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QUALITY ASSURANCE PROJECT PLANS AND DATA QUALITY OBJECTIVES FOR
RCRA GROUND WATER MONITORING

United States Environmental Protection Agency
Washington, D.C. 20460
Office of Solid Waste and Emergency Response

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MEMORANDUM

SUBJECT: Quality Assurance Project Plans for RCRA
Ground-Water Monitoring and Corrective Action
Activities

FROM: Sylvia Lowrance, Director Office of Solid
Waste
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TO: Waste Management Division Directors, Regions
I-X Environmental Service Division Directors,
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A fundamental requirement of the RCRA program is the collection of environmental data that are of adequate and documented quality to support our decision making. To meet this requirement, data quality objectives (DQOs) are established through the quality assurance project planning process. This memorandum discusses the application of the DQO process to the ground-water monitoring and corrective action program, and provides additional information sources and guidance documents that are available for quality assurance program development. As a follow-up to this memorandum, we are developing examples of Quality Assurance Project Plans (QAPjPs).

These examples will demonstrate that QAPjPs can be of varying complexity depending upon their associated DQOs, and that review and approval of QAPjPs designed to achieve less complex DQOs can be expedited in certain cases.

The overall level of uncertainty that a decision maker is willing to accept in this decision making process is known as a DQO. Quality assurance project plans are used as a management control to ensure that DQOs are defined and documented. QAPjPs may vary in complexity based on acceptable levels of uncertainty associated with the goals of a specific project. The minimum elements of a quality assurance program for all data collection activities in RCRA are outlined in Chapter One (Quality Assurance) of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA SW-846, Third Edition, as amended by Update One, July 1992), which is currently being issued by the Office of Solid Waste.

Chapter One of SW-846 addresses Quality Assurance (QA) programs and Quality Control (QC) procedures that should be implemented by hazardous waste facility owners and operators conducting ground-water monitoring and remediation programs pursuant to RCRA Chapter One of SW-846 defines fundamental elements of a data collection program that include:

1. Design of a project plan to achieve the data quality objectives (DQOs);
2. Implementation of the project plan;
3. Assessment of the data to determine if the DQOs are met.

The overall acceptable level of uncertainty expressed by the DQO is used to specify the quality of the data, usually in terms of precision, bias, representativeness, comparability and completeness. These terms apply to the entire measurement system (e.g., sampling network design, sample collection and handling, laboratory analyses, etc.), not just the analytical operations. QAPjPs, or equivalents, such as ground-water sampling and analysis plans, should detail the Quality Assurance and Quality Control (QA/QC) goals and protocols for data collection activities that will generate data of adequate quality to achieve the DQOs.

We consider the DQO/QAPjP process to be necessary for adequate data collection in the corrective action program. The process used within a Region for review and approval of QAPjPs should be documented in the Regional Quality Management Plan. How the process is structured is a Regional decision that should consider resources (FTE and time), criteria for the reviews, and available expertise.

In addition, during the Corrective Action Program Reviews, the Regions raised questions about the amount of detail required in QAPjPs and the level of review necessary for QAPjP approval. The DQO process is designed to collect data that are scientifically valid, defensible, and of known precision and accuracy relative to the use for which the data are obtained. Different components of the corrective action process may have different objectives and data collection uses. This data use may vary in complexity, for example, from field screening to delineate areas of gross contamination ("hot spots"), to detection monitoring scenarios where constituent concentrations are measured in ground water at the parts per billion (ppb) level of sensitivity. For specific project purposes, it may be acceptable for the DQOs for hot spot screening to be of lesser precision than those for the ground water analyses. Similarly, QAPjPs that detail the data acquisition and analysis for less precise DQOs can also be of reduced detail, and may be more quickly reviewed and approved in certain cases. As stated earlier, examples of QAPjPs for field screening and RCRA Facility Investigation (RFI) activities that involve reduced levels of detail but still meet the DQOs are under development, and will be sent to you in the future.

To assist you in the development of QAPjPs and DQOs, we are forwarding several recently published guidance documents that address data quality. These documents include:

1. Chapter One of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA SW-846, Update to Third Edition, July 1992),
2. Ground-Water Monitoring: Draft Technical Guidance (EPA/530-R-93-001; November 1992),
3. Handbook of RCRA Ground-Water Monitoring Constituents: Chemical and Physical Properties (EPA/530-R-92-022; September 1992),
4. Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Addendum to Interim Final Guidance (EPA/530-R-93-003; July 1992),
5. Ground-Water Information Tracking System and Statistical Analysis Software (GRITS/STAT) and User Manual (July

1992).

We hope that the enclosed materials are helpful in assisting with the development of DQOs and QAPjPs. If you or your staff members have any questions or additional suggestions on how to improve data quality, please contact Charles Sellers, OSW's Quality Assurance Officer at (202) 260-3282.

Enclosures (5)

cc: Dave Fagan, OSW, Ken Gigliello, OWPE; Charles Sellers, OSW; Nancy Wentworth, ORD; Regional RCRA Branch Chiefs; Regional Quality Assurance Managers