815N980016

ICR Monitoring Enters the Homestretch!"
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ICR Update
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Technical Support Center
December 1998

ICR Monitoring Ends!

ICR Update Issue Number 15 - This information sheet, the **ICR Update,** is the fifteenth 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: As we enter into the **homestretch** of ICR monitoring another **milestone** is within sight; the 18 months of ICR monitoring is winding down at the end of this month. From my calls to various utilities over the last month, I realize that the completion of this phase of the ICR is a much anticipated event. You have done a great job over these many months and I'm not exaggerating when I say, **"We couldn't have done it without you!"** Now if we can just get through the data entry and data validation phase, we will have some really valuable data. Data validation will continue until near the end of next year, but with the sampling and analysis out of the way, the burden should be much lighter on the utilities and labs alike. Thanks again for a job well done.

"Not Approved for Standard Method" - Have you seen a message like this recently? An incorrect error message was printed on some of the VA1 reports for the **July 1997 utility resubmissions** and **August 1997 initial utility submissions** received from Information Collection Rule (ICR) Production Control. These reports were sent in November 1998.

In cases where a sample should have failed due to missing laboratory quality control (QC) data, the VA1 report showed an error message of, "Lab Not Approved for Standard Method" for **chemical** analyses and "Analyst Not Approved for Standard Method" for **microbiological** analyses.

Please be assured that the laboratories and analysts you are using have not been disapproved for ICR analyses. Instead, the above messages represent a software error that will be corrected in the next version of the VA1 reports.

ICR Production Control apologizes again for any inconvenience (or panic) resulting from this data validation error.

Data Validation Status -

As you have probably already noted (see Editor's Note), sample collection will end this month, but **data validation will continue** for some time.

Preliminary (as opposed to Final) validation reports and QC failure reports were distributed in early November. **Utilities** received revised July '97 VU reports and new (first time) August '97 VU reports. **Laboratories** received revised July and August '97 VL and "new" September '97 reports. Both **utilities and laboratories** received VA1 reports (if results were failed). *Confused yet? It gets worse.* Some utilities and laboratories received corrected report packages (on colored paper, no less) in late November due to a problem that occurred at ICR Production Control. Resubmissions were due to EPA on either the 11th or 18th of this month (depending on report color).

EPA will process the resubmissions related to July and August '97 utility data and July, August and September '97 laboratory data in late December '98. September '97 utility data and October '97 laboratory data will be "processed" for the first time during December. *(See, I told you it would get worse.)* The next report packages should then be mailed to utilities and laboratories in early to mid-January 1999. These report packages will contain revised utility reports for August '97 and new utility reports for September '97 while labs will receive revised reports for September '97 and new reports for October '97. *Now I'm confused!*

We *(read EPA)* expect data validation to occur throughout most of 1999. After the first 3 months of data validation is complete our plan is to conduct the validation processing in "quarterly batches" with only one review opportunity per batch. Specifically, utilities will receive Oct., Nov. and Dec. '97 reports and laboratories will receive Oct., Nov., Dec. '97 and Jan. '98 reports no earlier than late February 1999. *More on this in future ICR Updates or official letters.* We plan to complete data validation of the first quarter of ICR monitoring (July '97 through September '97) in the second quarter of 1999 and complete validation of the rest of ICR monitoring data by the last quarter of 1999.

As always, utilities and laboratories should carefully **read the cover letters** that accompany each validation report package for important information about the validation process and schedule changes. Of course, if you have any questions after reading the cover letters, contact the assistance phone number(s) listed in each letter.

Finally, the data in ICR FED will be extracted into **auxiliary (AUX) databases** to facilitate data analysis. Results from analysis of the data will contribute significantly to regulatory

negotiations to begin this month for the Stage 2 Disinfectants/Disinfection Byproducts Rule and the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR).

More "Stuff" to Check - As you review your VU reports, this is your chance to look at all the **units, chemical formulas, and doses** (when applicable) for the plant design and operating parameters that you are reporting. This is also your chance to check on the units of the sample analytical results and ensure that you are reporting the actual value in the **required units** for the ICR Water Utility Database system. Sometimes there is a "disconnect" between the plant staff (or labs) and the data entry people that leads to miscommunication of information. So now is your chance to make sure that your reported doses represent the actual chemicals added and are accurately expressed based on the feed chemical formulas. The following are some **examples** of typical errors that have been found during data review:

Operational Parameters:

Alum: For information on the actual coagulant added in the plant, ask the plant staff for the **measurement formula** of your coagulant. Look at the **VU 3 Report** *(Monthly Plant Chemical Parameters EPA Verification report)* and check the measurement formula column - do these match?
For example: The plant staff say that they added alum as $Al_2(SO_4)_3$ - but the VU report shows the formula as $Al_2(SO_4)_3 \bullet 14\ H_2O$. Check with the plant staff to determine what chemical formula for Alum was **actually added** in the plant.
The presence or absence of water of hydration in the chemical affects the dose calculation.

	Chemical Formula	**Molecular Weight**	**Dose (mg/L) of Compound Equivalent to 30 mg/L as $Al_2(SO_4)_3$**
A	$Al_2(SO4)_3$	342	30
B	$Al_2(SO_4)_3 \bullet 14\ H_2O$	594	52
C	$Al_2(SO_4)_3 \bullet 16\ H_2O$	630	57

Reported Sample Analytical Results:

Bromide: Remember that the units for bromide in the ICR data system are (mg/L) and not (µg/L)
Example: If the lab reports your bromide level at 35 (µg/L) - remember to convert it to mg/L - i.e., report it as 0.035 (mg/L).

Total Hardness: Your reported total hardness values should be (mg/L $CaCO_3$) - so if the lab reports to you Calcium hardness (as mg/L Ca) and Magnesium hardness (as mg/L Mg), make sure you report the total hardness as (mg/L $CaCO_3$).
Example: Total Hardness as mg equivalent $CaCO_3/L = 2.497$[Ca, mg/L] + 4.118[Mg, mg/L]

Ammonia: When the plant staff report addition of ammonia, make sure what form it is added in - for example, is it ammonium hydroxide? Calculate the dose accordingly.

Units, chemical doses, and formulas are very important. Be sure that EPA has an accurate representation of your treatment plant in ICR FED by reviewing and correcting your data during the validation process..

Update: Analysis of Treatment Study Results - Over the past several months, water utilities have been working diligently to conduct bench- and pilot-scale treatment studies under the ICR, and the results from these studies will provide valuable information regarding the efficacy of GAC and nanofiltration for removing DBP precursors. Additionally, the results of these studies will support the development of **future DBP regulations.** EPA has been working in conjunction with contractors and volunteers from the drinking water industry to develop an approach for analyzing these complex data sets. Significant progress has been made on this data analysis effort, and this article summarizes the **highlights** of the **data management plan**.

The **objective of the data management plan** is to organize the information from the treatment studies in a manner that will support **higher level analyses** of the data. Primarily, this data will be used to support future DBP regulations; however, the data system should also be flexible enough to support a wide array of analyses. To achieve these objectives, the data management system will be divided into two components, an **electronic data library** and a **relational database.**

To support a wide variety of uses and interpretations, the raw data must be provided in a useable format. This will be accomplished by transferring the *Final Treatment Study Reports* to an electronic ***Treatment Study Data Library***. The data collection spreadsheets will be converted to a standard Excel format while the *Summary Reports* will be converted to portable document format (PDF). Both the spreadsheets and report will be protected and transferred to the *Treatment Study Data Library*. A **search engine** containing general information for each study will be included in the data library to allow users to query and sort the studies according to specific criteria.

The *Treatment Study Data Library* will make the raw data available to users; however, it will not provide an optimal platform for higher level analyses. To support the regulatory development process a *base analysis* will be performed on each study to extract common information across all studies. The primary objective of this **base analysis** is to provide a foundation for subsequent analyses that will produce information that will feed into the development of future DBP regulations. The output from the base analysis will be managed in a **relational database** that will allow related data to be joined within a study and allow similar data elements to be queried across studies. This ***Base Analysis Database*** will maximize flexibility and allow a range of high level analyses to be conducted on the data.

Future **ICR Update** articles will provide more detail regarding the *base analysis* of GAC and membrane data, and will describe the structure of the *Base Analysis Database*. Also, see the November issue of *Journal AWWA* for an article summarizing the status of ICR treatment study implementation.

Treatment Study Summary Report Spreadsheet - The

Final Treatment Study Report includes the *ICR Treatment Study Data Collection Spreadsheets* and a *Summary Report*. The purpose of the *Summary Report* is to capture information not included in the *Data Collection Spreadsheets*, such as background information for the full-scale plant, QA/QC information and details of the experimental design. In order to streamline reporting of critical information in the *Summary Report*, a spreadsheet tool was developed.

The *Treatment Study Summary Report Spreadsheet*, along with an explanatory letter and a two-page **Users' Guide**, were mailed to all utilities conducting treatment studies on October 22, 1998. These spreadsheets are intended to simplify the data reporting process, clarify the reporting requirements and facilitate upload of the data to the ICR treatment study database. The spreadsheet is designed to **complement** the *Summary Report* and is **not** a substitute for it. (However, the information reported in this spreadsheet does not need to be repeated in the *Summary Report*.)

The information that will be reported in this spreadsheet includes the following:

- General **treatment plant information** including 1998 population and flow data.
- A summary of full-scale influent and finished **water quality data**.
- **General information** for laboratories conducting analyses in support of the treatment study.
- **QA/QC data** for the analyses conducted as part of the treatment study.

If you are interested in obtaining a copy of these spreadsheets and the accompanying documentation, or if you have questions about the application of these spreadsheets, please contact the ICR Treatment Study Coordinator at 513-569-7131.

Spiking Program and Supplemental Surveys - As with the

ICR 18-month monitoring, the spiking program will wrap up this month. The Supplemental Surveys, on the other hand, continue to be delayed. Read on for more details.

Spiking Program - December marks the end of the ICR Lab Spiking Program. Many thanks to all the plants and laboratories who have participated in this program! Presently, we have **data** for the spiking conducted from **May to September 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 the 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 - Presently, there are 47 large and 40 medium system plants committed to participating in the supplemental surveys. EPA wants to sincerely thank all those systems who expressed an interest in participating in the surveys. EPA would especially like to thank those 87 utilities who are "on board" for their continued **enthusiasm and patience**. All participant utilities have been notified by phone of a delay in the scheduled start date for the surveys. We intended to start the surveys in November 1998 but encountered unforseen contractual difficulties which impacted our ability to obtain sufficient laboratory support for the surveys. We are presently working to rectify the situation. As soon as this difficulty is resolved, we will be sending all the participating plants a letter providing the **confirmed, new start date**. The **goal** at this time is to begin the surveys in February 1999. Plants will begin sampling on the schedule agreed to previously and supplies will be shipped in advance of their first sample date.

We are also striving to initiate the **Small System Survey**. The program is undergoing review by the Office of Management and Budget and, upon approval, we will be sending out recruitment letters to **200 randomly selected small systems** requesting their participation (from which we will select 40 plants). The **projected start date** for the Small System Survey is March 1999.

For further information please contact Heather Shank-Givens at 202-260-0063 or at GIVENS.HEATHER@epa.gov.

ICR Web Page - The ICR Web Page (http://www.epa.gov/ogwdw/icr.html) has been updated to highlight the pages of most interest, add **new** pages, and delete outdated pages. The link to **ICR Update** has been **moved to the top** and the links to Fact Sheets and the FRN have been moved to the bottom. A new link, "Status of Data Validation for ICR Utilities and Labs," will contain copies of letters that are mass mailed to ICR utilities and labs. Another **new link**, "List of Utilities Participating in Microbial and DBP Monitoring," contains the ICR utility and plant names plus the city and state. Also included is "Rule by Reference Manuals," which contains a list of ICR manuals and ordering information. And as mentioned in last month's edition, an index to the **ICR Update** is now up and running on the OGWDW website. This index lists the topic headings for each issue and provides hyperlinks to the **ICR Update** of interest.

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