

Course Evaluation

Developing Local Limits

Presented by Zach Lorch

28th Annual New England
Pretreatment Coordinators Workshop

Part 1 - Introduction

Introduction

- This presentation is given by:

  Zach Lorch, NHDES Pretreatment Engineer

  - Oversees the pretreatment of industrial wastewater in NH.
  - Reviews local limits and sewer use ordinances.
- Ask questions whenever!
- Assistance provided by Jay Pimpare of EPA.



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Objective

Provide an overview of how to conduct a local limits evaluation.



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At the End of This Training

You should be able to:

1. Identify pollutants of concern;
2. Develop a sampling plan;
3. Calculate pollutant loading;
4. Determine the maximum allowable industrial loading; and
5. Implement local limits into a sewer use ordinance.

Disclaimer

- This presentation was developed to assist municipalities as they perform a local limits evaluation (in NH).
- This presentation cannot be relied upon to justify local limits calculations.
- Opinions expressed are those of the presenter and the rules and applicable guidance should be consulted during a local limits evaluation.



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Handout

- Key terms, abbreviations, acronyms, treatment train maps and equations.
- Double sided.



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Local Limits (LL)

- Scientifically and defensibly derived values of a pollutant IUs can discharge to the POTW.
- Are derived in lbs/day but can take the form of uniform concentration in the SUO.



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Applying LLs

- The limits in an SUO are enforceable at the connection to sewer.
  - The LL will be applied there not at the end of the process.
  - Dilution is prohibited but since they apply at the connection to sewer, mixing is allowed.
- Categorical standards are separate and apply to process wastewater.

Purpose of LL

- To protect the POTW from pass through and interference.
  - Includes collection and treatment.
- Also, prevent:
  - Corrosion;
  - Explosions; and
  - Limiting sludge disposal.



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Copying Limits

- LL are site specific and cannot be copied from another municipality.
  - Will not be enforceable.
  - May be overly or underly protective.
- Categorical limits also cannot be recycled for similar reasons.



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Questions?



Site Specific

- Treatment process
- Removal rates
- Flow/dilution
- Water chemistry
- NPDES permit limits
- Domestic loading
- Surface water quality
- Inflow and infiltration (I/I)
- Septage receiving
- Sludge management
- Surface water discharge
- Industrial users

Example

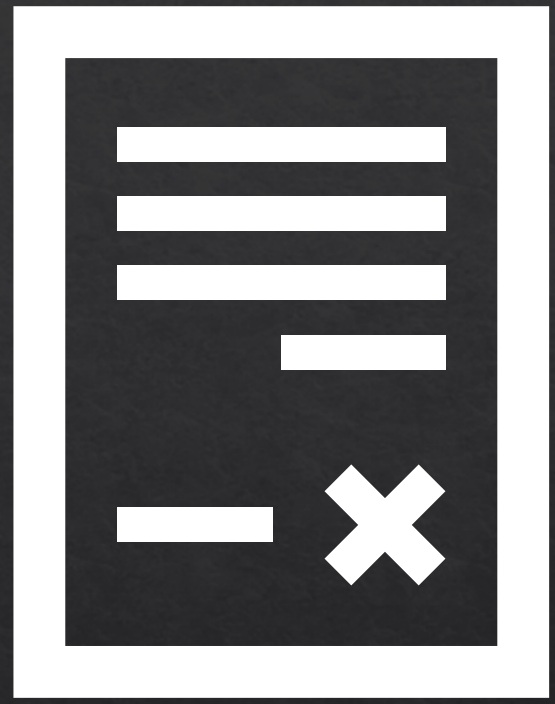
- Two POTWs on the same river with roughly the same design flow.
- One has biotech and manufacturing.
- The other has a university and a hospital.
- One land applies the sludge and the other landfills.
- One is going through an upgrade and has I/I issues.



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Who Must Evaluate Local Limits?

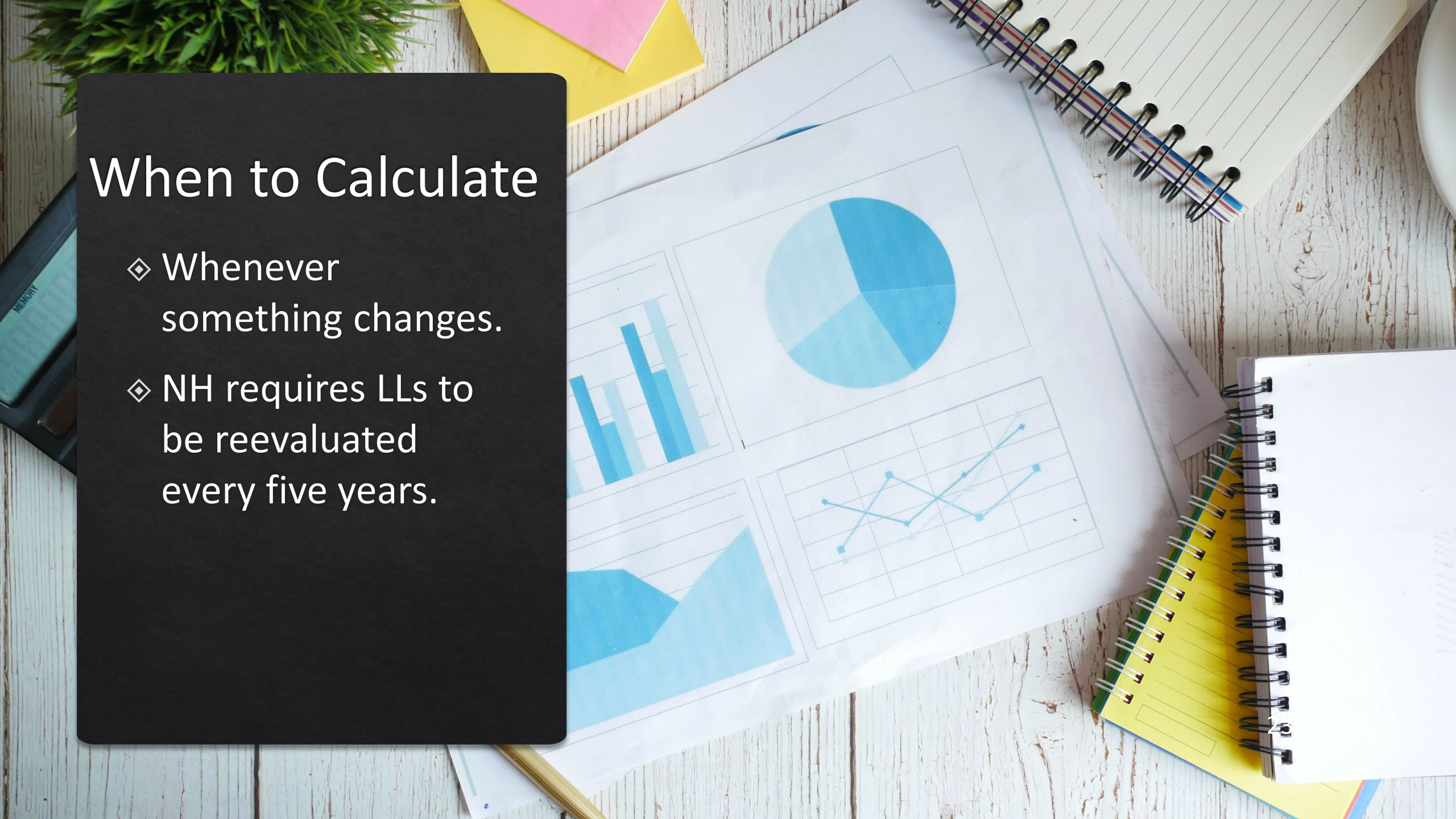
- POTWs with approved pretreatment programs.
- POTWs receiving pollutants from IUs where interference or pass through is likely (see 40 CFR 403.5(c)).
- All POTWs in NH.



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When to Calculate

- Whenever something changes.
- NH requires LLs to be reevaluated every five years.



Forms LLs Can Take

- Pollutant-specific limits.
  - Most common.
  - Allocation or uniform concentration discharge limits.
- Best management practice (BMP) plans.
- Additional specific narrative prohibitions.
  - For example, “Shall not discharge arsenic in higher quantities than incoming drinking water.”

Defensible

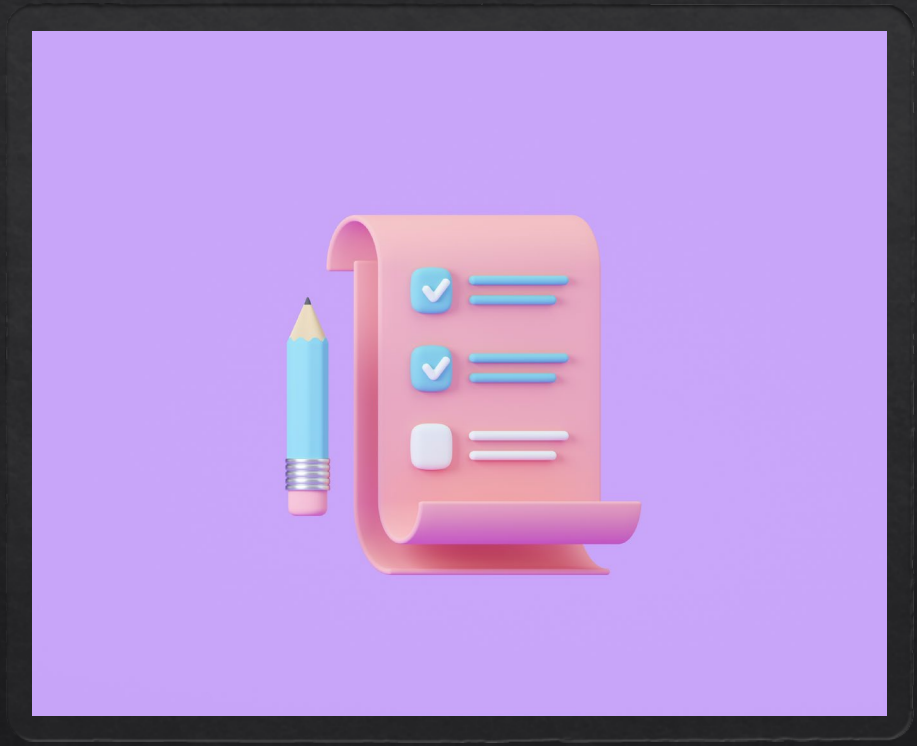
- Need to be able to defended the LLs if challenged in court.
- You did the work; you want to be proud of it.
- Even if a consultant does it, you should be able to update them and explain them to others.
- Non-defensible standards should be in something else like a notification requirement.

Terry



What's Left

- Pollutants of Concern (POCs)
- Sampling and Analysis Plan (SAP)
- Calculation Concepts
  - Removal Rate
  - Loading
- Example Calculations



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Questions?



Part 2 – Pollutants of Concern

Standard POCs

1. Arsenic
2. Cadmium
3. Chromium
4. Copper
5. Cyanide
6. Lead
7. Mercury
8. Nickel
9. Silver
10. Zinc
11. Molybdenum
12. Selenium
13. 5-day Biochemical Oxygen Demand
14. Total Suspended Solids
15. Ammonia (for plants that accept non-domestic sources of ammonia)

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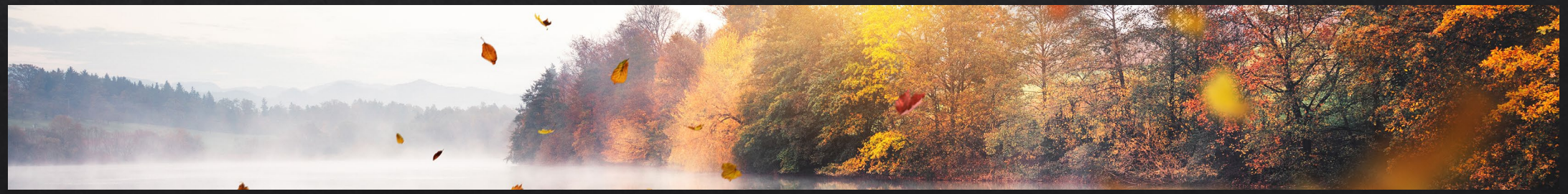
Limiting Factors

- Sludge Restrictions
- Receiving Water
  - NPDES Permit
  - Total Maximum Daily Load (TMDL)
  - Surface Water Quality Standards
  - Drinking Water Supply
  - Outstanding Resource Waters
- Industrial Users
  - Hauled
  - Piped
  - Categorical Limits
- Design Criteria

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Less Common

- Air Quality Standards
- Plant Operations
- Worker Health
- Collection System
- Reuse Requirements
- Detections In Priority Pollutant Scan
- Radiological Parameters



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Sludge Disposal

40 CFR Part 503

- Land Application
- Surface Disposal
- Incineration
- Landfill



Land Application

40 CFR 503.13

Pollutant	Ceiling (dry weight mg/kg)
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

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Industrial Users

IDP Application – process information and discharge quality.

Safety Data Sheets (SDS) - information on pollutants and toxicity.

Include POCs in categorical standards for IUs in sewer.

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SDS Sections

1. Identification
2. Hazard(s) Identification
3. Composition
4. First-Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Controls/Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information *
13. Disposal Considerations *
14. Transport Information *
15. Regulatory Information *
16. Other Information

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* Not required

All IU Contributions

- It is also important to consider any hauled waste that is received.
  - As it is not piped it can constitute a slug load.
- How well are haulers and their loads tracked?



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Photograph courtesy of North Conway Water Precinct

Discharge Permit Limit

- The permit controlling the direct discharge may have limits in it.
  - The NPDES permit may have a limit for BOD, TSS and copper.
  - The groundwater discharge permit may have a limit for nitrates.
- Can skip parameters like e. coli and total residual chlorine unless these could be impacted by industrial flow.
  - For example, water clarity and UV disinfection.

Water Quality Standards (WQS)

- List is extensive and not all pollutants become POCs.
- For example, Toxaphene would only be a POC for WQS if it there was reasonable potential for it to be exceeded.

WQS

Make sure to check with your state to get the **latest** WQS.

- CT DEEP's WQS are in §§ 22a-426.
- MassDEP WQS are in 314 CMR 4.
- MEDEP SWQC for Toxic Pollutants are in Chapter 584.
- NHDES WQS are in Env-Wq 1700.
- NYDEC WQS are included at 6 NYCRR 703.
- RIDEM Water Quality Regulations are in 250-RICR-150-05-1.
- VT WQS can be found in Chapter 29A.

Other Restrictions

- Drinking Water Standards
  - Stricter criteria apply if discharge is at or near a drinking water source.
- Outstanding Resource Waters
  - Surface waters of exceptional recreational or ecological significance.
- TMDLs can be found on EPAs ATTAINS page.
- All applicable regulations need to be considered and POCs derived from those requirements.

Collection and Operation

- Parameters like pH, temperature and FOG are often handled as prohibitions.
- Inhilation and explosion hazards like VOCs may need to be considered.



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Sample the Moon?

Resources are not unlimited, be deliberate in sampling.

Adsorbable Organic Fluorine (AOF) Example

Background

- Used to measure C-F bonds.
- Broader scope than 40 PFAS analytes.
- In NH permits.

Is it a POC?

- What would it be used for?
- AOF limit anticipated?
- No sludge method.
- Consider one round of samples?

POC Summary

POCs should include:

- Pollutants with past issues;
- Preexisting LLs;
- EPA's 15 (as applicable);
- Direct discharge permit limits;
- Surface (and ground) water quality standards; and
- Protection of the POTW, including collection and staff.



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