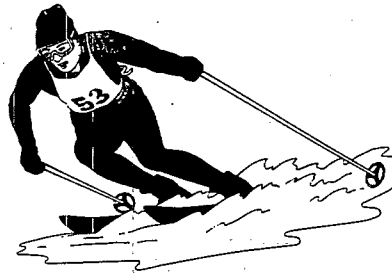


"It's All Downhill From Here!"



ICR Update
Jim Walasek, Editor
Technical Support Center
February 1999

July '97 Data Finally Final!

ICR Update Issue Number 16 - This information sheet, the **ICR Update**, is the sixteenth 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.

Editor's Note: I've been wanting to use this headline for some time, but as you know there were problems with the validation process that delayed the final validation of the ICR monitoring data. You will receive the final validation report(s) for July 1997 in a few weeks. I know it took much longer than we expected, but the validation process is quite complicated and there were a number of "bugs" that had to be worked through. Final validation reports of the first three (and six) months of ICR monitoring data should be available in May of this year (see **Status of ICR Data Validation**).

The deadline for submitting resubmission diskettes following review of the latest set of validation reports is February 5th. The next set of reports you receive will include validation reports for the entire **second quarter** of ICR monitoring (i.e., October, November, and December 1997). Even though you will be receiving a larger volume of reports the review period will be the same as in the past, approximately 4 weeks. This should be adequate, however, since the monitoring phase of the ICR has been "wrapped up." We hope that everything will go much smoother now that we all have the **experience** of validation (the first three months, anyway) behind us. Thanks for working with us during this difficult time. Now if we can just get through the rest of the winter!

Missing Flow Data? - While reviewing each of the ICR data fields in ICRFIELD for completeness it was noted that several utilities had failed to provide **flow data** for influent flow and some of the plant intakes. In the interest of having as complete a data set as possible the affected utilities are being contacted to provide the missing information. A printout is being sent to affected utilities that lists the PWSID number and plant name, sampling period, intake

name, and water resource for which flow data is missing. Utilities are being asked to take the time to **review the printout** and update their monthly sampling data as necessary. They should send in **replacement diskettes** for the sampling months that were updated based on the printout and also, as time permits, review and update the flow data for the remaining sampling months. Replacement diskettes for **Sampling Periods 01 and 02** (July and August 1997) should be sent to Jim Walasek at **USEPA/TSC, 26 West M. L. King Drive (MS-140), Cincinnati, OH 45268**. Diskettes for all subsequent sampling periods (03 - 18) should be sent to the following address: namely:

**USEPA (ICR4600)
ICR Data Center - Attn: Ed Cottrill
Room 1115B East Tower
401 M Street, S.W.
Washington, DC 20460**

Questions regarding this request should be directed to Jim Walasek at (513) 569-7919 or Fax him at (513) 569-7191.

Wrong Dechlorinating Agent? - Has your lab informed you that you incorrectly entered the wrong dechlorinating agent into the ICR Utility Database System for your **chloral hydrate or haloacetonitrile** samples? If you're having trouble figuring out how to fix that mistake, or others that involve data from your laboratory, there is **someone** who can walk you through the process. The EPA contractor who assisted EPA with the ICR chemistry laboratory approval program, is available to answer your questions. You can contact Science Applications International Corporation (SAIC) at **703-917-8496**. Please note that they will only be able to help you with laboratory data questions - not questions about software problems or data entry for process control or design parameters.

Continued Protozoan PE Program? - The ICR performance evaluation (PE) programs for protozoa and virus have now concluded. The last sets of PE filters were shipped in December. At this time there is no longer an EPA approval program for protozoa and virus laboratories for drinking water because EPA has no monitoring requirements for these analytes. However, due to the high visibility of the *Cryptosporidium* issues, there are many utilities which plan to continue their monitoring programs. Because of this, laboratories, utilities and states have contacted us requesting that we continue to provide some kind of **PE service for protozoa**. Although this differs from the direction we are taking for the chemistry PE program (which has been transferred to the private sector), we are willing to try this for the short term on the assumption that it could also be transferred to the private sector if it proves successful.

This program would be **voluntary** for the laboratory. There would be no set pass/fail criteria, but rather, laboratories would be furnished with the **true values** (after the results have been submitted) and a **summary** of the data of all the participating laboratories. We envision sending two samples per quarter per laboratory (not per analyst). Similar to the ICR program, we may choose to send a larger number of samples initially to obtain a more statistically significant database with which to compare ongoing performance. The samples would consist of live cysts and oocysts in a concentrated matrix. At this time it has not been determined whether we will ship full volume or concentrated samples. The samples would then be filtered and

analyzed by whatever method the laboratory is using for client samples. This would be a PE program for **enumeration only**. We will not attempt to measure viability and infectivity.

Because we have very little funding to apply to this program and are unable to charge laboratories for the service, we will have to ask the **laboratories to pay for shipping** in order to keep our costs down. This cost will vary depending on the sample size.

We will request some basic information from the laboratory in order to take part in the program, similar to the information provided during the ICR. Individual laboratory results will be provided only to the laboratory. Customers may obtain a **list of participating laboratories** and **summary data** from EPA but must request individual data from the laboratory itself. In order to participate in the program, laboratories will have to agree to provide this information to their clients on request.

We **will not** be in a position to **provide on site visits** or audits to the laboratories. However, we would be willing to work with private industry to design a **laboratory evaluation program** similar to the ICR program which could then be purchased directly by the customer. It is up to the utility to be a wise consumer and take full advantage of the evaluation programs available to determine the capability of the laboratory.

If your laboratory is interested in participating in this PE program for protozoan analysis, please Fax **Mary Ann Feige** at 513/569-7191 for application information.

Status of ICR Data Validation - December 1998 marked the completion of a major milestone for the ICR, the end of the ICR 18-month monitoring program. This effort involved approximately 300 public water systems which conducted monitoring at 500 water treatment plants. Laboratories will be analyzing ICR samples into early 1999; monitoring results for December 1998 from utilities and laboratories are due to EPA by April 1999. The validation of all of the data, July 1997 - December 1998, is scheduled for completion in November 1999. The successful completion of the 18-month monitoring and the start-up of the data validation system could only have been accomplished because of the commitment by the water systems, their contractors, laboratories, EPA and its contractors and stakeholders.

As of December 31, 1998, the third month of ICR sampling data (September 1997) and supporting laboratory QC data had been successfully uploaded into the ICR Federal (ICRFED) database. Resubmission diskettes were also uploaded into the ICRFED, thus, upload of the **first quarter** (July - September '97) of sampling data has been completed. The complex computer QC algorithms were successfully run and internal data processing reviews were completed.

In early January 1999, utilities received and began review of August and September 1997 reports while laboratories reviewed August, September and October 1997 reports. Final utility reports for July 1997 and **final** laboratory reports for July and August 1997 will be distributed by March 1999. The next set of review reports is expected to be distributed by early March 1999.

The overall schedule for data review by utilities is shown in Table 1. Once the review and data processing are completed for each reporting period, the final data will be extracted from the ICR Federal Database to auxiliary databases to facilitate data availability and analysis.

Table 1. ICR Data Validation Review Schedule

Sample Months	Data Review Periods	Final Reports Distribution
3 through 6	March '99	May '99
7 through 9	May '99	July '99
10 through 12	June/July '99	September '99
13 through 15	August '99	November '99
16 through 18	October '99	December '99

Analysis of GAC Treatment Study Results - The last issue of **ICR Update** included an article that provided a general overview of the data management plan for the ICR treatment study data. As a continuation of that article, the current article will describe the analysis plan for the GAC study results.

The GAC studies are designed to **characterize the breakthrough profiles** of DBP precursors which occurs due to the unsteady-state nature of this process. In order to maximize the utility of this information, the breakthrough data will be fit with a **logistic model** that describes the "S" shape of a typical breakthrough curve. For each set of breakthrough data, the logistic model will be applied to the data in order to develop a set of equations that describe the breakthrough trends. These continuous functions relate single contactor runtime to effluent concentration for each water quality parameter, thus facilitating the evaluation of runtimes to reach any effluent concentration within the range of the data. Additionally, the integrated form of the logistic equation provides an estimate of the blended effluent concentration as a function of runtime (assuming ten or more contactors in parallel). The estimation of **blended effluent water quality** is critical to the economic analysis of GAC performance since blending is commonly used at full-scale to extend the reactivation frequency, thus reducing costs.

The equations describing the single contactor and blended contactor breakthrough profiles will be transferred to a database. This will allow the user to evaluate the efficacy of GAC treatment to achieve a specific treatment objective. Furthermore, the querying capability of this database will allow the user to conduct this evaluation across all studies or a specified sub-set of studies. A **simplified description** of this process follows:

1. Select a regulatory target (e.g., THM4 = 40 ug/L; HAA5 = 30 ug/L, etc.).
2. For a specific GAC run, use the single contactor breakthrough curve to determine the runtime at which the effluent concentration reaches this regulatory target.
3. Use this single contactor runtime calculated under Step 2 to determine the effluent concentrations of other water quality parameters of interest (e.g., TOC, UV, BDCM, etc.).
4. Use the integrated form of the logistic function to calculate the runtime at which the blended effluent concentration reaches the regulatory target.
5. Repeat Steps 2 through 4 for additional study runs.

This will be a very **effective tool** for evaluating the ability of GAC to meet different regulatory targets for a variety of source waters. However, the accuracy of this tool is only as

good as the data generated during the studies, and we are relying on the hard work and dedication of everyone involved in these studies to provide the highest quality data.

Review of Treatment Study Data - As the treatment studies near completion, individuals involved in conducting these tests will start to focus on the preparation of the *Final Treatment Study Report*. Prior to delving into this task, it is critical that the data undergo a thorough review. We are relying on utilities, consultants and laboratories to verify the accuracy of the data that are submitted to the final report. EPA will also conduct a review of the data in order to identify outliers and erroneous data entries; however, no one will be better able to **evaluate the validity** of your data than you. So we ask that you spend a sufficient amount of time on this important task. Here are a few **examples** of things to look for during the review:

- Is all of the reported data generated from analytical batches that passed the QA/QC requirements in the DBP/ICR Analytical Methods Manual? If not, it may be necessary to report "NR" (not reported) for data associated with an analytical batch that failed QA/QC criteria.
- Were there problems with any of the simulated distribution system (SDS) tests? If so, it may be necessary to report "NR" for DBPs associated with these SDS tests. For example, DBP data generated from SDS tests in which the free chlorine residual at the end of incubation was less than the minimum reporting level is considered invalid.
- Do plots of the data reveal outliers? If so, are these outliers data entry errors that can be corrected? Was there a problem with sample collection or analysis for that observation? If an outlier resulted from an identifiable problem that occurred during the study, "NR" should be reported for that result.
- Is all of the data reported in the correct units?

By carefully reviewing your data before submitting it to EPA, the amount of time and effort associated with external review and resubmission will be greatly reduced. Furthermore, this will increase the confidence level of rule negotiators that are relying on this data to make regulatory decisions.

Spiking Program and Supplemental Surveys - The ICR Lab Spiking Program ended in December and data are now being validated. The Supplemental Surveys are scheduled to begin in March 1999 for the Large and Medium systems; the projected start date for the Small System Survey is April 1999. Read on for more details.

Spiking Program - The lab spiking program ended in December 1998. EPA would like to thank again all the plants and laboratories who participated in the program. Presently, we have validated data for the spiking conducted May through October 1998. The current plan for data release is to provide each utility the data for their two spiking events once the full 8 months of data are available, thus allowing us to provide a context for the individual results. At that time, we will make the complete data set available (while providing for anonymity of individual utilities' results) and relevant **summary statistics** to all the participants. If any utility needs or wants their individual data prior to then, please contact Heather Shank-Givens to receive the summary sheets for your utility.

ICR Supplemental Surveys - We are now scheduled to begin the **Large and Medium Supplemental Surveys** the first week of March 1999! EPA would like to thank the 87 utilities who are on board to participate for their enthusiasm and patience. We have resolved the contractual difficulties which impacted our ability to obtain sufficient laboratory support for the surveys. A letter was sent during the week of January 25th providing all utilities the confirmed start date and providing each with a list of their biweekly sample dates (including dates for collecting extra water for matrix spikes). Utilities should expect to receive the necessary collection materials several days in advance of their first sample date.

We are also striving to initiate the **Small System Survey**. The program has obtained OMB approval and the recruitment letters have been sent! Letters were sent to 200 randomly selected small systems requesting their participation, from which we will select final 40 plants. During the week of February 1st, EPA contractors will begin calling the utilities to confirm their receipt of the invitation and to verify the contact information. We are asking for a reply on or before February 19, 1999. The projected start date for the Small System Survey is April 1999.

For further information please contact **Heather Shank-Givens** at 202-260-0063 or at givens.heather@epa.gov.

Checkitout! - OGWDW Home Page - OGWDW on the Internet has a new name and a new face. The old address <http://www.epa.gov/ogwdw> still works; but an address that people will more likely remember, <http://www.epa.gov/safewater>, has been added. You will notice on entering the Home page that there are **more graphics** and that it has been **streamlined**. The subject areas no longer appear on the main page, but they are easy to find in the **Topic Index**. For instance, click on Topic Index in the left margin, click on "I," and you see Information Collection Rule. Click there and you get to the ICR index page. There are lots of new articles and features on the **Safewater Home Page**. Let us know what you think.

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