Monitoring & Reporting

Requirements for Industrial Users and You (Control Authority)

Industrial User Permits: Monitoring Requirements

Learning Objectives

- Describe purpose of monitoring conditions
- Discuss the considerations for establishing monitoring conditions
- Explain analytical methods requirements

Monitoring Requirements

- Sampling location
- Pollutants to be monitored
- Sample collection method
- Monitoring frequency
- Analytical methods

Sampling Location

- Must coincide with the point(s) at which the effluent limits apply
- Must produce a sample “representative” of the nature and volume of the Industrial User’s effluent
- Must be safe, convenient and accessible to Industrial User and Control Authority personnel
- Photograph

Pollutants to be Monitored

- Include numerical limits
- Include all categorical pretreatment standards
- Include other parameters subject to local limits if justified
- Include monitoring for unregulated pollutants of potential concern if justified
- Include flow monitoring where required

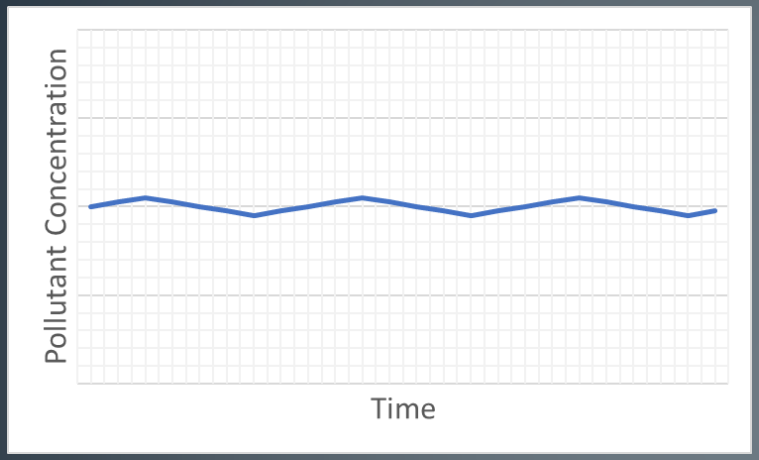
Sample Collection Method

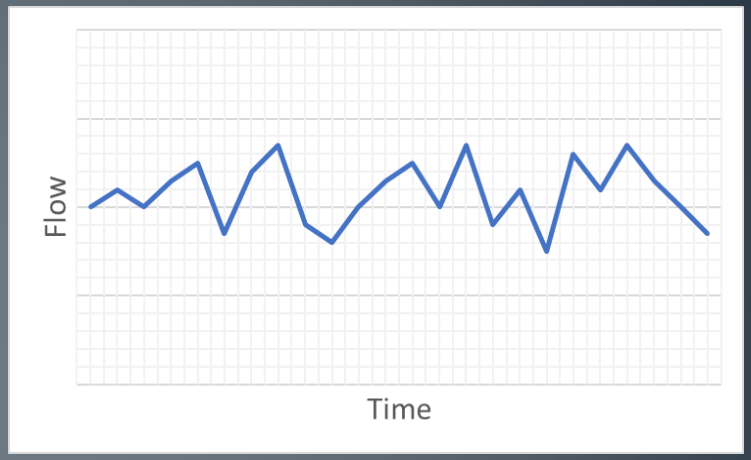
- Specify collection method
  - Grab sample
  - Composite sample (proportional to time or flow)
- Specify sampling period (e.g., 24-hour, 8-hour)
- Specify minimum number of aliquots
- Specify minimum number of grab samples

Types of Samples

- Grab Sample: Taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time
  - Must be used to monitor certain parameters (e.g., pH, oil & grease, dissolved oxygen, volatile organics, cyanide)
  - On a case-by-case basis – may be used for monitoring batch discharges

Example Situation – Case #1





- Slight daily fluctuation in pollutant concentration and flow
- Recommendation: Grab Sample

Types of Samples (cont.)

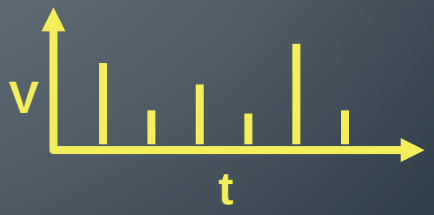
- Composite Sample: Composed of two or more discrete aliquots. The aggregate sample will reflect the average water quality over the sample period.
  - More representative measure of the discharge of pollutants over a given period of time
  - Accounts for variability in pollutant concentration and discharge flow rate
  - May be sequential discrete samples or a single combined sample

Types of Samples (cont.)

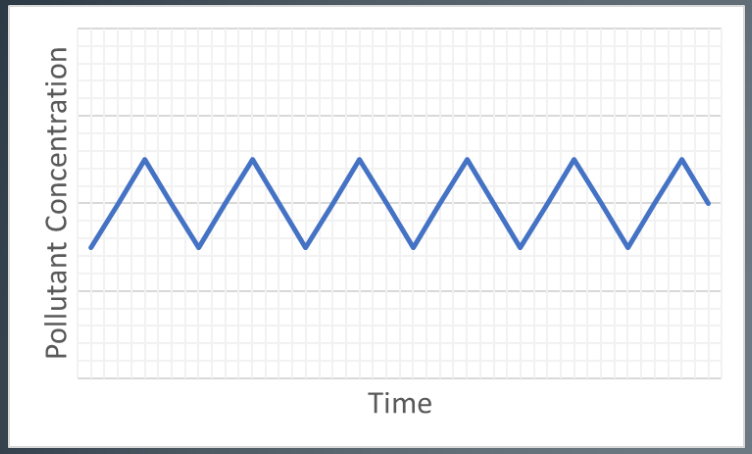
- Composite sample is defined by the time interval (t) between aliquots, and the volume of each aliquot (V)
  - Time Proportional (t_c , V_c): Interval time and sample volume are constant

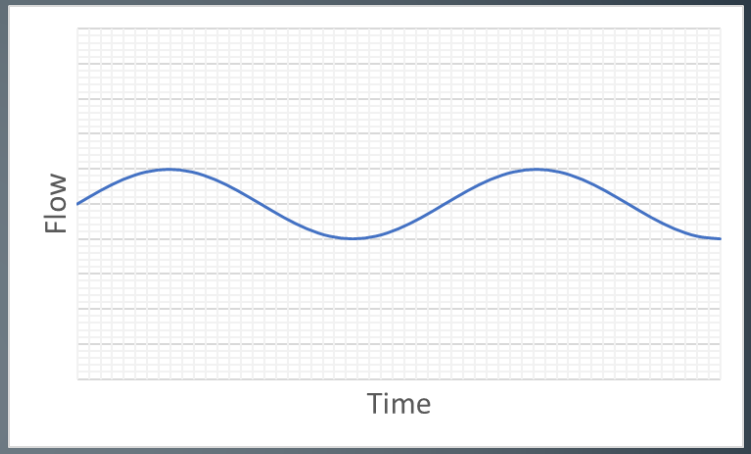
  - Flow Proportional: Interval time or sample volume may vary
    - Constant volume (t_v , V_c)

    - Constant time (t_c , V_v)



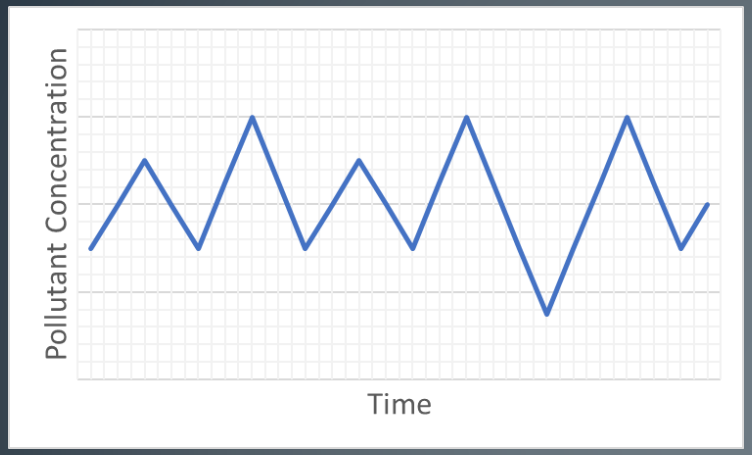
Example Situation – Case #2

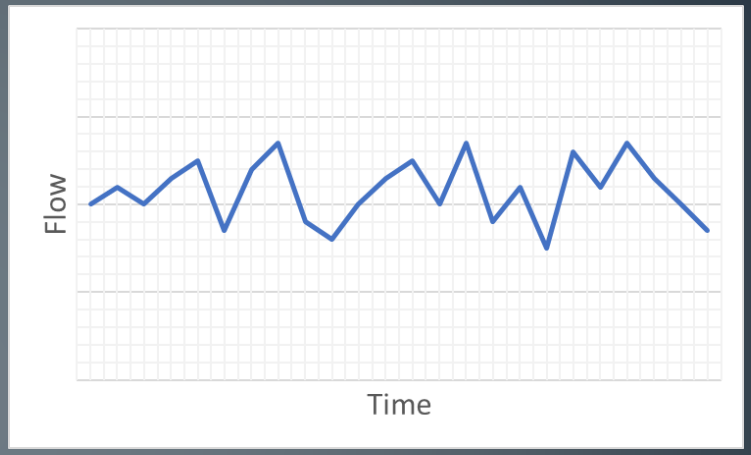




- Regular fluctuations in pollutant loading over the course of the day
- Very slight fluctuations in flow
- Recommendation: Time Proportional Composite

Example Situation – Case #3





- Irregular fluctuations in pollutant loading over the course of the day
- Erratic fluctuations in flow
- Recommendation: Flow Proportional Composite

Types of Samples (cont.)

- Continuous Sample: Automated collection and analysis of a parameter in a discharge
  - Typically used for pH and flow
  - 40 CFR §401.17 allows excursions for pH; ONLY for direct dischargers

Monitoring Frequencies

- Federal Regulations require a minimum of “twice” per year
- Develop compliance monitoring requirement based on at least the following factors:
  - Representative data of users discharge
  - Potential impact of industry
  - History of user compliance
  - Costs

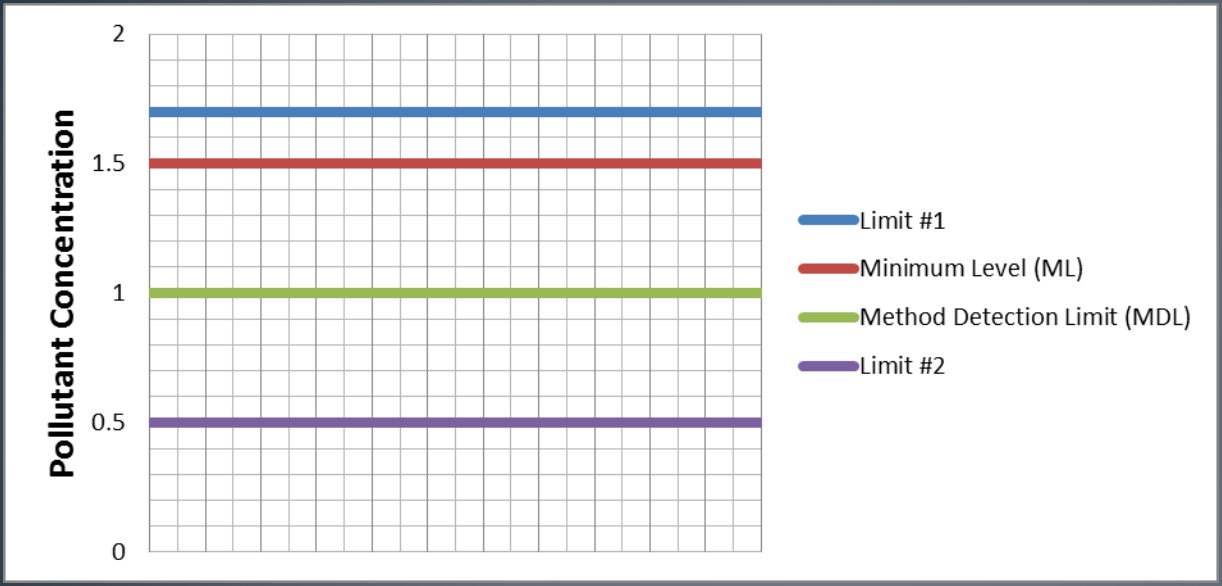
Analytical Methods

- Analytical methods must comply with 40 CFR Part 136 regulations
- May specify exact analytical method required
- May require analysis be performed by a State certified laboratory
- Alternative methods

Analytical Detection Level Considerations

- Occasionally, the value of a calculated local limit falls below method detection limit (MDL) and minimum level (ML) of approved analytical methods
  - Method detection limit: the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is distinguishable from the method blank results
  - Minimum level: the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. May be published with method; based on lowest calibration used by lab. Or may be calculated by multiplying MDL by factor of 3
- Most commonly occurs with water quality-based limits

Analytical Detection Level Considerations (cont.)



- Compliance with Limit #1 – MDL
- Compliance with Limit #2 – ML
  - In these situations, typically recommend using method with lowest MDL

Industrial User Permits: Reporting Requirements

Learning Objectives

- Describe purpose of reporting requirements
- Discuss the considerations for establishing reporting requirements

Reporting Requirements

- Continued Compliance Reports
- What types of information are to be submitted (e.g., analytical, flow and production data)
- Dates and frequency of submission
- Signatory responsibilities
- Submission location (address) and name of person responsible for receipt of the report
- Electronic reporting
- Violation identification
- Penalties

Reporting Requirements (cont.)

Slug Control Plan

Design Plans for Pretreatment Technologies

Sludge Management Plans

Compliance Schedule Progress Report

Notice of Potential Problems

Solvent Management Plan

Permit Renewal

Notice of Changed Discharge

Periodic Compliance Reports

90-day Compliance Report

Comments on Permit

Baseline Monitoring Report

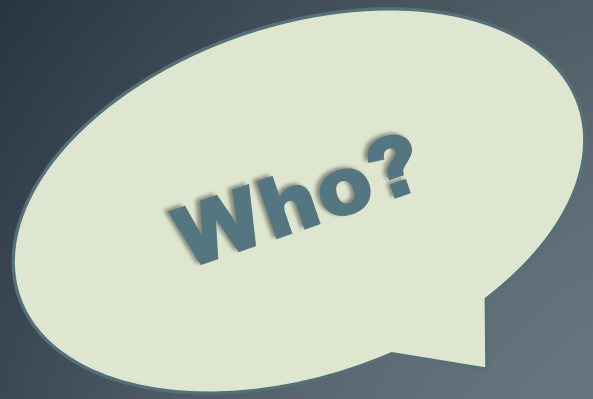
Toxic Organic Management Plan

Hazardous Waste Notification

Bypass

Upset

24-hour Notification of Violation & Resampling Reports



Reporting Requirements

Who?

- Depending on the industry, the permittee could be a Significant Industrial User (includes Categorical Industrial User) or a Non-Significant Industrial User (e.g., small laundry, restaurant, hospital, etc.)
- Previously, regulations did not officially include reporting requirements for Non-Categorical SIUs
- "New" Streamlining Rule (Oct 2005): Non-Categorical SIUs now officially required to report all monitoring data

Who? (cont.)

- The new Rule expands the notification requirement:
  - The Industrial User must notify the "Control Authority" (CA) as opposed to the "POTW"
  - In cases where the CA and the POTW are different organizations, the IU would notify both the CA and the POTW of any substantial change in volume or character of pollutants in the IU's Discharge to the POTW
  - Also answers "Where?"

What?

- IU Self-Monitoring Reports [40 CFR §403.12(e) & (h)]
  - Nature and concentration of discharged pollutants
  - Flow and/or production data

When?

- IU Self-Monitoring Reports [40 CFR §403.12(e) & (h)]
  - Semi-annual Report
  - Submitted during June and December, unless required more frequently by CA
  - At CA discretion, submission months may be modified in consideration of operations, flow rates, holidays, budget cycles, etc.
- POTW Annual Report
  - Pretreatment Performance Summary
  - Submitted no later than one year after Program approval

Certification Statement

- [40 CFR §403.6(a)(2)(ii)]
- I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signatory Requirements

- [40 CFR §403.12(l)]
- Responsible corporate officer,
- General partner or proprietor, or
- Duly authorized representative

Signatory Requirements (Streamlining)

- Industrial Users: New Rule revises the signatory requirements for IUs to adopt more flexible standards for determining who must sign reports on behalf of a corporation
- Also, the New Rule makes similar changes to the signatory requirements for "duly authorized employees of POTWs [40 CFR 403.12(m)]
  - EPA clarifies that this authorization can be submitted to the Approval Authority "together with" the next annual report

IU Self-Monitoring

- [40 CFR §403.12(g) and (h)]
- POTW may monitor in lieu of IU self-monitoring

CIU Reports

- 40 CFR §403.12

  (b) Baseline monitoring report (BMR)

  - Required information [§403.12(b)(1)-(7)]
  - Existing Sources - 180 days after determination
  - New Sources - 90 days prior to discharge

  (c) Compliance schedule for meeting categorical Pretreatment Standards

  (d) 90-day compliance report

- 40 CFR §403.16

  (c) Upset

CIU/SIU Reports - Notifications

- 40 CFR §403.12

  (f) Notice of potential problems, including slug loads

  (g)(2) Noncompliance notification within 24 hours of becoming aware; and perform resampling

  (j) Notification of changed discharge: volume or character

  (p) Written notice of discharge of hazardous waste

- 40 CFR §403.17

  (c) Notice of bypass, if possible at least 10 days in advance

General Control Mechanisms

- Before Streamlining Rule – could use general permits to control non-SIUs
- After Streamlining Rule – can use general permits for SIUs
- Use of general permits is still at the discretion of the POTW

General Control Mechanisms (cont.)

- All facilities to be covered under a general permit must meet the following conditions:
  - Involve the same or substantially similar types of operations;
  - Discharge the same types of wastes;
  - Require the same effluent limitations;
  - Require the same or similar monitoring; and
  - In the opinion of the POTW, are more appropriately controlled under a general permit than individual permits

Best Management Practices (BMPs)

- Definition [40 CFR §403.3(e)]:
  - Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the general and specific prohibitions listed in §403.5(a)(1) and (b), respectively
  - Also includes treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage

BMPs (cont.)

- Streamlining Rule modifying/adding to: 40 CFR §403.5, §403.8(f), and §403.12(b), (e) and (h)
- Previously – No definition of BMPs in Part 403; BMPs not specifically addressed
- Streamlining Rule – BMPs may be used in lieu of local limits

BMPs (cont.)

- BMPs vs. Local Limits
  - POTWs may choose BMPs instead of numerical local limits where determination of compliance with numeric limits is infeasible, or as a supplement to numeric limits
  - BMPs may be appropriate for regulating releases when the types of pollutants vary greatly over time, when chemical analyses are impracticable, and when other discharge control options are inappropriate

BMPs (cont.)

- Examples of appropriate BMP usage:
  - Photo processor BMPs – address discharges of silver through recovery systems and/or management practices
  - Dental BMPs – control discharges of mercury
  - Printing facilities BMPs and Maintenance Shop BMPs – address cleaning and spill control

Sources

- 40 CFR Parts 136 and 403
  - https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl
- U.S. EPA NPDES Permit Writers' Manual
  - https://www3.epa.gov/npdes/pubs/pwm_2010.pdf
- Images obtained from the following:
  - https://www.no.endress.com/no/skreddersom-tilpasset-felt-instrumentering/V%C3%A6skeanalyse-Analyse-/automatic-water-samplers
  - https://www.babcocklabs.com/field-services/
  - https://www.exova.com/media/4063/34_adobestock_21855468.jpeg?width=822&height=550