

# **Chapter 7**

## **Sampling, Compliance, and Inspection**

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**Appendix 7-A Sample Collection / Chain of Custody Form  
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#### **Section A. Sampling Quick Reference Info**

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1. **Definition - Compliance Sampling** is the collection of samples of the SIU wastewater discharge, the analysis of those samples to determine the levels of pollutants present in the wastewater, and the collection of flow measurements of the wastewater discharge.
2. **Chapter Acronyms**
  - BDL - below detection level
  - CFR - Code of Federal Regulations
  - CIU - Categorical Industrial User
  - C of C - chain of custody
  - IDSF - Industrial Data Summary Form
  - IUP - Industrial User Pretreatment Permit
  - NPDES - National Pollutant Discharge Elimination System
  - SUO - Sewer Use Ordinance
  - TTO - Total Toxic Organics
  - TOMP - Total Toxic Organic Management Plan
3. **Purpose**

Collect appropriate flow measurements and wastewater samples to determine compliance status and support enforcement actions.
4. **Regulatory References**
  - 15A NCAC 2H .0908(d)
  - 40 CFR 403.8(f)(2)
  - 40 CFR 403.12 (see item # 9. below for Detailed Regulatory References)
  - 40 CFR 136
  - NPDES or Nondischarge Permit, Part III, B
5. **DEM Requirements**
  - Representative sample.
  - Adherence to 40 CFR 136, and Chain of Custody requirements.
  - Compliance with minimum frequency requirements.
  - More frequent monitoring where appropriate.
6. **Implementation Frequency**
  - POTW frequency: minimum once per six months for each parameter limited in IUP, except for organic compounds - minimum once per year.
  - SIU frequency: as described in IUP.

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#### 7. Appendices

- Appendix 7-A, Sample Collection / Chain of Custody Form (For Use with a Sampling Plan)
- Appendix 7-B, Sample Collection / Chain of Custody Form (For Use without a Sampling Plan)

#### 8. Other Guidance Documents

- *Industrial User Inspection and Sampling Manual for POTWs*, EPA Office of Water, EPA 831-B-94-001, April 1994.
- *Pretreatment Facility Inspection, A Field Study Training Program*, 1992 Edition, US EPA, Office of Water Enforcement and Permits, California State University, Sacramento.
- 40 CFR 136
- *EPA Guidance on Evaluation, Resolution, and Documentation of Analytical Problems Associated with Compliance Monitoring*, EPA Office of Water, EPA 821-B-93-001, June 1993.
- *Industrial Waste Treatment, A Field Study Training Program*, 1987 Edition, US EPA, Office of Water Enforcement and Permits, California State University, Sacramento.
- *Standard Methods For The Examination Of Water And Wastewater*, 18th Edition, 1992, APHA-AWWA-WEF.

#### 9. Detailed Regulatory References from 40 CFR 403.12

| Sample Collection, Analysis, and Documentation Requirements for POTW and SIU | 40 CFR cite                         | NC Model SUO (Chapter 2, Appendix 2-A) | NC Generic Blank IUP (Chapter 6, Appendix 6-B) |
|------------------------------------------------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------------|
| Record-keeping and Retention (including Chain of Custody)                    | 403.12(o)                           | 5.13                                   | Part II, 2., a.                                |
| Sampling and Analysis per 40 CFR 136                                         | 403.12(e) for CIUs and (h) for SIUs | 5.10                                   | Part II, 3.                                    |
| Signatory requirements (for POTW reports)                                    | 403.12(m)                           |                                        |                                                |
| Signatory requirements (for IU reports)                                      | 403.12(l)                           | 4.2(c)<br>[5.1, 5.3, 5.4,]             |                                                |
| Provisions Governing Fraud and False Statements                              | 403.12(n)                           | 5.8                                    | Part II, 2., b.                                |

Also see Appendices 7-A and 7-B for example Sample Collection / Chain of Custody forms.

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| Reporting Requirement<br>for SIUs and CIUs<br>( <b>BOLD</b> for CIUs only)                                         | 40 CFR cite                               | NC Model SUO<br>(Chapter 2,<br>Appendix 2-A) | NC Generic Blank<br>IUP (Chapter 6,<br>Appendix 6-B) |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------------|------------------------------------------------------|
| <b>Periodic Report on Continued<br/>Compliance Report Issues</b>                                                   | 403.12(e) for<br>CIUs and (h)<br>for SIUs | 5.4                                          | Part II, 2., a.                                      |
| <b>Notification By SIU Upon SIU<br/>Becoming Aware of a Violation,<br/>including Resampling</b>                    | 403.12(g)(2)                              | 5.8                                          | Part II, 2., b.                                      |
| <b>Notice of Potential Problems,<br/>including Slug Loading</b>                                                    | 403.12(f).                                | 5.6                                          | Part II, 30.                                         |
| <b>Slug Control Plan</b>                                                                                           | 403.12(f).                                | 2.8 (a)-(d)                                  | Part III, 1.                                         |
| <b>Notification of Changed Discharge</b>                                                                           | 403.12(j)                                 | 5.5                                          | Part II, 25.                                         |
| <b>Signatory requirements for IU<br/>reports</b>                                                                   | 403.12(l)                                 | 4.2(c)<br>[5.1, 5.3, 5.4,]                   |                                                      |
| <b>Hazardous Waste Notification</b>                                                                                | 403.12(p)                                 | 5.9                                          |                                                      |
| <b>Sludge Management Plan</b>                                                                                      |                                           |                                              | Part III, 4.                                         |
| <b>Categorical Baseline Monitoring<br/>Report (BMR)</b>                                                            | 403.12(b)                                 | 5.1                                          |                                                      |
| <b>Compliance Schedules for<br/>Meeting categorical<br/>Pretreatment Standards</b>                                 | 403.12(c)                                 | 5.2                                          |                                                      |
| <b>Report on Compliance with<br/>Categorical Pretreatment<br/>Standard Deadline (90 Day<br/>Compliance Report)</b> | 403.12(d)                                 | 5.3                                          |                                                      |

| Total Toxic Organics (TTO)<br>Reporting Requirement                  | 40 CFR 433,<br>Metal Finishing                                                                                                    | 40 CFR 413,<br>Electroplating | NC Generic Blank<br>IUP (Chapter 6,<br>Appendix 6-B) |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------|
| <b>Definition</b>                                                    | 433.11(e)                                                                                                                         | 413.02(i)                     | Part II, 30.                                         |
| <b>Only monitor those reasonable<br/>expected to be in discharge</b> | 433.12(a)                                                                                                                         | 413.03(c)                     | Part II, 25.                                         |
| <b>Certification Alternative</b>                                     | 433.12(a)                                                                                                                         | 413.03(a)                     |                                                      |
| <b>Toxic Organic Management<br/>Plan (TOMP)</b>                      | 433.12(b)                                                                                                                         | 413.03(b)                     | Part III, 2.                                         |
| <b>Oil &amp; Grease Alternative</b>                                  | Some of the other metals regulations allow for<br>regulation of Oil & Grease in lieu of TTO. For an<br>example, see 40 CFR 464.03 |                               |                                                      |

Also see Chapter 3, Appendix D for more information on Categorical Regulations, specifically for 40 CFR 413, 433, 464, 465, 467, 468, and 469.



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#### Section B. Sampling Discussion

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Proper sampling at SIUs for compliance with permits or at the POTW for the LTMP is essential to meeting the goals of the pretreatment program. The EPA has recently issued a book titled *Industrial User Inspection and Sampling Manual for POTW's*. The EPA manual offers comprehensive guidance on sampling including the basics of sample type, representative sampling, sample bottle type and sampler cleaning. An outline of the sampling portion of the EPA manual is located at the end of this section. This section offers additional information on sampling frequency, chain of custody and self-monitoring.

#### Use of the IDMR form

With the adoption of the revised Pretreatment rules the use of and submission to the Pretreatment Group of the IDMR form is no longer required. The Control Authority may still require industries to submit sampling data on the IDMR or other locally approved form, but it is not a State requirement. The Control Authority is required to summarize sampling data on the Industrial Data Summary Form (IDSF) for the Pretreatment Annual Report (PAR). See Chapter 9, Section B for more information.

#### Chain of Custody

A record of the monitoring activities of the Control Authority and SIUs is required by Federal regulation 40 CFR 403.12 (o) and State regulation 15A NCAC 2H .0908. What is Chain of Custody (C of C)? C of C is a record that an authorized person collected a sample at a specific point and handled it correctly. The record further indicates that the sample was under the control of an authorized person and therefore safeguarded from tampering until analysis was performed.

Why does a simple pretreatment sample need to be so protected from tampering? Recent criminal cases in North Carolina have shown the importance of C of C procedures. In fact, in any criminal, civil or administrative case the sampling data may be dismissed if it can not be proved that the sample was properly collected and handled with proper documentation of that handling.

"But the industries in my town are not criminals". Implementing C of C procedures is not meant to imply that your industries are criminal or even that they are violating their permit limits. You can not tell by an industry's friendliness or by sniffing or tasting a sample if it has .05 mg/l or 200 mg/l of chromium. Even the "best" industry may have an operational problem that could cause a POTW upset or even a fish kill. Without proper documentation the Control Authority may not be able to take necessary action against the SIU. The Control Authority may not be able to demonstrate industry responsibility and therefore may be responsible for the costs of rectifying the damage. This example may seem extreme, but the importance of C of C becomes apparent.

Another reason for C of C is to raise the level of confidence both the Control Authority and the industry have in sampling data. If the industry sees that Control Authority personnel document collection and handling of samples, the industry may feel more confident and comfortable with the results of this sampling. Likewise if the industry is required to complete the same level of C of C documentation, the Control Authority may feel more confident in reported self monitoring data. This confidence and trust is

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important in the Control Authority / Industry relationship as any sample may result in a penalty from the POTW or conversely may result in costly pretreatment.

- **What will be required on the chain of custody form?** As mentioned, federal and state regulations require recordkeeping for all POTW and SIU samples. This record keeping shall include the exact place, method and time of sampling and the name(s) of the person(s) taking the samples. Example forms meeting these minimal C of C requirements are found in Appendix 7A & 7B of this chapter.
- **Does SIU self-monitoring have to use C of C?** Yes, SIU self-monitoring must conform to the same handling and chain of custody standards as the POTW sampling. If the SIU does not follow these procedures, the POTW may choose not to use the results and may require resampling.
- **What is a Control Authority Sampling Plan?** You will notice as you review the C of C form found in Appendix 7A, that there is a statement that the sample was "Taken and Preserved according to procedures, listed in Control Authority Sampling Plan". If such a plan is developed, a copy should be provided to the SIUs to ensure that self monitoring meets the same standards as POTW monitoring.

The previously mentioned EPA manual *Industrial User Inspection and Sampling Manual for POTW's*, pp.56-60, has a list of what should be included in a Sampling Plan and Standard Operating Procedures for Sampling. This list includes such things as procedures and schedules for cleaning and maintaining the sampling equipment, safety, preservation techniques, calibration procedures, etc. The EPA manual also includes a example sample plan in Appendix IX.

- **Is a sampling plan required?** No, but if there is no sampling plan in place, the POTW and SIU must use a more thorough C of C which includes preservation techniques, sample bottle types, shipping information, sampler set-up (time & volume), cleaning of sampler. See Appendix 7B of this chapter for a minimum C of C form with no sampling plan in place.

If a sample plan is developed, it does not need to be submitted to the Division for review and approval. However, the plan may be checked during pretreatment audits or inspections

- **Can we use the example form as is?** The POTW should consider developing its own Chain of Custody form as the provided minimum forms may not include all the information necessary for its program. Some of the other information the POTW should consider adding to the C of C form are:

|                                           |                        |                      |
|-------------------------------------------|------------------------|----------------------|
| User Address                              | User Contact name      | Composite Start Time |
| Analysis Required                         | Sample ID #            | Field pH value       |
| pH analyst /Time                          | Field Dissolved Oxygen | Field Temperature    |
| Temperature of Sample Upon Receipt at Lab |                        |                      |



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##### Sampling Considerations

- **Labeling Individual Samples:** Each sample bottle must be labeled or otherwise marked so as to be independently identifiable from any other sample (e.g. composites from the same pipe which are preserved differently).
- **Multiple Samples on one C of C:** More than one sample can be entered on each C of C (e.g. grabs and composites from the same pipe). However, this can only be done if all samples are going to the lab as a group. Any sample which will follow a path different from the other samples must have its own C of C form.
- **Sample Seals:** It is recommended that samples and/or the sampler be sealed with a seal that will indicate if tampering has occurred. If such seals are used then the C of C form should be amended to provide a blank to indicate that seals were intact at each transfer.
- **Carbon Copies:** The POTW may wish to consider the use of carbon copies of the C of C form. Thus a copy could be given to the User or the lab.

##### Sampling Frequency

What frequency should the POTW sample or require the SIU to self-monitor? The minimum required sampling requirement is once every six months by the POTW for all parameters with a permit limit with the exception of the organics which are required to be monitored at least annually (State Regulation 15A NCAC 2H .0908 (c)). The SIU is also required to monitor once every six months. However, the POTW may perform the required sampling in lieu of the SIU self-monitoring.

**Note:** The revised pretreatment rules do not require four (4) samples to judge compliance with a monthly or other average limit. The POTW will determine the number of samples necessary to judge compliance with an average limit. One sample is the minimum requirement. However, when setting sampling frequencies you may wish to consider that if that if only one sample is used to judge compliance with a both a maximum and average limit the SIU is in jeopardy of being in Significant Non-compliance if that one sample is a violation

One sample every six months may not be sufficient to meet the goals of pretreatment-to protect the POTW, its workers, the sludge and the receiving stream. Therefore, the POTW should evaluate the following factors and determine how much sampling is necessary to determine compliance.

##### Some Sampling Frequency Factors to Consider

- Does the SIU have a batch or episodic discharge that may have effect on the POTW during peak discharge?
- How much of a particular pollutant is allocated? For example, if you had 95% of lead allocated you would want to monitor SIUs more frequently for lead than if you only had 15% of lead allocated.

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##### Sampling Frequency Factors Continued:

- How much of your allocation does a particular SIU have? For example, if one SIU has for example 70% of your cadmium loading increased monitoring for that particular SIU for cadmium would be efficient way to track cadmium loading.
- What is the industry's compliance history? If an industry has been non-compliant for a particular pollutant increased monitoring may be in order. Conversely, if a user has consistently been well below their limit you may consider rewarding them for their compliance with reduced monitoring.
- Does the SIU have a season of greater production, varied effects on different days of the week and /or weekend effects. If so, you may want to consider consecutive days monitoring at some point.
- What is the cost of monitoring? While this should not deter you from necessary monitoring, you may want to consider the economic impact on the industry of increased monitoring.

Should the POTW or the SIU monitor? After the sampling frequency has been set, the POTW should consider how to divide the monitoring between the SIU and POTW. Some factors to consider are:

##### Pros for SIU Self-monitoring

By self-monitoring the SIU becomes more aware of its discharge composition, trends and compliance status.

If self-monitoring the time, money and responsibility for sampling is placed on the industry.

Self-monitoring results that are violations are self-incriminating.

##### Cons against SIU self-monitoring

The industry may, despite its best intentions, not choose the most representative days to sample for compliance.

The POTW may have more experience in sampling procedures and techniques.

##### Quick Reference to Sampling Portion of *Industrial User Inspection and Sampling Manual for POTW's* :

|                                                   |          |
|---------------------------------------------------|----------|
| Analytical Methods                                | pp.55-56 |
| Contents of a Quality Assurance and Sampling Plan | pp.56-58 |
| Sampling Standard Operating Procedures            | pp.58-60 |
| Presampling Activities                            |          |
| Cleaning of Sample Bottles and Samplers           | pp.60-63 |
| Preparing Field Instruments and Containers        | pp.63-65 |
| Type of Sample (definitions and choices)          | pp.66-67 |

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|---------------------------------------------------------------------------------------------------------------------------|---------------|
| Oil & Grease and Cyanide Grab procedures                                                                                  | pp.68-69      |
| <b>Quick Reference to Sampling Portion of <i>Industrial User Inspection and Sampling Manual for POTW's</i> Continued:</b> |               |
| <b>On-Site Activities</b>                                                                                                 |               |
| Sampling Location                                                                                                         | pp.71-72      |
| Sample Collection Techniques                                                                                              | pp.72-73      |
| Sample Volume                                                                                                             | pp.73         |
| Sample Preservation and Holding Times                                                                                     | pp.73-74      |
| Sample Documentation and Labeling                                                                                         | pp.74-76      |
| Chain of Custody                                                                                                          | pp.76-77      |
| Sample Packaging and Shipping                                                                                             | pp.77-78      |
| Quality Control                                                                                                           | pp.78         |
| <b>Safety</b>                                                                                                             |               |
| Considerations                                                                                                            | pp.79-82      |
| Equipment                                                                                                                 | pp.82-86      |
| Confined Space Entry                                                                                                      | pp.86-87      |
| Training                                                                                                                  | pp.87-88      |
| <b>Flow Measurement</b>                                                                                                   |               |
| Open Channel Flow                                                                                                         | pp.88-94      |
| Closed Channel Flow                                                                                                       | pp.94         |
| Overall Quality Control for Sampling                                                                                      | pp.96-99      |
| <b>Compliance Judgment</b>                                                                                                |               |
| Use of Duplicate Samples                                                                                                  | pp.99-100     |
| Compliance with Monthly Average Limits                                                                                    | pp.101        |
| Frequency of POTW sampling in Lieu of SIU sampling                                                                        | pp.102        |
| Continuous pH monitoring                                                                                                  | pp.104        |
| <b>Tables</b>                                                                                                             |               |
| Checklist of Field sampling Equipment                                                                                     | Table 3-1     |
| Comparison of Composite Sampling Methods                                                                                  | Table 3-2     |
| Volume of Sample Required for Various Pollutants                                                                          | Table 3-3     |
| Required Containers, Preservation, Holding Times and Methods                                                              | Table 3-4     |
| <b>Appendices</b>                                                                                                         |               |
| EPA Policy on Grab vs. Composite Samples                                                                                  | Appendix V    |
| Flow Measurement Techniques                                                                                               | Appendix VI   |
| EPA Policy on Split Samples                                                                                               | Appendix VII  |
| Compliance with Continuous Monitoring of pH                                                                               | Appendix VIII |
| Example Sampling Standard Operating Procedure                                                                             | Appendix IX   |



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#### **Section C. Compliance Judgement Quick Reference Info**

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1. **Definition** - The determination of an SIU's compliance with effluent limits, reporting, monitoring, and other pretreatment requirements.
2. **Chapter Acronyms**
  - BDL - Below Detection Level
  - CFR - Code of Federal Regulations
  - CJP - Compliance Judgement Point
  - ERP - Enforcement Response Plan
  - PAR - Pretreatment Annual Report, replaces Semi-Annual Report (SAR)
  - POTW - Publicly Owned Treatment Works
  - SIU - Significant Industrial User
  - SNC - Significant Noncompliance, formerly Reportable Noncompliance (RNC)
  - SNCR - Significant Noncompliance Report, replaces Semi-Annual Noncompliance Report
  - TRC - Technical Review Criteria
  - WWTP - Wastewater Treatment Plant
3. **Purpose**
  - Detection of individual violations and SNC status in a timely fashion such that appropriate enforcement action can be taken so the SIU returns to compliance.
4. **Regulatory References**
  - 15A NCAC 2H .0908
  - 40 CFR 403.12
  - 15A NCAC 2H .0903
  - 40 CFR 403.8(f)
5. **DEM Requirement**
  - Timely detection of violations and determination of SNC status.
6. **Implementation Frequency**
  - Continuous implementation of initial compliance judgement; recommended minimum: quarterly.
  - Once per six months implementation of SNC determination.
7. **Appendices**
  - Appendix 7-C. Compliance Judgement Worksheet For SNC With Limits

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##### **8. Other Guidance Documents**

- *Industrial User Inspection and Sampling Manual For POTWs*, April 1994, US EPA, Office of Water (4202), EPA 831-B-94-001.
- *Pretreatment Compliance Monitoring and Enforcement* or PCME (computerized compliance judgement system), Version 3.1 - April 1993.
- *Guidance For Developing Control Authority Enforcement Response Plans*, September 1989, US EPA, Office of Water (EN - 338).

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#### Section D. Compliance Judgement Discussion

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Compliance judgement involves determining compliance with effluent limits and monitoring and reporting requirements. Data management is critical to successfully judging compliance and addressing noncompliance. Communication between the POTW and SIUs is critical to preventing noncompliance. If the POTW clearly communicates what is expected of the SIU, the SIU should better be able to achieve compliance.

#### DATA MANAGEMENT - WITH A COMPUTER

Compliance judgement may be greatly facilitated by using a computerized compliance judgement system. Some POTWs have developed relatively simple, inexpensive computer systems using standard spreadsheet programs for this purpose. EPA provides a free computer program called PCME (Pretreatment Compliance Monitoring and Enforcement) to aid in judging compliance with both reporting and effluent limits requirements. Information on how to obtain PCME is found in Appendix 1-C. CAUTION: Contact the Division to find out how PCME differs from the compliance judgement point calculation method.

#### DATA MANAGEMENT - WITHOUT A COMPUTER SYSTEM

If the POTW is not using a computerized compliance judgement system to aid in judging compliance, an organized data review system of some sort is needed. The Division recommends that POTWs falling into this category establish the following routine once every quarter:

1. Organize all monitoring data received from each SIU into files by SIU. May use compliance judgement worksheets. See Appendix 7-C.
2. Compare the results received to the SIU's permit reporting requirements:
  - Was the report received by the due date?
  - Was the report signed by the designated SIU representative?
  - Were results included for all required parameters?
    - At the required frequency?
    - By the required methods?
    - At the required detection level?
    - Using proper Chain of Custody?
3. Organize all monitoring data performed by the POTW into files by SIU. Use compliance judgement worksheets. See Appendix 7-C.
4. Compare results of POTW and SIU data to SIU permit limits:
  - If there are Average Limits, calculate averages using all POTW and SIU data collected within the averaging period. Also see p. 101 of EPA's *Industrial User Inspection and Sampling Manual For POTWs*, April 1994.
  - Were limits violated for Daily Maximum or Average Limits?

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- If so, was required additional sampling performed by the SIU? (applies only if SIU performs self-monitoring; see 40 CFR 403.12(g)(2) and the SIU's IUP.)

**5. If limits were violated, do one of the following:**

- Highlight these violations so as to remind yourself that Significant Noncompliance or SNC (formerly Reportable Noncompliance or RNC) must be calculated at the end of the six month report period.
- OR
- Perform preliminary SNC determination using compliance judgement worksheets. See Appendix 7-C.

(Preliminary SNC determination gives the SIU the opportunity to avoid SNC status for the six-month report period by giving them time to identify the problem, correct it, and then collect enough compliant samples in the remainder of the report period. This also saves the POTW additional activities necessary when an SIU is in SNC.)

- 6. Follow ERP if any violations, either of reporting requirements or limits. See Chapter 8 for more discussion. This should include notifying the SIU of the violations, requesting a response as to what the SIU plans to do to correct them, and requiring additional sampling if it is needed to avoid SNC.**

At the end of the six month report period, prior to submitting the PAR to the Division, review all monitoring data following steps 1-4 listed above. If limits or reporting requirements were violated at any time during the six month period, determine if these violations are considered SNC using the worksheets provided in Appendix 7-C, or other method.

#### **SNC DETERMINATION - GENERAL**

Federal and state regulations contain a specific definition of Significant Noncompliance (SNC). The term Significant Noncompliance (SNC) replaces the term Reportable Noncompliance (RNC) used in previous Division guidance. This change is being made to make North Carolina consistent with EPA and the other States. SNC addresses violations of:

- effluent limits
- SIU reporting requirements, and
- compliance schedule activities.

The intent of SNC is to distinguish those violations of a more serious nature and ensure that they are addressed through enforcement or other means such that the SIU returns to compliance. Violations that fall into the category of SNC require that the SIU be published in the newspaper at the end of the year. Enforcement actions and other responses to SNC violations are discussed in Chapters 8 and 9.



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##### SNC DETERMINATION - LIMITS VIOLATIONS

Calculation sheets to aid in calculating SNC with Limits are found in Appendix 7-C. If there are no limits violations, there is no need to determine SNC with Limits. SNC limits violations fall into 3 categories:

- Chronic,
- Technical Review Criteria (TRC), and
- Those causing pass-through, interference, or endangerment.

Violations of any magnitude are evaluated in determining if violations are Chronic SNC. However, violations must exceed the limit by one of two factors before being considered TRC violations.

##### 1. Preliminary Calculations:

- Units Conversions:** If the limits in the SIU permit are in units other than concentration, the POTW must first convert the sample results to the units of the permit limits. Typically, other units may be mass (lbs/day) or production (lbs pollutant/lbs product).
- Averages:** If the SIU's IUP includes a Monthly Average Limit or other type of average limit, calculate averages of all the monitoring results for each parameter for the appropriate time period. If there is only one sample in the average period, that value should be used as the average. Also see p. 101 of EPA's *Industrial User Inspection and Sampling Manual For POTWs*, April 1994.
- Compliance Judgement Points (CJPs):** To calculate SNC for chronic or TRC violations, the number of compliance judgement points (CJPs) must be calculated for each parameter. CJPs are calculated for each parameter as follows:

$$\text{CJPs} = \# \text{ individual sample values} + \# \text{ averages calculated.}$$

**2. Chronic SNC:** Chronic SNC is determined by calculating the percentage of CJPs that are violations for each parameter using the following equation:

$$\% \text{ violations} = \frac{\text{total number of violations}}{\text{number of CJPs}} \times 100$$

If the percent violations is 66% or greater, then the SIU is in SNC for chronic violations for that parameter.

SNC for chronic violations is determined for all limited parameters, including pH.

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**3. TRC Violations and SNC:** TRC SNC is also determined by calculating the percentage of CJP's that are violations, but only those violations over the limit by a certain magnitude (i.e., the TRC) are considered. First, calculate the TRC Limit for each parameter using one of the following equations:

for BOD, TSS, and Oil & Grease:  $\text{TRC Limit} = \text{Limit} \times 1.4$

for all other pollutants except pH:  $\text{TRC Limit} = \text{Limit} \times 1.2$

Compare sample results and averages of sample results (if there are average limits) to the appropriate TRC Limits. If there are no TRC violations, the SIU is not in SNC for TRC violations, and no further calculations are needed. If there are TRC violations, use the following equation to determine if these violations constitute SNC:

$$\% \text{ TRC violations} = \frac{\text{number of TRC violations}}{\text{number of CJP's}} \times 100$$

If the percent TRC violations is 33 % or greater, then the SIU is in SNC for TRC violations for that parameter.

**Pass-Through, Interference, Or Endangerment Violations:** Any SIU limit violation that caused, alone or in conjunction with other discharges, pass-through, interference, or endangerment at the POTW is SNC. Compare SIU violations to the POTW's violations of NPDES effluent limits for specific parameters and whole effluent toxicity. Note any instances of interference or upset observed by the WWTP operator. If an SIU's discharge caused or contributed to POTW upset or interference, NPDES violations, or endangerment, then the SIU is in SNC. In addition, any SIU is in SNC if the SIU's discharge has caused imminent endangerment to human health, welfare, or the environment, or has resulted in the POTW's exercise of its emergency authority to halt such a discharge.

**Other limits violations:** Finally, an SIU may be found to be in SNC for any other limits violation or group of limits violations that the POTW determines will adversely affect the operation or implementation of the local pretreatment program.

#### SNC DETERMINATION - OTHER VIOLATIONS

**1. Compliance Schedules:** An SIU on a compliance schedule is in SNC with a Compliance Schedule Due Date if it failed to meet a due date for one of the following activities by 90 days or more:

starting construction,  
completing construction, or  
attaining final compliance.

This applies to compliance schedules whether they are part of the SIU permit or are in an administrative order or consent agreement. The POTW may choose to apply this criteria to other milestone due dates. When legitimate problems in meeting a due date arise, it is possible to revise compliance schedules in advance of the due date. Thus any potential

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### Sampling, Compliance, and Inspection

#### Section D. Compliance Judgement Discussion

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compliance situations can be "resolved" long before SNC is an issue. The POTW should check SIU progress on compliance schedule activities frequently. See Section 6-D and Appendix 8-C on compliance schedules.

**Late Reports:** An SIU is in SNC with Reporting if it failed to submit a report 30 days or more following the due date. These reports include:

- baseline monitoring reports,
- 90-day compliance reports,
- periodic self-monitoring reports, and
- reports on compliance with compliance schedule activities.

**Accurate Reporting:** An SIU who fails to accurately report noncompliance is in SNC with Reporting. When reports are submitted on time, but are not complete, application of this part of the SNC definition depends on what is missing from the report and why. If the SIU simply fails to record a result on a report or makes a transcription error, this does not necessarily constitute SNC with Reporting. However, if an SIU fails to report a result for the purposes of intentionally withholding a noncompliant result from the POTW, then the SIU is in SNC with Reporting. Likewise, if an SIU intentionally fails to perform the analysis of one of the regulated pollutants required on a sample it has collected to avoid being in noncompliance, or intentionally fails to collect a sample at all to avoid being in noncompliance, then it is in SNC with Reporting. These judgments are admittedly difficult to make and should be considered along with other information regarding the SIU, such as compliance history and the cooperative nature of the SIU/POTW relationship.

**Other violations:** Finally, an SIU may be found to be in SNC for any other reporting or schedule violation or group of violations that the POTW determines will adversely affect the operation or implementation of the local pretreatment program.



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### Sampling, Compliance, and Inspection

#### Section E. Compliance Judgement Special Case Discussion

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##### Samples Reported as "Below the Detection Level"

A value that is reported as "Below the Detection Level," or BDL, where the detection level is below the permit limit is considered to be compliant.

When using BDL data to determine an average, some choices are:

- the detection level;
- 1/2 the detection level; or
- zero.

Whatever choice the POTW makes should be used consistently and any policy change should be communicated to the Division and the SIUs. If a value other than the detection level is used for compliance purposes, the actual value of the detection level should be kept on record. The Division itself calculates averages for NPDES compliance purposes using a value of zero for BDL values, provided the appropriate detection level has been achieved.

##### Split Samples

When a single sample, collected by either the POTW or the SIU, is split with the other party, the two analytical results should be averaged for compliance purposes, provided both analytical results were obtained using valid procedures. Where the two results are widely divergent, sample handling and analytical procedures should be examined for both portions of the sample to determine if both are valid. If both are determined to be valid, the results should be averaged and the average used for compliance purposes. If only one result is determined to be valid, only that result should be used for compliance purposes. If both are determined to be invalid, neither should be used for compliance purposes. For a more detailed discussion of this situation, review EPA's *Industrial User Sampling Manual*, April 1994, pages 98, 99-101, and Appendix VII).

##### Two Different Limits Effective During A Single Report Period

When there are two different limits applicable during a given compliance judgement period, the limit effective when the sample was collected should be used for each sample. This may happen due to modification of a permit limit during the reporting period, or due to issuance or expiration of interim limits in compliance schedules.

##### SNC For pH

No TRC evaluation of pH should be made. The POTW may, however, institute its own policy for serious pH violations. At minimum, evaluation of chronic SNC for pH must be determined.

How is chronic SNC evaluated for continuous pH measurement? The POTW may institute its own policy for this. A detailed discussion of this situation is found in EPA's *Industrial User Inspection and Sampling Manual For POTWs*, April 1994, page 104 and

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### **Sampling, Compliance, and Inspection**

#### **Section E. Compliance Judgement Special Case Discussion**

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**Appendix VII.** This discussion includes one option for the POTW's policy, adoption of the NPDES policy found in 40 CFR 401.17.

##### **Violation Assessment For Flow**

If IUPs contain a flow limit, then the POTW must judge flow limit compliance and take appropriate enforcement. The POTW may institute its own policy. One possible compliance judgement option is to apply the concept of chronic SNC to flow. (Where IUP limits are concentration based, the IUP must have a flow limit. However, flow limits are not required where all IUP pollutant limits are mass based (ex. lbs/day).)

Flow limit compliance is important where excess SIU flows may have adverse impact on WWTP compliance. It is especially critical for POTWs nearing hydraulic capacity, due to the Division requirement that POTWs demonstrate future wastewater treatment capacity (sometimes referred to as the "80%/90% rule," see 15A NCAC 02H .0223).

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### **Sampling, Compliance, and Inspection**

#### **Section F. Inspection Quick Reference Info**

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1. **Definition** - An on-site visit of the SIU to examine an industrial user's records and facility, including production lines, storage areas, pretreatment units, and monitoring and sampling equipment as related to generation and discharge of wastewater to the POTW.
2. **Chapter Acronyms**
  - CFR - Code of Federal Regulations
  - IUP - Industrial User Pretreatment Permit
  - NCGS - North Carolina General Statute
  - POTW - Publicly Owned Treatment Works
  - SIU - Significant Industrial User
  - SNC - Significant Noncompliance, formerly Reportable Noncompliance
  - SUO - Sewer Use Ordinance
  - TOMP - Toxic Organic Management Plan
  - TTO - Total Toxic Organics
  - WWTP - Wastewater Treatment Plant
3. **Purpose**
  - Perform on-site inspection to determine compliance status of Industrial User.
  - Secondly, to determine if information submitted to POTW is complete and accurate.
4. **Regulatory References**
  - 40 CFR 403.8(f)(2)(v)
  - 15A NCAC 2H .0905
  - 15A NCAC 2H .0916
5. **DEM Requirements**
  - Inspect all SIUs once per year and a maximum of 12 months prior to permit issuance.
  - Document inspections.
6. **Implementation Frequency**
  - Once per year and a maximum of 12 months prior to permit issuance
7. **Appendices**
  - Appendix 7-D, Significant Industrial User Inspection Form.

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### **Sampling, Compliance, and Inspection**

#### **Section F. Inspection Quick Reference Info**

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##### **8. Other Guidance Documents**

- *Industrial User Inspection and Sampling Manual For POTWs*, April 1994, US EPA, Office of Water (4202), EPA 831-B-94-001.
- Chapter 5, Development of a POTW Pollution Prevention Program, User Specific Questions (pages 5-17 to 5-41), *Pretreatment Implementation Workshop* manual, October 28-29, 1992, NC Division of Environmental Management.
- *Pretreatment Facility Inspection, A Field Study Training Program*, Second Edition - 1992, UP EPA, Office of Water Enforcement and Permits, California State University, Sacramento.
- *Industrial Waste Treatment, A Field Study Training Program*, 1987, UP EPA, Office of Water Enforcement and Permits, California State University, Sacramento.
- *Control Of Slug Loadings To POTWs*, February 1991, US EPA, Office of Water (EN-335), 21W-4001



## **Chapter 7**

### **Sampling, Compliance, and Inspection**

#### **Section G. Annual Inspections of SIUs**

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A documented on-site inspection of each SIU is required once per year and a maximum of 12 months prior to permit issuance. An inspection form that satisfies minimum inspection requirements is found in Appendix 7-D. A brief discussion of the basic inspection requirements is given in this section. The POTW should review Chapter II and Appendices I - IV, of EPA's *Industrial User Inspection and Sampling Manual For POTWs*, April 1994, for an in-depth discussion of inspection procedures (an outline is given at the end of this section). Additionally, the POTW should review Chapter 5 of the October 1992 *Pretreatment Implementation Workshop* manual for pollution prevention inspection questions for 17 different types of industries.

The two primary purposes of conducting inspections are:

- to determine compliance with pretreatment requirements, and
- to obtain information for permit development.

Inspections may also serve to determine the need for a slug/spill control plan.

The inspection may be scheduled (SIU notified) or unscheduled (surprise). The latter is especially useful if there is anything suspect about the industrial user's current discharge (no time to clean up) or if there is a history of compliance problems.

#### **Preparation for the Inspection**

Before an on-site inspection, be familiar with the SIU. Review the SIU file, including:

- Previous inspection report and associated SIU responses;
- Industrial user permit and SIU permit application;
- Sampling results and compliance status; and
- Slug/spill control plan or other plans, if applicable.

Review the POTW's SIU inspection form and any applicable inspection guidance. Prepare any specific questions for the particular SIU. Be familiar with the POTW's standard entry procedures in the Sewer Use Ordinance (some POTW's may develop entry procedures in addition to the SUO). Be aware of any confidentiality issues for the SIU, and of the POTW's policy. Pages 22-28 of EPA's *Industrial User Inspection and Sampling Manual For POTWs* discuss entry procedures and pages 9-11 discuss confidentiality. Consider taking the following items on the inspection:

- POTW credentials and POTW Sewer Use Ordinance (right of entry conditions)
- SIU IUP, and SIU permit application (industrial waste survey), if inspection prior to permit issuance
- sampling equipment and sample bottles, if desired

#### **On-Site Visit**

The inspection consists of 3 parts: I - Initial Interview; II - Plant Tour; and III - Exit Interview. Upon arrival, make contact with the designated SIU representative, present

## **Chapter 7 Sampling, Compliance, and Inspection**

### **Section G. Annual Inspections of SIUs**

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your credentials, and gain consent to enter and inspect the facility. Ask to meet for a moment before touring the facility to complete some initial interview questions.

If access is denied, or you experience unusual delays, document the situation and contact your supervisor for more instructions, or otherwise follow POTW/SUO entry procedures for this situation. Possibly obtain a search warrant.

#### **• I - Initial Interview**

Determine if any changes have occurred since the last inspection or permit application, or if changes are planned in the next year. Consider briefly reviewing the inspection form with the industry representative. If the inspection is being conducted to investigate an immediate problem at the POTW, consider skipping the initial interview and immediately tour the facility.

#### **• II - Plant Tour**

Visit all areas where wastewater is generated or where there are drains to the POTW. The Plant Tour portion of the inspection form is divided into three parts: A - production and storage areas; B - pretreatment system; and C - sampling point/flow measurement.

Make appropriate observations of these areas on the form and obtain information during the plant tour. Additional questions may be helpful for certain types of industries. See "Other Guidance Documents" in Section D of this Chapter, in particular Appendix I and II of the EPA manual and Chapter 5 of DEM's manual.

Many of the questions in this section are designed to evaluate the SIU to determine if a slug/spill control plan is needed. Review *Control of Slugs Loadings to POTWs*, EPA, February, 1991, for more information.

For SIUs with more than one production or storage area, consider modifying the form to provide more space for comments, or use multiple copies of Part A. Likewise, consider multiple Part B's for SIUs with more than one sampling location.

Denial of access to portions of the facility where wastewater is generated due to confidentiality requirements is not allowed. The need for confidentiality should be raised by the SIU at the inspection initial interview, or preferably during the initial contact by the SIU to obtain POTW permission to discharge. If the confidentiality claim is appropriate, access must still be allowed, but use and maintenance of the inspector's notes must follow the POTW's confidentiality procedures. See your SUO and also pages 9-11 of *Industrial User Inspection and Sampling Manual For POTWs* for more information.

#### **III - Exit Interview**

Review records the SIU is required to keep on-site. Also, review spill/slug plan, including notification procedures, or if the SIU does not have a slug/spill control plan, discuss whether such a plan is now needed. Discuss the results of the inspection, clarifying any additional information that the SIU should submit to the POTW, and when the information is due. Consider reviewing permit requirements and any other pertinent

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### Section G. Annual Inspections of SIUs

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compliance or POTW issues. This face to face discussion is a good time to work on maintaining a good POTW/SIU relationship.

#### Follow-up

After the on-site visit, obtain the additional information from the SIU requested during the inspection. Write-up the results of the inspection for the POTW files. Send a copy or a summary to the SIU representative. If the POTW has determined the SIU needs a spill/slug control plan or any other plan, establish a date for submittal. Ensure that any necessary SIU response is tracked.

#### Additional Guidance on Inspections

*Industrial User Inspection and Sampling Manual For POTWs, EPA, April 1994*

|                                                                                                                                                 |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Chapter I - Introduction. Legal Authority and Objectives                                                                                        | p. 1-6   |
| Chapter II - Inspecting Industrial Users                                                                                                        |          |
| Introduction, IU surveys, Inspection Frequency and Types                                                                                        | p. 7-9   |
| Confidential Business Information                                                                                                               | p. 9-11  |
| Inspector Responsibilities                                                                                                                      | p. 11-14 |
| Inspector's Field Notebook                                                                                                                      | p. 14-15 |
| Pre-Inspection Activities                                                                                                                       | p. 16-21 |
| review of SIU information, inspection plan, safety and sampling equipment preparation (also see Chapter III), and prior notification of the SIU |          |
| Entry to the IU (including legal basis, arrival for the inspection, reluctance to give consent, partial and full denial of access)              | p. 22-28 |
| Conducting an Inspection Under a Warrant                                                                                                        | p. 28    |
| Pre-Inspection Checklist and Observations                                                                                                       | p. 29-31 |
| Information to be Collected Prior to and During the Inspection                                                                                  | p. 31-32 |
| On-Site Activities                                                                                                                              | p. 33    |
| opening conference, inspection procedures (review of physical plant, self-monitoring, operations, maintenance, records), closing conference     |          |
| Followup Activities, Inspection Report                                                                                                          | p. 45-46 |
| Example Inspection Deficiency Notice and Inspection Checklist                                                                                   | p. 47-52 |
| Table 2-1 - Procedural Responsibilities of the POTW inspector                                                                                   |          |
| Table 2-2 - Knowledge and Skills Required of Pretreatment Inspectors                                                                            |          |
| Table 2-3 - Information to Review Prior to the Inspection                                                                                       |          |
| Table 2-4 - "Generic" Elements of an Inspection Plan                                                                                            |          |
| Table 2-5 - Pre-Inspection Checklists                                                                                                           |          |
| Appendix I - General Industrial Inspection Questions                                                                                            |          |
| Appendix II - Industry Specific Questions                                                                                                       |          |
| Appendix III - General Operations and Maintenance Questions                                                                                     |          |
| Appendix IV - Hazards Associated with Specific Industrial Categories                                                                            |          |

Chapter 5 of the October 1992 *Pretreatment Implementation Workshop* manual for pollution prevention inspection questions for 17 different types of industries.



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### **Sampling, Compliance, and Inspection**

#### **Section H. Inspection Special Case Discussions**

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##### **PROBLEM SIUs**

- Consider periodically inspecting production and other areas reported by the SIU not to generate a wastewater to confirm that this is still the case.
- Consider walking around the outside of the SIU's premises to visually inspect for discharges or other unusual activities.
- In particular, these types of additional inspection efforts should be considered for inspections initiated as a result of a complaint, a violation at the SIU, or problems at the WWTP

##### **CATEGORICAL SIUs**

During preparation and at the appropriate time during the inspection or follow-up, address the following:

- IU category determination information, and changes to the SIU's categorical processes and/or the categorical regulations themselves
- Baseline Monitoring Report and 90 Day Compliance Report
- Combined Wastestream Formula (CWF), including substantial changes to the CWF flow ratio that indicate need to modify IUP limits
- Production Based Limits, including substantial changes to the production rate that indicate need to modify IUP limits
- Total Toxic Organics Limits and/or Toxic Organic Management Plans (TOMPs) and Certification.

The industry-specific questions in Appendices I and II of EPA's *Industrial User Inspection and Sampling Manual For POTWs*, April 1994, and Chapter 5 of the October 1992 *Pretreatment Implementation Workshop* manual, are of particular help with categorical SIUs (see "Other Guidance Documents" in Section D of this Chapter).

