

Methods

NEMI database may make method selection easier, more accurate

A database being developed under the auspices of the **National Water Quality Monitoring Council** and the **Methods and Data Comparability Board** could combine Internet technology with methods research to make the selection of the right methods for environmental testing more streamlined and accurate.

The **National Environmental Methods Index** database would function as a searchable collection of methods designed to help select the most accurate method by analyzing the parameters of the test, coupled with the functions of the methods in the database.

Larry Keith, chairman of the NEMI workgroup, offered an example of how it could work:

"The intent is to put method summary information into the database and have it include all of the things necessary to compare one method against all of the others," Keith explained.

"If you were testing for certain analytes, it could determine which methods met your needs the best."

Methods could also be compared based on other factors such as instrumentation, matrices, interference, sampling, sample handling and data quality.

The idea is to achieve better data by comparing the methods in one master database, rather than data collected by a number of different sources using full method texts, which are often 30 to 90 pages in length.

Coming soon to a computer near you

According to Keith, the project is definitely going to happen. The initial funding is coming from the **United States Geological Survey** and the **Environmental Protection Agency**.

"We should have a prototype version available in about a year," Keith said. "It will be based on the Internet."

Keith added the availability of the Internet made the process of developing the database easier.

Because the National Water Quality Monitoring Council is taking the lead in developing the database,

Keith said it initially will be limited to water methods. If users and the EPA find the database practical, it can then be expanded to include soil and air methods.

The NEMI workgroup estimates total startup costs of over \$220,000, coming from the agencies, and annual operating costs of \$70,000.

Keith said the annual cost will vary depending on the scope of the database. It's hoped that other entities, possibly including the private sector, might be willing to help fund the maintenance of the database.

Development strategy

A steering committee is working on a conceptual view of how NEMI will work and how the methods will be posted to the database.

It's expected the program will be developed in three phases. The first phase will involve looking at similar databases used by other groups, as well as determining the data items needed in the database, developing a data dictionary, business rules, user requirement rules and developing the design. It is expected to take a total of nine months, including a comment phase for potential users.

The second phase is mainly technical and deals with reviewing the comments and creating the actual interface the user would see.

Any updates to the summary data would also be added. This process is expected to take six months.

The third phase is more of an ongoing phase. The

data would be updated as necessary and as new methods are summarized. The data model might also be refined as the user requirements are refined. There is no timetable for this phase, as it will be done on an annual basis when the site is up and running.

The cost estimates are based upon updating and correcting up to 25 methods a year and adding 75 new method summaries from electronic sources that do not require a lot of editing or updating once delivered to NEMI. □

Looking into the future

Even though the **National Environmental Methods Index** database is at least a year away, that isn't stopping NEMI workgroup chairman **Larry Keith** from sharing a larger vision that's "years down the road."

Imagine using the database to determine the best method for testing the samples you need to collect. Because of the complexity of each sample and existing regulations, you might enter a substantial amount of the information required by the database to suggest the best methods, but not everything.

Keith said the database could eventually have an Expert User Interface. In simple terms, that is software designed to help the computer understand the science.

With that application, the database might ask you questions about the sample, maybe information you forgot to include in your entry, that will make method selection even more accurate.

"It helps people to not forget things," Keith said.

In other words, a reminder from the software: We may be only human, but it isn't. □

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