



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JAN 21 1992

OFFICE OF WATER

MEMORANDUM

**SUBJECT:** Determining Industrial User Compliance Using Split Samples

**FROM:** Richard G. Kozlowski, Director *by Mary Jo Aiello*  
Enforcement Division

**TO:** Mary Jo M. Aiello, Acting Chief  
Bureau of Pretreatment and Residuals

This memo is a response to your letter of September 30, 1991, where you requested written clarification regarding the use of split samples for determining industrial user (IU) compliance under the Pretreatment Program. Specifically, you requested guidance on how to use the data from split samples for determining IU compliance in situations where split samples yield different analytical results. The fundamental question posed by your inquiry is whether all analytical results must be used when evaluating the compliance status of IUs and how to use those results for determining compliance. In situations where split samples exist and both samples were properly preserved and analyzed, POTWs should evaluate compliance with applicable Pretreatment Standards in the manner described below.

When evaluating the compliance status of an industrial user, the POTW must use all samples which were obtained through appropriate sampling techniques and analyzed in accordance with the procedures established in 40 CFR Part 136<sup>1</sup>. The Environmental Protection Agency (EPA) has consistently encouraged Publicly Owned Treatment Works (POTWs) to periodically split samples with industrial users as a method of verifying the quality of the monitoring data. When a POTW splits a sample with an IU, the POTW must use the results from each of the split samples.

A legitimate question arises, however, when a properly collected, preserved and analyzed split sample produces two different analytical results (e.g., one which indicates compliance and the other shows noncompliance, or where both indicate either compliance or noncompliance but the magnitudes are substantially different). In these instances, questions arise regarding the compliance status of the IU, and what should be done to reconcile the results.

<sup>1</sup> See Memorandum, "Application and Use of the Regulatory Definition of Significant Noncompliance for Industrial Users," U.S. EPA, September 9, 1991.

There is inherent variation in all analytical measurements, and no two measurements of the same analyte (even when drawn from the same sample) will produce identical results. When a split sample is analyzed using appropriate methods, there is no technical basis for choosing one sample result over the other for determining the compliance status of a facility. Since this is the case for all split samples which have been properly analyzed, the POTW should average the results from the split and use the resulting average number when determining the compliance status of an IU. Using the average of the two sample results avoids the untenable situation of demonstrating compliance and noncompliance from the same sample.

If the split sample produces widely divergent results or results which are different over a long period of time, then the cause of the discrepancy between the analytical results should be reconciled. When this happens, the POTW should investigate Quality Assurance and Quality Control (QA/QC) procedures at each laboratory involved. For example, the POTW could submit a spiked sample (i.e., a sample of known concentration) to the laboratories involved (preferably blind) to determine which laboratory may be in error.

In situations where one or both of the analytical results is determined to be invalid, there are compliance and enforcement consequences. If one of the analytical results is determined to be invalid, the average value for that sample is also invalid. In this situation, the value for this sample should be the value of the sample which was not determined to be invalid (e.g., if the IU's results are determined to be invalid, the POTW should use its sample for assessing compliance, and vice versa). If both samples are determined to be invalid, the averaged result from that sample should be discarded and not used for compliance assessment purposes. In either case, the POTW must recalculate the compliance status of the IU using all remaining valid sample results.

In summary, whenever split samples are taken and both are properly preserved and analyzed, the POTW should average the results from each sample and use the averaged value for determining compliance and appropriate enforcement responses. Where the sample results are widely divergent, the POTW should instigate QA/QC measures at each of the analytical laboratories to determine the cause of the discrepancy. If one or both of the samples are invalid, the POTW must recalculate the compliance status of the IU using all valid results.

If you have any further questions regarding these questions, please feel free to call me at (202) 260-8304. The staff person familiar with these issues is Lee Okster. Lee can be reached at (202) 260-8329.

cc: Cynthia Dougherty  
Regional Pretreatment Coordinators  
Approved State Pretreatment Coordinators  
Bill Telliard



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

APR 12 1993

OFFICE OF  
WATER

Mr. Harold R. Otis  
Chairman, Split Sampling Task Force  
Greater Fort Wayne Chamber of Commerce  
826 Ewing Street  
Fort Wayne, IN 46802-2182

Re: Using Split Samples to Determine Industrial User Compliance

Dear Mr. Otis:

In response to your letter of January 12, 1993, and your phone conversation of February 9, 1993, with Lee Okster, I am providing a further discussion of the issues surrounding the use of split samples to determine industrial user (IU) compliance with Pretreatment Standards. In your letter and your phone conversation, you requested clarification from the Environmental Protection Agency (EPA) on three issues. First, you requested a firm definition of what constitutes "widely divergent results" when comparing split sample results. Second, when a publicly owned treatment works (POTW) splits a sample with an IU, you inquired whether a POTW must use the industrial user's data to determine compliance with pretreatment standards. Finally, you requested written authorization from the EPA to incorporate the language from our existing guidance memorandum on split samples into the Rules and Regulations of the Water Control Utility for the City of Fort Wayne.

***What are Widely Divergent Results?***

As you are aware, the EPA issued a memorandum on January 21, 1992, entitled "Determining Industrial User Compliance Using Split Samples." The "widely divergent results" criterion established in this memo is to be used as an indication that a problem exists with the laboratory analysis. We did not include an indication of what constitutes "widely divergent" in our memorandum because the amount of "normal" analytical variability depends on the pollutant parameter being tested and the method being used to analyze the sample. With appropriate QA/QC, this "normal" analytical variability is small. In general, though, metals analyses have a smaller variation than organics analyses, but the magnitude of the variability depends on the pollutants being tested. Therefore, no hard and fast rules exist for determining what is widely divergent. This determination is left to the discretion of the local authority.

### ***Must the POTW Use All Sample Results?***

In the January, 1992, memorandum we state that "the POTW must use all samples which were obtained through appropriate sampling techniques and analyzed in accordance with the procedures established in 40 CFR Part 136." The memo further states "[w]hen a POTW splits a sample with an IU; the POTW must use the results from each of the split samples."

The POTW is required to sample the IU at least once per year to determine, independent of information supplied by the IU, the compliance status of that facility. If the POTW does not wish to be in a position of comparing its own data with the IU when it samples the IU's discharge, it is not required to split its samples with the IU. Furthermore, we do not recommend that the POTW use a split sample with the industry to satisfy its annual sampling requirement. The POTW should pull its own sample so that it has data which are truly independent of the IU's results.

The POTW also has the primary responsibility to ensure compliance by the IU with all applicable pretreatment standards and requirements. One way the POTW can satisfy its requirement to ensure compliance is to split a routine sample taken by the IU. If a POTW splits a routine sample taken by the IU, it must use the IU's data, in conjunction with its own, to determine the compliance status of the facility (assuming all of the data are sampled and analyzed appropriately). We encourage POTWs to split samples in this manner to verify the IU's data. In a similar fashion, if the POTW chooses to split its own sample with the IU, it must use all of the data to determine the compliance status of the facility (assuming all of the data are appropriately analyzed).

When the POTW splits a sample with an IU (whether it is a routine sample by the IU or an annual sample by the POTW) the POTW has the responsibility to determine whether the IU's results from the split sample are valid. Where an IU's results are different than the POTW's, the burden is on the IU to show that all preservation, chain-of-custody, and analytical and QA/QC methods were followed. If the IU cannot make this showing, then the analytical results from the IU should be discarded when determining the compliance status of the facility. If the IU establishes that it followed all appropriate procedures, then the POTW should review its own QA/QC program. If both the IU and POTW have followed appropriate procedures, and there is still a wide divergence, then follow-up sampling should be conducted. If follow-up sampling consistently shows IU noncompliance, or if the POTW is otherwise satisfied with the validity of its own results, it should proceed to follow its enforcement procedures.

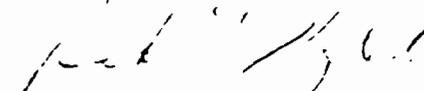
### ***Authorization From the EPA***

In regard to your final request, the City of Fort Wayne has the authority to incorporate these procedures into its Rules and Regulations without any authorization from the EPA. As long as the City has the minimum legal authorities to implement its

approved program, it has satisfied its requirements under the Federal regulations. As always, the City is encouraged to adopt the EPA's Pretreatment Guidance whenever possible.

I hope this letter responds to your questions and concerns. If you have any further questions, please feel free to call me at (202) 260-8304 or you can call Lee at (202) 260-8329.

Sincerely yours,



**Richard G. Kozlowski, Director  
Water Enforcement Division  
U.S. Environmental Protection Agency**

cc: Cynthia Dougherty  
Regional Pretreatment Coordinators  
Approved State Pretreatment Coordinators