

TRIBUTARY TRIBUNE

Collecting Composite Samples

Defining a Composite Sample

Two sections in your permit determine how you must conduct SMR sampling. Section B2, lists what parameters you must sample for, the frequency at which you must collect SMR samples, and how these samples must be collected. Samples are collected in the following two methods:

- Grab sampling—where a single sample is collected in under 15 minutes
- Composite sampling—where a series of “grab samples” (aliquots) are collected over a production or discharge day, and are combined together into a single, composite sample.

If a waste stream discharges through the sample point 24 hours a day (such as from a fume-scrubber), your composite sample should be for the 24-hour period, not just the production day.

Collection Options

If you are required to collect composite samples, Section B3 of your permit will indicate if you are required to maintain an auto-sampler on site. If your permit requires that you collect time-proportional composite samples, without requiring that you own a sampler, you have several options available:

1. Your company can purchase and maintain your own automatic-sampler.
2. You can collect grab samples by hand at set intervals, and composite them together. A log of the times the samples were collected is required to do this. EPA recommends at least 12 samples be collected and combined to form a composite sample; do not use fewer than 12 unless you are prepared to justify your sampling protocol to EPA. Significant (SIU) and Categorical (CIU) Industrial Users must use 12 aliquots.
3. You can “build” your own sampler using a metering pump to collect aliquots of your discharge stream into a container over the sampling period.
4. You can contact a contract laboratory; most labs will set up auto-samplers and collect composite samples for you. It is still your facility’s responsibility to ensure samples are collected correctly, so make sure you know how your SMR samples are collected.

Chain of Custody

Anytime a sampler is collecting composite-samples it is important that a chain of custody be maintained. The chain of custody documents how the sample was kept secure, and is proof that the integrity of the sample has not been compromised.

When a sampler is running it should be locked down or sealed to show that there has been no tampering with the compositing equipment or the collected sample. This includes securing the tubing collecting the composite sample, so sample portions collected are representative of the wastewater being discharged through the sample point at that moment.

Many auto-samplers can be secured with padlocks and cables that are available as options from the manufacture. Another method of securing samplers is the use of security tape, which will tear easily and indicate if the sample or equipment has been tampered with. The condition of the sampler’s tape-seal or lock should be shown on the chain of custody forms when the samples are relinquished to the contract lab.

Consequences

By following the guidance given you can ensure that composite sampling is done in a way that accurate, defensible samples have been collected. But if a composite sample is invalidated, your facility will be cited for violating your permit conditions. If you have any questions regarding composite sampling please contact your inspector at (408) 945-3000.

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The **Tributary Tribune** serves the cities of San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, Saratoga), County Sanitation Districts 2-3, Sunol & Burbank Sanitary Districts

Completing the Self Monitoring Report Form

While most industrial users maintain compliance with their Self Monitoring Report (SMR) requirements, inspectors are still noting some problem areas. This article is an overview on filling out the SMR form properly.

Preparation and Awareness

Mark your calendar 12 months in advance of when SMRs are due, and keep blank forms handy. Collect samples early in the reporting period, so a lab delay won't put you in non-compliance.

Do not forget your attachments. If anything is missing from your SMR report, attach an explanation saying when we will receive it and send the missing attachment(s) promptly.

General requirements

Do not wait until the SMR due date to inform us of a violation; call your inspector immediately or you will be cited for "failure to notify."

All permitted Industrial Users must submit their SMRs, with all required documents, even if no wastewater is discharged in the reporting period. The requirements for self-monitoring are described in your wastewater discharge permit in Sections B.1 and B.2.

Complete one SMR form for *each sample point* for which sampling is required; sample points are described in Section B.2 of your permit. Also, if multiple samples (at different dates or times) are collected and analyzed from a sample point, complete one SMR form for *each sample event* during the reporting period.

Do not write "see attached" on the form: in addition to being a legal document, it is used as a data entry form. Fill out the SMR form completely.

For the top section of the SMR form

Fill in the legal company name and discharge address, permit number, and SMR due date. SMRs are always due in our office on or before the last day of the months listed in Section B.1 of the permit.

Enter information about when the sample was collected (use the ending date for a composite sample spanning 2 calendar days) and by whom (e.g., contract lab name). Enter the sample point description, consistent with Section B.2 of your permit.

For the section titled Analytical Results

Each contract lab sends reports formatted in slightly different ways. When reading the lab report, what is sampled for (the parameter) will be listed along with a detection limit for that particular parameter. Sometimes this is listed on the lab report as MDL (method detection limit), PQL (practical quantitative limit), or as DL (detection limit). This is the lowest amount that the lab can detect and goes in the SMR column titled *Det. Limit*.

Concentration is the amount of each parameter found in the sample and goes in the SMR column titled *Conc.* If the contract lab did not detect or quantify any amount of the parameter, enter the *Det. Limit* value with a "less than" sign (e.g., "<0.05" if the detection limit was 0.05 mg/l) or with a negative sign ("-0.05") in the appropriate space in the *Conc.* column. Do **NOT** use "n/d" or "not detected" in the *Conc.* column.

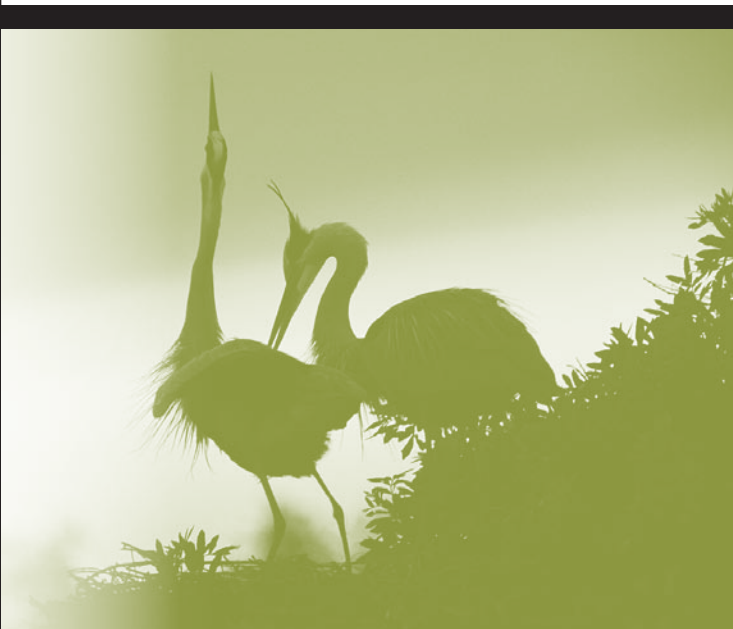
The next column is for marking "G" for a grab sample or "C" for a composite sample. Complete each row for each parameter. The units must be in mg/l; your lab may report in µg/l, which must be converted to mg/l. Your lab may also list the local discharge limit for each parameter; do not put that information on the SMR form.

For the section titled Flow Data

The Wastewater Discharge Permit requires the reporting of average daily flow (ADF) and maximum daily flow (MDF) for the period of the report. That period may be for one, two, or six months, depending on the SMR frequency (see Section B.1 of your permit).

You will have to do some calculations to determine the ADF for the report period. Record daily readings *in gallons*, then subtract each production day's reading from the next production day's reading, and so on. These daily totals will be averaged to determine average daily flow in gallons per day; send your daily totals and your math calculations with the report. The MDF is simply the highest production day's flow.

The "process name" should be descriptive of what is being measured and how (e.g. influent meter to wet processes, effluent meter from plating building, etc.). Enter the average and the maximum daily flows to the sanitary sewer in the boxes provided.



For the section titled Certification Statement

There are two signatures required: “*Prepared By*” and “*Certified By*.” The person who prepared the SMR, must sign and date the form under “*Prepared By*.” The person who takes responsibility for the SMR’s accuracy must sign and date the form under “*Certified By*,” even if they are the same person who sign the “*Prepared By*” section. There are restrictions as to who can be the certifying signer. See pages 10 and 11 of your permit for a description of *Signatory Requirements*.



Completing the Total Toxic Organics (TTO) Forms

Applicability

Not all permitted Industrial Users have TTO reporting requirements. Please examine page 6 of your permit for a mark under the TTO “*Testing and Certification Requirements*.” If that area is not marked by an “x” then there are no TTO certification form requirements. If in doubt, ask your inspector.

Which certification form?

There are two different TTO certifications. Do NOT send in both certification forms with your SMR; they contradict each other.

One certification form states, “Based on my inquiry...this facility does not store, use or discharge...” this is the form to submit if you have no TTOs on-site.

The other form states, “Based on my inquiry...no controlled toxic organics are discharged...” this is the form to use if you store or use TTOs. You must also submit Organic Solvent Worksheets in your SMR submittal to account for TTOs stored, used and disposed of.

Your permit will state which certification form you should submit on page 6, as well as the testing requirements for TTOs, if any.

If you had no TTOs on-site previously but have some now, immediately inform your inspector in writing to maintain compliance with permit conditions.

What must I report in the Organic Solvent Worksheet?

(This applies only if you have TTOs on-site.)

The TTO list is different for each federal category; your inspector can provide you with a list of the TTOs that apply to your facility.

Submit one worksheet for each TTO used at your facility. Only chemicals on the TTO list applicable to your facility must be reported.

WET \$uccess \$tory: Vishay Siliconix

We are pleased to announce our latest “Success Story”. A “Success Story” is a case study of a noteworthy project completed by a company in our tributary area that reduces the amount of wastewater discharged to the sanitary sewer. The latest study highlights a project completed by Vishay Siliconix of Santa Clara.

Vishay Siliconix, a semiconductor manufacturer, began evaluating their water use and started looking for ways to conserve water and reduce wastewater discharge. Over half of their water demand is used to produce deionized (DI) water for use in their wafer fabrication operations. The facility also has several air scrubbers and cooling towers that account for another 40% of the water use.

Siliconix started by looking at their various waste streams to determine if they could be reclaimed for use in other processes. They determined that the Reverse Osmosis (RO) reject waste water and RO/DI backwashes from the DI water production might be suitable for use in the air scrubbers and the cooling towers. They installed a 31,000-gallon above ground reclaim tank to store the RO reject and backwashes, a piping system and automated controls.

The reclaim system was successful in providing process water for the air scrubbers and reduced Siliconix’s discharge by an estimated 47,000 gallons per day.



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WET \$uccess \$tory: Vishay Siliconix (continued)

Attempts to use the reclaim water in the cooling tower were not successful. The concentration of total dissolved solids was too high and interfered with the cooling tower efficiencies and maintenance.

The project was performed with mostly in-house design and labor at an estimated cost of \$180,000. The WET program awards financial incentives to companies that implement process or equipment changes that reduce wastewater discharge. As a result of their efforts Siliconix received \$50,000 from the Plant's Water Efficient Technologies (WET) financial incentive program.

If you would like a copy of the Success Story or more information on implementing a wastewater reuse project and the WET rebate, contact Geoff Blair at (408) 277-3828 or e-mail at Geoffrey.Blair@sanjoseca.gov. An electronic copy of the Vishay Siliconix project and other Success Stories are available at www.slowtheflow.com/success.html



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