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Special Edition

"ICR Reporting, read all about it!"

ICR Update

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Special Edition!

ICR Update Issue Number 5 -

This information sheet, the **ICR Update**, is a special edition and the fifth one to be issued by the Technical Support Center (TSC) of the Office of Ground Water and Drinking Water (OGWDW). Future issues will be distributed as needed to maintain information flow related to the ICR.

Monitoring Continues, Reporting Begins -

ICR monitoring began in July and will continue for 18 months. Reporting of data to EPA will begin when plants receive all of the monthly data back from the ICR approved laboratories for a particular sampling period. In other words, even though you may enter results for a monthly sampling period as soon as they received from the lab, you must **not** send EPA the monthly reporting package until you have entered **all** of the required results for the sampling period. See Chapter 7 of the *ICR Water Utility Database System Users' Guide* for details concerning the entry of monthly sampling results. This issue of the **ICR Update** looks at some emerging issues related to the reporting of ICR data.

Revised MRLs -

The DBP/ICR Analytical Methods Manual lists the Minimum Reporting Levels (MRLs) for the aldehydes as 2.0 ug/L for formaldehyde and 1.0 ug/l for all of the remaining compounds. Due to problems associated with obtaining clean blank water, we are forced to revise those MRLs to 5.0 ug/L for all of the aldehydes analyzed. Also, please note that the low concentration continuing calibration check standard will be analyzed at 5.0 ug/L.

To enter data into the ICR Utility Data Entry System, utilities are requested to press the "**< MRL**" button for all aldehyde results below 5.0 ug/L. Only results equaling 5.0 ug/L or above should be entered as a numerical value. It is anticipated that the data entry screens will be modified to reflect this change in MRLs in a January 1998 revision of the data entry software. If you have questions concerning entering aldehyde results, please contact the ICR DMS Hotline at (703) 908-2155.

Version Confusion - By now, all chemistry and microbiology laboratories that are reporting QC information to EPA via the ICR Laboratory QC Database software should have received an update to the software. The updated version is called **Version 1.1** in the written documentation (and on the diskettes) and **Version 1.0B** within the software. The update was sent to microbiology laboratories in July and to chemistry laboratories in August. Laboratories that are conducting both microbiology and chemistry analysis received two copies of the same software update.

Trickle Down - Laboratory analysts and utility personnel have been telling us that they often do not receive copies of the information we send to our "official" mailing contacts. That includes letters as well as this publication (the ICR Update). It is extremely important that all of this information be shared with the personnel who are affected by it. Therefore, please make an effort to copy this publication and the letters we send you and share them with the appropriate personnel. Thanks.

Check Digititis - This malady seems to be affecting utility personnel at water treatment plants. Many laboratories have complained that utilities have **not** been providing the check digit with their sample information. Without the check digit, the laboratories cannot enter their quality control and sample batch information. Therefore, this is causing them to be late in submitting their disks to the ICR Federal Database. Laboratories which are late are in jeopardy of losing their laboratory approval. If laboratories lose approval, utilities will have to go around "hunting" for a new laboratory. This is not a nice scenario. Therefore, EPA recommends that laboratories require the utilities to submit a copy of their **D.1 Report** (Monthly Sample Allocation to Laboratories), which contains the check digit, with their samples. This requirement is noted on page 146 of the *ICR Water Utility Database System Users' Guide*. (Also see the **ICR Update** for June '97 under the item, Reader Tip.) If this report is missing, the laboratory is not required to accept the sample. Laboratories should work with their clients to enhance compliance with this requirement.

Software "Glitch" - If your analyses for ammonia or chlorine residuals indicate that the concentrations are lower than your minimum reporting levels (MRLs), the current system does not give you an opportunity to report a "0" or <MRL. EPA plans to issue a revision to the data entry software which will correct this problem. But in the meantime, you should report the data in the following manner:

1. Enter 0.1 mg/L as the concentration (this is the smallest concentration value the software will currently allow);
2. Enter an analyte Result QA Code of "Q" indicating the concentration is questionable; and
3. In the comment field explain that the concentration is less than **xxx** (your lab's minimum reporting level for the analyte). EPA will be able to correct the concentration values after the database is revised.

Lab QC Data Disk Due Dates - Protozoa quality control data are due two weeks from the end of the month in which the sample analyses were **completed**. Virus data are due two months from the end of the month in which the analyses were **begun**. Chemistry quality control data are due two months from the end of the month in which the analyses were completed. For example, chemistry QC data from all batches completed in September must be received by EPA no later than the last day of the following November.

After laboratory QC diskettes (and utility diskettes) have been received, logged in and successfully posted to the ICR Federal Database, a postcard will be sent to the laboratory (utility) notifying them that the data for the sampling period has been successfully uploaded to the ICR Federal Database System.

Virus QC and Sample Data - The value to be entered into the "Fortified" amount for the virus positive QC sample is 200 PFU. Detection limits and upper confidence limits for samples which are **negative** for virus should be calculated by entering one positive flask in the MPNV program. This result will be provided to the utilities by their laboratories. Lower confidence limits for samples **negative** for virus should always be entered as **zero (0)**. Laboratories should refer to the letter dated August 25, 1997 from the ICR Microbiology Coordinator.

Protozoa QC samples - Analysts must count the entire concentrate for the QC samples. Also, when calculating the results, do not multiply by 2.5 to correct for the fact that you spiked into only 40 L, simply report the total amount found as though you had spiked into 100 L. Please report the "Fortified" amount as the amount determined and reported to you by Tim Straub, Region 10's ESAT contractor.

UPS Strike Disrupts ICR - What was it that Robert Burns said about the best laid plans [schemes] of mice and men? Just as the ICR sampling was starting to roll, United Parcel Service (UPS) teamsters went out on strike causing some minor disruptions. A few samples were delayed in their arrival at the labs. The most critical chemical samples were the ones with maximum holding times denoted as ASAP in Table 4-3 of the ICR Sampling Manual. These are, UV 254, aldehydes, and cyanogen chloride. During the strike, one plant located within a couple of hundred miles of the Cincinnati EPA lab actually drove the samples down to our lab and had them here by 9 o'clock in the morning. Now that's dedication! Other samples, if not iced down with a sufficient amount of ice, could also be compromised. Therefore, samples not arriving in a chilled condition must not be analyzed. Several microbial samples arrived late at a few labs. While they were still analyzed, the results will be reported qualitatively instead of quantitatively. Fortunately, the UPS strike only lasted a little over two weeks and other courier services were available, such as Fed Ex. However, with the absence of UPS from the scene, and the large volume of packages, FedEx could not promise delivery the next morning. Some of the Fed Ex locations even stopped accepting parcels 2 or 3 hours earlier than the end of their normal business hours or wouldn't accept new clients, period! Now that the strike is over maybe things will go more smoothly. **Pop Quiz:** If FedEx merged with UPS what would they be called? Fed UPS, of course!

Coliform Data Entry Tips - Some laboratories accustomed to testing only finished waters for coliforms have reported problems with the source waters being tested for the ICR. Source waters, unless they are very clean, may require several dilutions to arrive at a quantitative number (which is needed for the ICR). Therefore, a laboratory may have to change their initial coliform method to a different ICR approved coliform method if the source water is too turbid or contains background bacterial growth that interferes with the coliform growth. If you change methods or have any questions about ICR coliform methods you may call Lois Shadix (513-569-7864)

If your total coliform, fecal coliform, or *E. coli* number of colonies per 100 mL is "too numerous too count" (TNTC) or is greater than (>) the MPN (or MF) number, report that fact in the ICR Water Utility Database System on the Edit Coliform Analyses window in the Analytical Result section (under QA Code) by selecting the letter "R" (for rejected). The QA comment window will then open so you can enter TNTC or your > number/100 mL. Next month, make the appropriate dilutions in the source water, so a quantitative number can be reported. If the laboratory has found **no** coliforms in 100 mL, report your data in the database as <1. (Type the number 1 in the Colonies/100 mL box and click on the <DL radio button.)

If another kind of laboratory error occurs, such as the water sample exceeds the 8 hour holding time, the sample is lost, or some laboratory test error occurs which prevents analytical results, set the Sample QA Code to "L" (for lost) and enter an explanation in the comment field. (See page 122 of the ICR Water Utility Database System Users' Guide.)

Not All SDS Are Created Equal - Under the ICR, Simulated Distribution System (SDS) tests are performed as part of the 18-month monitoring and during the treatment studies. Although there are similarities between the SDS test performed for the 18-month monitoring and for the treatment studies, there are also some important differences.

The purpose of the SDS test performed as part of the **18-month monitoring** is to compare the results of the SDS test to those of the distribution system equivalent (DSE) sample. Thus, it is important to match the conditions of the SDS test (i.e., incubation time and temperature) as closely as possible to those of the DSE sample. The SDS sample is collected at the entrance to the distribution system, after all disinfectants and stabilization chemicals have been added, and incubated at a temperature and time equivalent to the distribution system conditions at the point at which the DSE sample was collected. This will allow the SDS sample to be compared to the DSE sample with respect to DBP formation, disinfectant residual and pH.

The purpose of the SDS test performed during the **treatment studies** is to approximate DBP formation that would occur if free chlorine were used to disinfect the effluent from a GAC or a membrane process. Thus, free chlorine must always be used in the SDS tests performed under the treatment study requirement, even if another disinfectant is typically used in the full-scale distribution system. Also, the SDS conditions of temperature, incubation time, pH, and free chlorine residual should be representative of the conditions at the **average detention time** in the distribution system. If free chlorine is not used as the distribution system residual, a free chlorine residual of 0.5 to 1.0 mg/L should be targeted at the end of the incubation period. During the treatment studies, SDS tests are performed on the influent and effluent to the

advanced precursor removal process to characterize the removal of SDS-DBP *precursor across* the process.

QA Code Words - Two types of QA codes are used in the ICR, **Sample QA Codes** and **Sample Analytical Result QA Codes**. The first summarizes the utility's assessment of the quality of the sample. It is entered into the software when the sample is collected. The second code is provided by the laboratory for each result. The utility may accept the laboratory's assessment and record the code in the software or may downgrade the code. The utility may **not** upgrade the Result QA Code determined by the laboratory. The following table explains the different QA codes used for samples and sample results.

Type	QA Code	Code Definition	Comment Required?	Example Comment
Sample QA Code	A	Acceptable	Optional	
	Q	Questionable	Yes	May not be representative
	R	Rejected	Yes	Holding time exceeded
	L	Lost	Yes	Sample bottle broken during shipment to lab
	N	No Sample Collected	Yes	Sample could not be collected during 3 day window
Result QA Code	A	Acceptable	Optional	
	Q	Questionable	Yes	Atypical result for our system - (downgraded from "A" by utility)
	R	Rejected	Yes	Method blank exceeded one-half the MRL for chloroform

The handling of reporting for samples that were never analyzed can be confusing. If there was a problem either in the collection or shipment of a sample which resulted in an invalid sample **PRIOR** to the lab's analysis, then the sample QA code should indicate "L" for lost. However, if the lab started processing the sample, but no data were reported due to a problem at the lab, then the Sample QA Code should indicate "R" for rejected. Here are some examples of when to use the "L" Sample QA Code versus the "R" code:

- Sample bottle arrived at lab after the holding time had expired due to the UPS strike. Sample QA Code = **L**
- Lab extracted sample, but the freezer quit working, so the extract became warm and was, therefore, not analyzed. Sample QA Code = **R**
- Sample was supposed to be chilled to 4 °C, but it arrived at the lab without any ice or frozen ice packs. Sample QA Code = **L**
- Sample arrived at the lab in good condition, but the lab didn't analyze it within the appropriate holding time. Sample QA Code = **R**

- Sample was supposed to have a pH of <2, but it arrived at the lab with a pH of 4.5. Sample QA Code = **L**

On the "micro" side, the lab should notify the utility if any of the "flag" conditions listed on page IV-6 of the *ICR Microbial Laboratory Manual* are identified. The utility will then enter a Sample QA Code of "R" (which will automatically change the Result QA Code to a "R"). In the case of protozoa samples, if the Result QA Code is "R" indicate whether the sample is positive (P) or negative (N) for each indicated analyte by using the pick list under the heading "Qualitative Result Code." For virus samples with a Result QA Code of "R" follow the same procedure as for the protozoa samples by entering the proper Qualitative Result Code.

See the *ICR Water Utility Database System Users' Guide (p. 121 - 123)* for additional details. The **ICR Update** will delve more deeply into the QA Codes topic in the next issue.

Surf's Up! - For all you Internet surfers, be sure to visit the Office of Ground Water and Drinking Water (OGWDW) Home Page on the Internet at http://www.epa.gov/OGWDW. Click on the **Regulations and Guidance** button and look for the Information Collection Rule listing. For direct access to the Regulations and Guidance page, set a **bookmark** for http://www.epa.gov/OGWDW/regs.html.

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