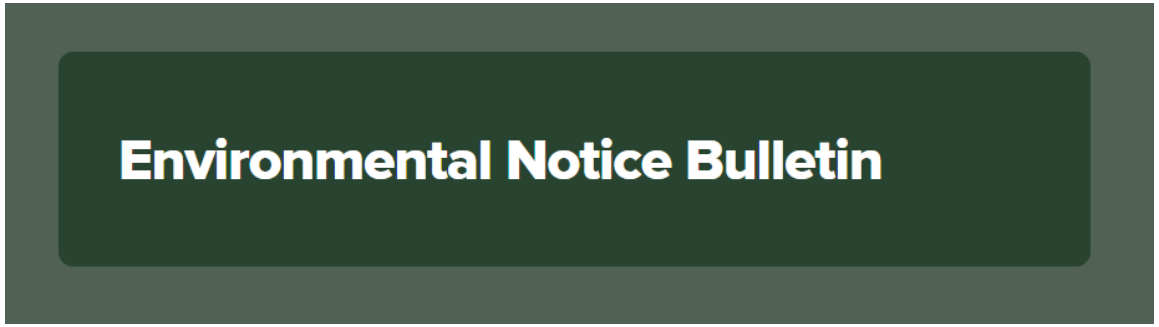
- No Financial Security
- No Annual Reporting
- One permit issued per project (single or multi-borehole)
- Nominal project-based application fees (Federal, State and local agency exemption)
- Streamlined application, completion report, and decommissioning report forms
- Development of a Generic Environmental Impact Statement (GEIS) specific to closed loop boreholes/wells
  - GEIS – evaluates separate actions having common environmental impacts
  - Satisfies State Environmental Quality Review (SEQR) requirements for the rule making and permitting processes
  - Will evaluate potential environmental impacts from drilling/installation and make recommendations on ways to reduce or avoid adverse environmental impacts
    - Mitigation recommendations will be reflected in the corresponding regulations
  - To be developed concurrently with the rule making

Process Milestones & Opportunities for Your Participation

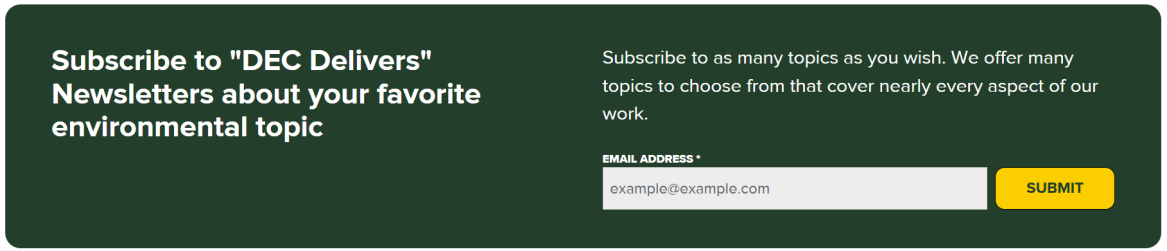


DEC wants your input!
Submit written comments or provide verbal comments at public meetings during the designated comment periods.

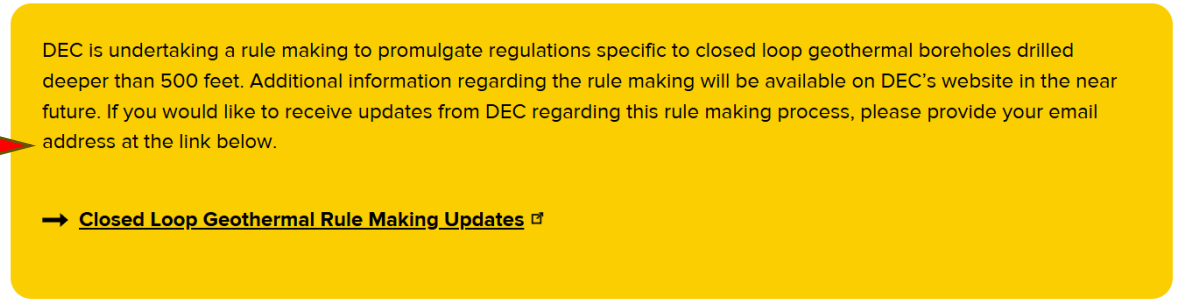
How will you know when documents are available for public review and comment periods begin?



Check out DEC's Environmental Notice Bulletin (ENB), published weekly on Wednesday - https://dec.ny.gov/news/environmental-notice-bulletin



Subscribe to DEC Delivers to receive weekly ENB emails - https://dec.ny.gov/



Sign up to receive updates specific to this rule making and GEIS – https://dec.ny.gov/environmental-protection/oil-gas/well-owner-and-applicants-information-center/regulated-well-types/geothermal-wells-deeper-than-500-feet

For questions regarding the Closed Loop Geothermal Rule Making and GEIS, please contact:

Carrie W. Friello
Regulatory & Climate Coordinator
Division of Mineral Resources
New York State Department of Environmental Conservation
carrie.friello@dec.ny.gov ; (518) 402-8056

Waste Management from Geothermal Installations

WHAT SOLID WASTE REGULATIONS APPLY TO GEOTHERMAL INSTALLATION WASTE?

- Defining solid waste
- Handling waste on the installation site
- Shipping waste off site
- End destination of waste
- Reusing and recycling waste

WHAT IS SOLID WASTE?

- Solid waste doesn't have to be solid (6 NYCRR 360.2(a)(1))
  - Cuttings
  - Fluids that are collected for off-site disposal (not discharged from the site)
- Solid waste is material "*spent, worthless or in excess to the generator*“ (360.2(a)(2)) and handled as described (in ways that could harm the environment in the short or long term)

CUTTINGS: TWO KINDS OF SOLID WASTE

Planned Depth	Type of Solid Waste	Larger Category	Reference
Not greater than 500 feet below ground surface (bgs)	Excavated Material	Construction & Demolition Debris	6 NYCRR 360.2(b)(99)
Greater than 500 feet bgs	Drilling and Production Waste	Industrial Waste	6 NYCRR 360.2(b)(90)

CUTTINGS AS EXCAVATED MATERIAL

Air or Water as Drilling Fluid

- Eligible for reuse as fill under 6 NYCRR360.12(c) and 360.13 including on-site backfill or grade adjustment, and off-site use.
- Can be disposed on the site with owner approval.
- Can be disposed in a C&D Debris Landfill
- Quantities under 10 CY are exempt from Waste Transporter regulations upstate.

Other Drilling Fluids – Water-Based

- Dewatered cuttings can be disposed in a C&D Debris or MSW landfill.
- Dewatered cuttings can be disposed on site with owner approval.
- Quantities under 10 CY are exempt from Waste Transporter regulations upstate.

CUTTINGS AS DRILLING AND PRODUCTION WASTE

Air or Water as Drilling Fluid

- Can be received at a C&D Debris Landfill if no petroleum is present.
- An **exemption** from Waste Transporter requirements is found in 6 NYCRR 364-2.1(b)(14) for “cuttings that are rock chips, fragments and/or fines” regardless of planned depth.
- Can be disposed on site with permission of the owner (363-2.1(e))

Other Drilling Fluids

- If water-based, dewatered cuttings can be received at a C&D Debris Landfill.
- Otherwise, must be received at a landfill whose authorization under Part 363 includes it, as an industrial waste.
- A Waste Transporter Permit is needed for quantities **over 2000 pounds** per shipment.

CONTAINERIZED LIQUIDS…

- Groundwater, drilling fluids or solids not meeting the Paint Filter Test
- Waste Transporter Permit – 6 NYCRR Part 364 unless quantity in shipment is less than 2000 pounds.

REUSE POSSIBILITIES

- If cuttings don’t fall neatly into pre-determined categories, a Case-Specific Beneficial Use Determination (BUD) may be obtainable to allow off-site reuse of cuttings as a fill or gravel substitute.
- For cuttings classified as excavated material, a facility could be authorized pursuant to Subpart 361-5 to receive, store, and test cuttings for beneficial use.

RESOURCES AND CONTACTS

Managing Solid Waste from Geothermal System Installations: A Guide for Industry (handout developed for NY-GEO)

Part 360 Series Regulations: https://dec.ny.gov/sites/default/files/2024-10/part360fulltextadopt.pdf

Contact the Division of Materials Management, dmm@dec.ny.gov

Kathleen A. Prather, P.E.
Supervisor, Solid Waste Recovery and Medical Waste Section
Division of Materials Management
New York State Department of Environmental Conservation
(518) 402-8678

Additional DEC Permitting Requirements

PERMIT REQUIREMENTS FOR UTENs

Division of Mineral Resources

- Open Loop >500’ in depth
- Closed Loop >500’ in depth – Currently under development

Division of Materials Management

- Solid Waste from >500’ planned depth

Natural Resource Permits

- Tidal Wetlands Permit – Article 25, 6NYCRR Part 661
- Protection of Waters Permit – Article 15, 6NYCRR Part 608
- Endangered and Threatened Species Regulations – Article 11, 6NYCRR Part 182
- Freshwater Wetlands Permits – Article 24, 6NYCRR Parts 663, 664, 665

FRESHWATERS WETLANDS - STATUTORY PROVISIONS

Freshwater Wetlands Act

- Jurisdiction no longer tied to maps
- Regulate wetlands and adjacent area
- Regulate larger wetlands >12.4 acres (>7.4 acres in 2028)
- Regulate smaller wetlands of “Unusual Importance”

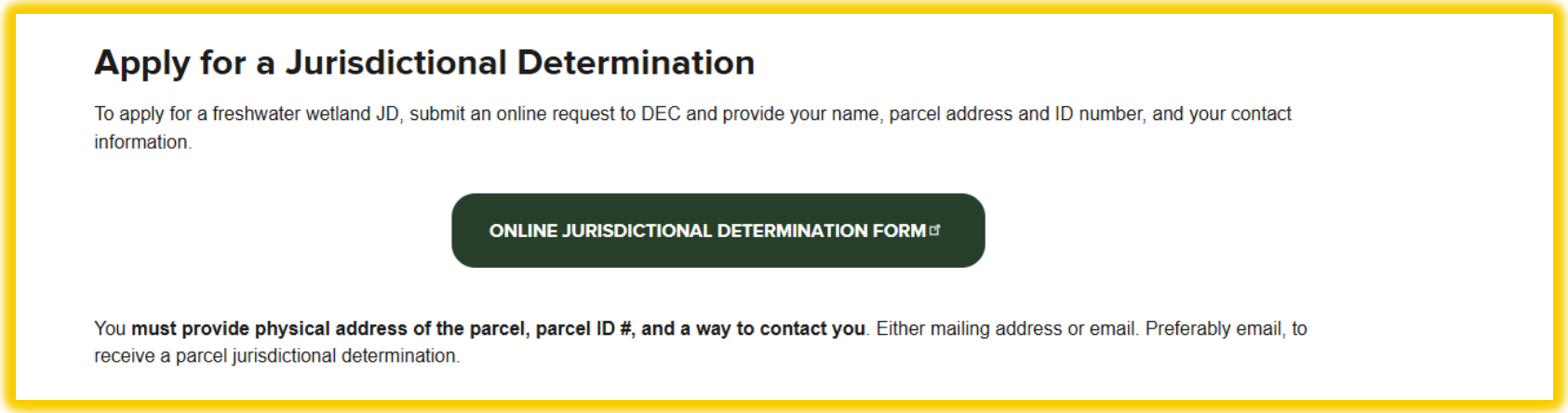
JURISDICTIONAL DETERMINATION PROCESS (664.8)

Step 1 – Parcel JD: Determine if there are state-jurisdictional wetlands and/or adjacent areas within the parcel or property boundaries

Step 2 – Wetland Delineation: Determine extent of wetlands and adjacent areas on the parcel or property

Step 3 – Determine if a project requires an Article 24 Permit (Project JD)

ONLINE JURISDICTIONAL DETERMINATION (JD) REQUEST FORM



Allow Pop Ups!

Landowner

- Parcel ID #
- Physical Address
- Contact Info: Mailing Address/Email

Private Company/NGO

- Same as above
- Company Name
- Shapefile – not required but appreciated

DRAFT GENERAL PERMIT FOR TYPICAL PROJECTS

- Freshwater Wetlands General Permit (GP-0-25-003)
- Five-Year Term
- **Includes (among other things) construction or modification of geothermal systems (and water wells) for single-family dwellings**
- DEC is currently evaluating comments and plans to finalize general permit in coming weeks

… BACK TO PERMIT REQUIREMENTS FOR UTENs

Division of Water (Article 15)

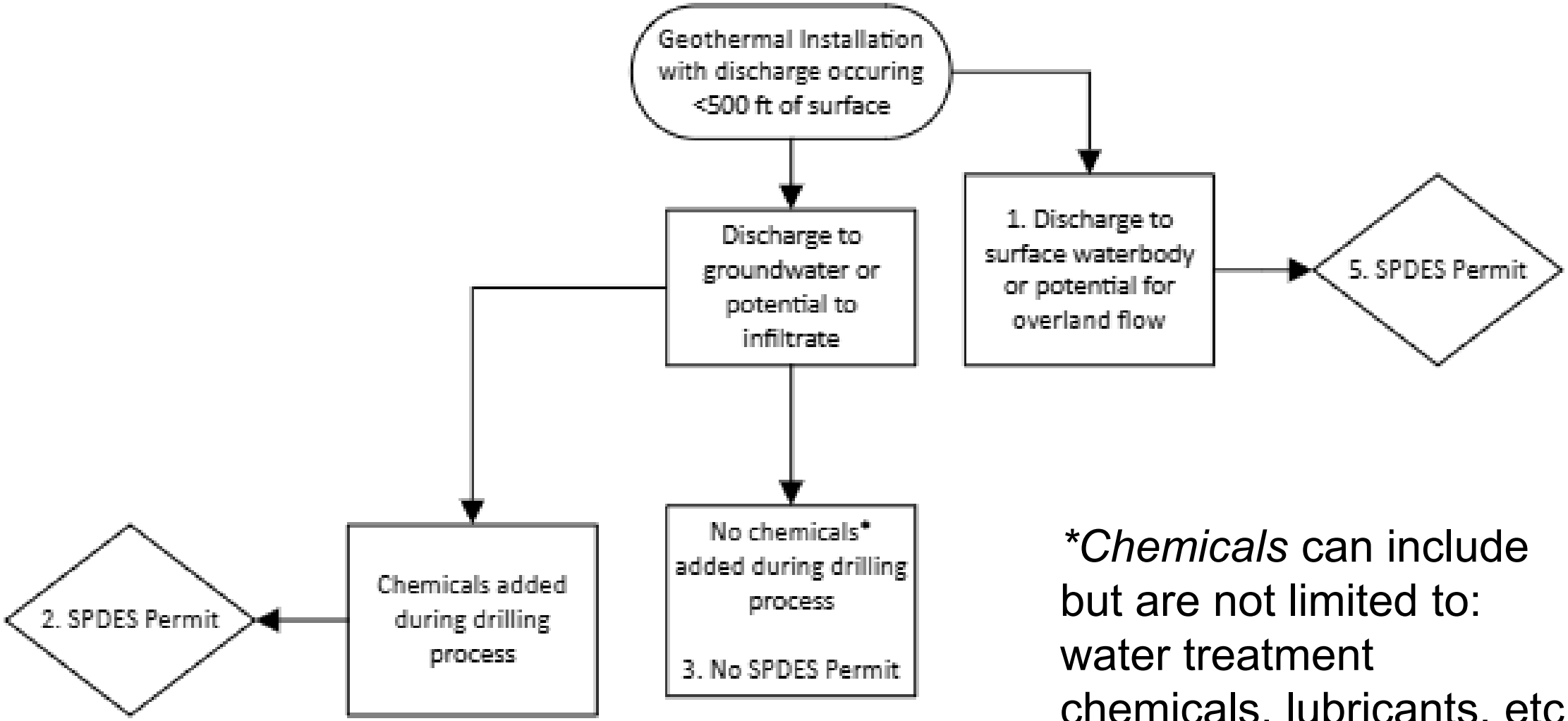
- **Water Well Contractor Program**
  - Open loop: Registration, certification for all depths, reporting for <500’ deep
  - Closed loop: No current requirements

- **Water Withdrawal Permits**
  - Open loop capacity >100,000 GPD (~70 GPM)
  - Long Island - Part 602 Permit, Open loop up to 500’ capable of producing >45 gpm per facility

- **Construction Stormwater**
  - Disturbance of one acre or more
  - NYC Watershed – East of Hudson is less than one acre

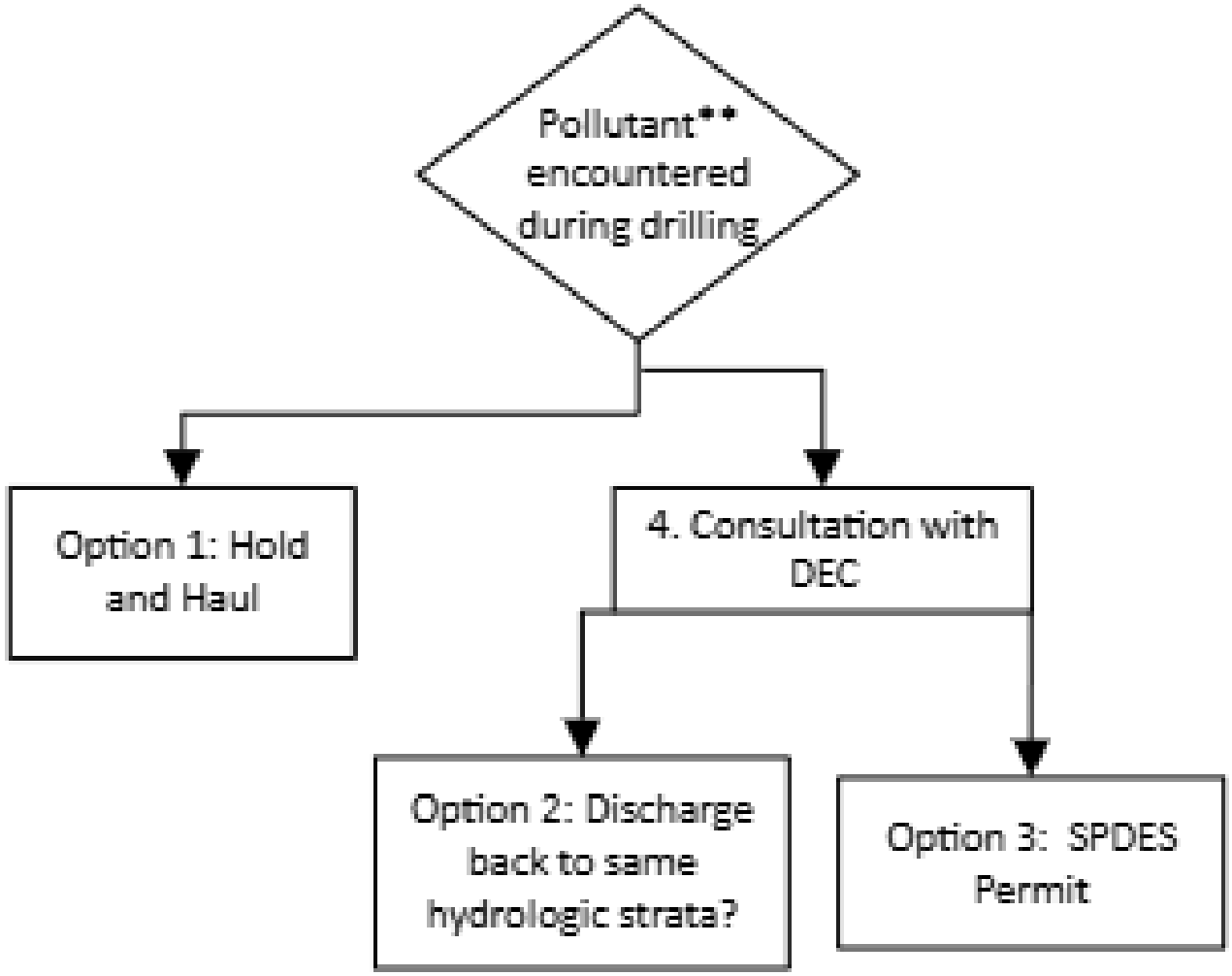
- **SPDES (State Pollutant Discharge Elimination System)**
  - Regulate point sources of *pollutants* to groundwater or surface water
  - *Heat is considered a pollutant* under our 6 NYCRR Part 703/704 regulations
  - Internal discussions and clarification of details regarding SPDES permitting continue.

SPDES PERMITTING: WHO NEEDS A PERMIT?



**Chemicals* can include but are not limited to: water treatment chemicals, lubricants, etc.

SPDES PERMITTING: WHAT IF I ENCOUNTER SOMETHING?



A *pollutant* would include brine or oil/gas encountered, planned or unplanned, during drilling or any other parameter that may cause an exceedance of ambient groundwater water quality standards (6 NYCRR Part 703.6).

WHAT WOULD A SPDES PERMIT LOOK LIKE?

For construction and operation:

- Flow monitoring
- Water treatment chemical reporting requirements
- Permit limits for WTC parameters
- At least annual reporting requirements

For operation only:

- Temperature monitoring or limits:
  - 90°F for non-trout waters
  - 70°F for trout waters
  - ΔT limits in coastal waters
- Very large discharges may require a thermal study in the SPDES permit to determine thermal impacts

LEGISLATION

- Legislation regarding regulation of shallow geothermal wells/borings has been drafted and revised by BWRM in consultation with Empire State Water Well Drillers' Association since 2019.

- BWRM continues to have discussions with the water well drilling industry and, more recently, with the geothermal industry.

- DEC is aware that these industries may choose to initiate legislation themselves.

PERMIT REQUIREMENTS FOR UTENs

Other laws and regulations may apply on a site-specific basis as determined by DEC's Division of Environmental Permits and individual DEC programs. Refer to DEC's website for program details and contact information.

General permitting questions:
Bureau of Energy Project Management, Division of Environmental Permits
DEPEnergy@dec.ny.gov

SPDES permitting questions:
Peter Maier
Professional Engineer 1
Bureau of Water Permits, Division of Water
peter.maier@dec.ny.gov
518-402-8103

General geothermal questions for wells/borings up to 500' deep:
Beth Guidetti
Professional Geologist 1
Water Well Contractor Program
Bureau of Water Resources Management, Division of Water
beth.guidetti@dec.ny.gov
518-538-7095

NEW YORK STATE | Department of Environmental Conservation

Dave Rosick

Rosick Well Drilling & ESWWDA

NYS Geothermal Drilling Regulations
Perspectives on Changes

Moderator: Kevin Moravec / *Barney Moravec, Inc.*

Panel: Carrie Friello / *NYS DEC Division of Minerals Management*

Beth Guidetti / *NYS DEC Division of Water*

Kathy Prather / *NYS DEC Division of Materials Management*

David Rosick / *Rosick Well Drilling* • *ESWWDA*