UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

Office of Ground Water and Drinking Water
Technical Support Center

Memorandum

DATE: July 14, 2006

SUBJECT: EPA Method 200.8 for Drinking Water Analyses

FROM: Gregory J. Carroll
Director

TO: Regional Certification Officers

The purpose of this memorandum is to address the position of our Center's Drinking Water Laboratory Certification Program regarding the use of collision cell technology in combination with ICP-MS for the analysis of drinking water compliance monitoring samples.

While we agree that collision cell technology represents a major technological advance and generally support its use, the question of whether the technology is within the scope of EPA Method 200.8 has triggered much discussion. We have reviewed the method carefully and discussed it with Dr. Jack Creed, one of the Office of Research and Development (ORD) developers of EPA Method 200.8. Based on our reviews, we are of the collective opinion that an ICP-MS equipped with collision cell technology may be used to support drinking water compliance monitoring **if the ICP-MS is operated in "normal mode" (i.e., with the collision cell in the "inactive" mode)**; for those manufacturers with whom we are familiar (Agilent, Perkin-Elmer, Thermo-Electron, Varian), it is our understanding is that their equipment may be operated in this manner. We do not, however, have sufficient data to identify the conditions under which drinking water analyses performed using active collision cells will achieve "equivalent" or better results (i.e., equivalent to or better than the results of analyses performed without an active collision cell). Additional details regarding our rationale follow.

EPA Method 200.8 was written in the early 1990's, prior to the development of collision/reaction cell technology. The method, as written, makes isotopic-based mathematical corrections to minimize potential isobaric interferences. These corrections are universal and can be applied to all ICP-MS measurements.

With the collision/reaction cell approach, the interference is minimized (in some cases virtually eliminated) by configuring/tuning the instrument; the instrument operator plays a critical role in the process of minimizing the interference. If not performed properly, we believe that there is potential for bias (particularly on the high side) in the measurements. We believe, as does Dr. Creed, that this argues for further evaluation of the technology, and for understanding any additional instructions that might be appropriate for its users. We are currently working with ORD to develop appropriate plans for such a technology evaluation and expect it to lead to the

development of a modified method for drinking water compliance monitoring. While this method work is underway we welcome receiving comparative real-world data.

In the meantime, if you have any questions concerning this matter, please contact Dr. Judy Brisbin of our Laboratory Certification Team at brisbin.judy@epa.gov.

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