

Options for Addressing Matrix Effects
Questions to the FACDQ from the Technical and Policy Work Groups

11/20/06

Background

At its July 2006 meeting, the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs (FACDQ) asked the Policy Work Group to assess the feasibility of making a recommendation to address matrix effects and to give a report at the committee's December meeting. The Policy Work Group delegated the assignment to the Technical Work Group.

A subgroup of the Technical Work Group developed an approach, which the Technical Work Group reviewed before forwarding it to the Policy Work Group. The Policy Work Group considered this approach on November 17 and decided to forward key questions related to matrix effects and options for addressing matrix effects to the FACDQ for discussion at the December 6-8 meeting.

Key Questions related to Matrix Effects

The following four questions will guide the discussions of matrix effects:

- What defines a matrix effect?
- Should matrix effects be addressed?
- If so, when is the issue to be addressed?
- How is it to be addressed?

Options for When the FACDQ Would Address Matrix Effects

If the FACDQ decides to develop a recommendation on matrix effects, the committee could begin work at two different points:

1. After the December 2006 FACDQ meeting: The committee could agree that matrix effects need to be addressed and recommend a basic process independent of other policy decisions. If this approach is chosen, there are at least two types of matrix effects that could be addressed (there may be more):
 - a. Matrix effects may be the result of temporal variability related to changes in process chemistry, seasonality, or other factors. In this case, a procedure should be developed to identify the matrix interference, flag the data as estimated, and conduct corrective action to use alternative analytical methods (including additional clean ups).
 - b. Matrix effects are consistently present in an effluent and the permit-required limits may not be achievable. In this case, additional clean-up steps in the procedure may be needed to try to eliminate matrix effects or

- an analytical study of matrix effects may be undertaken. If all reasonable steps have been taken to eliminate matrix effects without success, a procedure would need to be developed to allow for the inclusion of a matrix-adjusted quantitation limit. To undertake this measure, the permitted entity would be required to demonstrate the presence of a consistent matrix interference and that alternative methods (including clean ups) do not provide lower quantitation limits. Additional monitoring, such as biomonitoring, might be required to demonstrate the absence of a compound and that the matrix effect is an ongoing interference.
2. In summer 2007, after the pilot study: The committee could agree at a fundamental level that matrix effects need to be addressed, but the process for how that is done would depend on how the committee finalizes other policy decisions, such as uses and recommended procedure(s).