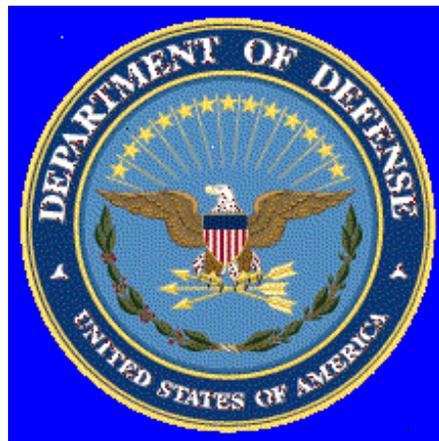


***BEST PRACTICES FOR DATA QUALITY OVERSIGHT  
OF  
ENVIRONMENTAL SAMPLING AND TESTING ACTIVITIES***



**Prepared by:**

**DEPARTMENT OF DEFENSE  
*Environmental Data Quality Workgroup  
Department of Navy, Lead Service***

**April 2002  
Progress Report**



## PREFACE TO THE MARCH 2002 PROGRESS REPORT

The Deputy Under Secretary of Defense for Environmental Security (DUSD(ES)) chartered the Department of Defense (DoD) Environmental Data Quality Workgroup (EDQW) to develop environmental sampling and testing policy for DoD. The *DoD Best Practices for Data Quality Oversight of Environmental Sampling and Testing Activities*, Final Report, May 1999, serves as the general EDQW framework strategy for developing this policy. The report was concurred upon by all DoD Components, and provided to both the DoD Inspector General (IG) and the U.S. Environmental Protection Agency (EPA) Federal Facilities Restoration and Reuse Office (FFRRO).

Since national and international standards continue to evolve, EDQW must periodically adapt its strategy to meet changing requirements. For example, key developments in national and international quality systems policy and standards since May 1999 include the following:

- The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) have developed the ISO/IEC 17025 standard, *General Requirements for the Competence of Testing and Calibration Laboratories*, December 1999. ISO/IEC 17025 supercedes ISO/IEC Guide 25:1990.
- The American National Standards Institute (ANSI)/American Society for Quality Control (ASQC) is in the process of updating the ANSI/ASQC E4-1994 standard, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*.
- Executive Order 13148, *Greening the Government through Leadership in Environmental Management*, issued 21 April 2000, directs the head of each Federal agency to integrate environmental accountability into day-to-day decisions and long-term planning processes across all agency missions, activities, and function.
- Office of Management and Budget, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*, issued 3 January 2002, directs agencies to develop information resources management procedures for reviewing and substantiating the quality of information before it is disseminated. Establishes clear meanings for the basic information attributes: quality, utility, objectivity, and integrity.

In the past year, EDQW continued to perform the specific tasks and actions necessary to implement the Best Practices and to keep pace with relevant standards. The March 2002 status updates to the Best Practices can be found at the end of each section.

Key initiatives that the EDQW will be undertaking in the coming year include the following:

- Conduct training and outreach to implement the DoD Quality Systems Manual for Environmental Laboratories.

- Continue the performance of joint DoD assessments to improve laboratory oversight.
- Develop standard, DoD performance-based contract language to improve laboratory contracting.
- Continue efforts to implement the Uniform Federal Policies by developing DoD quality systems guidance.
- Complete the draft DoD Data Quality Instruction and Measures of Merit.

## **ACKNOWLEDGMENTS**

This report documents Best Practices identified by the Department of Defense (DoD) Environmental Data Quality Workgroup (EDQW), Best Practices Subgroup. The subgroup was chaired by the Army, first by Mr. Kevin Coats and finally by Mr. Larry Becker of the Army Corps of Engineers. Principal contributors to report preparation included Mr. Steve Eikenberry, Naval Facilities Engineering Service Center; Ms. Jackie Sample, Chief of Naval Operations and Naval Sea Systems Command; Ms. Maude Bullock, Chief of Naval Operations (CNO); and Dr. Mollie TeVrucht, Army Corps of Engineers. The report has been coordinated with DoD Components. The point of contact is Ms. Jackie Sample, CNO N457L, Chair of the DoD EDQW. She may be reached at 843/764-7337 ext. 11 or by e-mail at [samplejh@navsea.navy.mil](mailto:samplejh@navsea.navy.mil).

## EXECUTIVE SUMMARY

This report documents Best Practices identified by the Department of Defense (DoD) to ensure that data collected to support decisions in the environmental program are of known and documented quality and can be used as intended. This report was developed by the DoD Environmental Data Quality Workgroup (EDQW), which is tasked to develop and coordinate environmental sampling and testing policy. The report was prepared in partial response to a request dated 2 July 1997 by the Director of the Federal Facilities Restoration and Reuse Office (FFRRO) of the U.S. Environmental Protection Agency (EPA). Additionally, this report responds to issues raised in the 21 February 1997, DoD Inspector General (IG) Report No. 97-098 and provides a framework for finalizing the DoD EDQW strategy. These Best Practices are in use, in part, by one or more of the DoD Components (Army, Navy, Air Force, and Defense Logistics Agency). Best practices discussed in the report include:

- Using Data Quality Objectives (DQOs)
  - Use a Systematic Planning Process for Data Collection Activities
  - Involve Regulators
  
- Improving Policy, Guidance, and Documentation
  - Develop DoD Policy and Guidance Documents
  - Implement International Organization for Standardization(ISO)/International Electrotechnical Commission (IEC) Guide 25
  - Implement ISO/IEC Guide 58
  - Implement American National Standards Institute (ANSI)/American Society for Quality Control (ASQC) E4
  
- Improving Laboratory Oversight Practices
  - Perform Laboratory Audits
  - Include Proficiency Testing (PT) Samples
  - Require Standard Electronic Data Deliverables (EDDs)
  - Validate Data
  - Institute the National Environmental Laboratory Accreditation Program (NELAP)
  
- Improving Management and Contracting Processes
  - Share Laboratory Performance Data
  - Use Standard Performance Based Laboratory Quality Assurance (QA)/Quality Control (QC) Contracts
  - Maintain DoD Core Capability in Environmental Analyses
  - Use a Quality Assurance Officer

DoD has tasked the EDQW to identify Best Practices that improve quality, save time, and reduce costs throughout the Department's environmental cleanup and compliance programs and to make recommendations regarding their implementation. Accordingly, each of these Best Practices is rated by the EDQW against the criteria:

- Increases Quality
- Saves Time
- Reduces Cost

Generation of the appropriate quantity and quality of data will reduce costs and allow decisions to be made with greater speed and better accuracy. The recommendations contained in this report will be used by the EDQW as a strategic framework to help DoD achieve these goals.

## LIST OF ABBREVIATIONS AND ACRONYMS

|             |  |
|-------------|--|
| ACASS       | Architect/Engineer Contract Administration Support System                                      |
| ADUSD(E)    | Assistant Deputy Under Secretary of Defense (Environment)                                      |
| AFCEE       | Air Force Center for Environmental Excellence  |
| AFIERA      | Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis             |
| ANSI        | American National Standards Institute  |
| ASQC        | American Society of Quality Control  |
| CCASS       | Construction Contractor Appraisal Support System   |
| CECOS       | Civil Engineer Corps Officers School   |
| CLP         | Contract Laboratory Program  |
| CMECC       | California Military Environmental Coordinating Committee                                       |
| CNO         | Chief of Naval Operations  |
| DASA(ESOH)  | Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health)           |
| DASAF(ESOH) | Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health)     |
| DASN(E&S)   | Deputy Assistant Secretary of the Navy (Environment & Safety)                                  |
| DEEMS       | Department of Energy Environmental Management Electronic Data Deliverable Master Specification |
| DENIX       | Defense Environmental Network & Information eXchange   |
| DESCIM      | Defense Environmental Security Corporate Information Management                                |
| DoD         | Department of Defense  |
| DODI        | DoD Instruction  |
| DQO         | Data quality objective   |
| DTIC        | Defense Technical Information Center   |
| DUSD(ES)    | Deputy Under Secretary of Defense (Environmental Security)                                     |
| DUSD(I&E)   | Deputy Under Secretary of Defense (Installations and Environment)                              |
| EDD         | Electronic data deliverables   |
| EDQW        | Environmental Data Quality Workgroup   |
| EO          | Executive Order  |
| EPA         | Environmental Protection Agency  |
| ERPIMS      | Environmental Restoration Program Information Management System                                |
| ESOH        | Environment, Safety and Occupational Health  |
| FFRRO       | Federal Facilities Restoration and Reuse Office  |
| FSP         | Field sampling plan  |
| GALP        | Good automated laboratory practice   |
| GIS         | Geographic information system  |
| GSA         | General Services Administration  |
| IDQTF       | Intergovernmental Data Quality Task Force  |
| IEC         | International Electrotechnical Commission  |
| IG          | Inspector General  |
| ISEERB      | Interservice Environmental Education Review Board  |
| ISO         | International Organization for Standardization   |

|          |   |
|----------|---|
| JESWG    | Joint Environmental Surveillance Work Group                   |
| LCS      | Laboratory control sample                                     |
| LIMS     | Laboratory information management systems                     |
| MOU      | Memorandum of Understanding                                   |
| NDIA     | National Defense Industrial Association                       |
| NELAC    | National Environmental Laboratory Accreditation Conference    |
| NELAP    | National Environmental Laboratory Accreditation Program       |
| NFESC    | Naval Facilities Engineering Services Center                  |
| OEI      | Office of Environmental Information                           |
| OIG      | Office of the Inspector General                               |
| OSWER    | Office of Solid Waste and Emergency Response                  |
| PBMS     | Performance-based measurement system                          |
| POA&M    | Plan of action and milestones                                 |
| POC      | Point of contact  |
| PT       | Proficiency testing   |
| PWC      | Public Works Center   |
| QA       | Quality assurance   |
| QAM      | Quality Assurance Manager                                     |
| QAO      | Quality Assurance Officer                                     |
| QAPP     |   |
| QC       | Quality control   |
| R&R      | Roles and Responsibilities                                    |
| REC      | Regional Environmental Coordinator                            |
| SEDD     | Standard electronic data deliverable                          |
| SPP      | Systematic planning process                                   |
| TAL      | Target analyte list   |
| TAT      | Task action team  |
| TBD      | To be determined  |
| TPP      | Technical Project Planning                                    |
| UFP/QAPP | Uniform Federal Policy for Quality Assurance Project Plans    |
| UFP/QS   | Uniform Federal Policy for Environmental Quality Systems      |
| USACE    | U.S. Army Corps of Engineers                                  |
| USACHPPM | U.S. Army Center for Health Promotion and Preventive Medicine |
| USAF     | U.S Air Force   |
| WTQA     | Waste Testing and Quality Assurance                           |

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# 1 INTRODUCTION

This report documents Department of Defense (DoD) Best Practices for ensuring that data of known and documented quality are obtained during environmental investigations and that logical decisions based on quality data drive remedy selections. This report was developed by the DoD Environmental Data Quality Workgroup (EDQW), which is tasked to develop and coordinate environmental sampling and testing policy. The report was prepared in partial response to a request by the U.S. Environmental Protection Agency (EPA), Office of Solid Waste and Emergency Response (OSWER), Federal Facilities Restoration and Reuse Office (FFRRO), dated 2 July 1997, “to define those processes that contribute to uniform data collection and analysis, reporting, and interpretation thus improving the quality of the data, saving time, or reducing program costs.” Additionally, this report addresses issues raised in the 21 February 1997 DoD Inspector General (IG) Report No. 97-098 and provides a framework for finalizing the EDQW strategy for improving DoD environmental sampling and testing activities.

## 1.1 Background

Prompted by a multi-million dollar laboratory fraud issue, the EPA Office of the Inspector General (OIG) audited the EPA Region 9 laboratory program in 1995 (*Laboratory Data Quality at Federal Facility Superfund Sites*, E1SKB6-09-0041-7100132, 20 March 1997). This audit led to 1997 audits of all EPA regions. In 1997, the DoD IG also performed an audit of environmental laboratory services, focusing primarily on contracted services (*DoD IG Audit Report on Laboratory Support Services for Environmental Testing*, Report No. 97-098, 21 February 97). The DoD audit looked at both compliance and cleanup programs. Also in response to laboratory fraud issues, the California Military Environmental Coordinating Committee (CMECC) issued a report in March 1997: *Best Practices for the Detection and Deterrence of Laboratory Fraud*. These reports were used as resources by the EDQW to identify and prioritize this compilation of Best Practices.

## 1.2 Objective

Best Practices identified by DoD fall into several broad categories and cover a range of activities. Some are current practices among the Components, while others can be easily implemented. Some will require additional work to be implemented DoD-wide. The categories and Best Practices discussed in the report include:

- Using Data Quality Objectives (DQOs)
  - Use a Systematic Planning Process (SPP) for Data Collection Activities
  - Involve Regulators
- Improving Policy, Guidance, and Documentation
  - Develop DoD Policy and Guidance Documents
  - Implement International Organization for Standardization(ISO)/International Electrotechnical Commission (IEC) Guide 25
  - Implement ISO/IEC Guide 58

- Implement American National Standards Institute (ANSI)/American Society for Quality Control (ASQC) E4
- Improving Laboratory Oversight Practices
  - Perform Laboratory Audits
  - Include Proficiency Testing (PT) Samples
  - Require Standard Electronic Data Deliverables (EDDs)
  - Validate Data
  - Institute the National Environmental Laboratory Accreditation Program (NELAP)
- Improving Management and Contracting Processes
  - Share Laboratory Performance Data
  - Use Standard Performance Based Laboratory Quality Assurance (QA)/Quality Control (QC) Contracts
  - Maintain DoD Core Capability in Environmental Data Analyses
  - Use a Quality Assurance Officer (QAO)

For each Best Practice, brief discussions are provided about the implementation status, the objective, and recommendations to further improve the practice. Each Best Practice is assessed for its effect on quality, schedule, and cost. The rating system used is:

- A** Definite demonstrated improvement. Improvement is quantified or quantifiable.
- B** Probable improvement. May not be immediately quantifiable.
- C** Neutral.
- D** Definitely will not improve.

The improvement in data quality that would result from implementation of each Best Practice is measured relative to the quality of data obtained using existing DoD procedures. The general *status quo* used as a basis for comparison may not reflect the standard operating procedure of a particular Component or branch of service within a Component relating to a specific suggested Best Practice.

The Best Practices were selected from a comprehensive list of recommendations and practices suggested by Components, CMECC, EPA guidance documents, and EPA and DoD IG reports. Practices were then rated and prioritized. These ratings were assigned by the EDQW based on an evaluation of whether the practice improves quality, saves time, and reduces costs. Ratings of the final Best Practices are compiled in Table 1.

**Table 1**  
**RATINGS OF DoD BEST PRACTICES**

|  | <b>Increases<br/>Quality</b> | <b>Saves<br/>Time</b> | <b>Reduces<br/>Costs</b> |
|--|------------------------------|-----------------------|--------------------------|
| <b>USING DATA QUALITY OBJECTIVES</b>   |                              |                       |                          |
| <i>Use a Systematic Planning Process for Data Collection Activities</i>      | A                            | A                     | A                        |
| <i>Involve Regulators</i>  | A                            | A                     | A                        |
| <b>IMPROVING POLICY, GUIDANCE, AND DOCUMENTATION</b>                         |                              |                       |                          |
| <i>Develop DoD Policy and Guidance Documents</i>                             | A                            | B                     | A                        |
| <i>Implement ISO/IEC Guide 25</i>  | A                            | B                     | B                        |
| <i>Implement ISO/IEC Guide 58</i>  | A                            | B                     | B                        |
| <i>Implement ANSI/ASQC E4</i>  | A                            | C                     | B                        |
| <b>IMPROVING LABORATORY OVERSIGHT PRACTICES</b>                              |                              |                       |                          |
| <i>Perform Laboratory Audits</i>   | A                            | D                     | B                        |
| <i>Include Proficiency Testing Samples</i>                                   | A                            | C                     | B                        |
| <i>Require Standard Electronic Data Deliverables</i>                         | B                            | B                     | A                        |
| <i>Validate Data</i>   | A                            | D                     | B                        |
| <i>Institute the National Environmental Laboratory Accreditation Program</i> | A                            | A                     | A                        |
| <b>IMPROVING MANAGEMENT AND CONTRACTING PRACTICES</b>                        |                              |                       |                          |
| <i>Share Laboratory Performance Data</i>                                     | A                            | B                     | A                        |
| <i>Use Standard Performance Based Laboratory QA/QC Contracts</i>             | B                            | B                     | B                        |
| <i>Maintain DoD Core Capability in Environmental Analyses</i>                | B                            | B                     | B                        |
| <i>Use a Quality Assurance Officer</i>                                       | B                            | C                     | B                        |

**RATINGS:**

- A - Definite demonstrated improvement. Improvement is quantified or quantifiable.
- B - Probable improvement. May not be immediately quantifiable.
- C - Neutral.
- D - Definitely will not improve.

### **1.3 November 2000 Status Update:**

The EDQW Charter (see Appendix A) has received formal Component Concurrence. During the past year, EDQW developed a comprehensive strategy for implementing the Best Practices and established a three-tiered organizational structure (see Appendix B) to promote resource sharing and accountability among Components during this implementation. Under this structure, the Army Principal Representative (Mr. Doug Scarborough) leads the Policy, Resources, and Integration Tier; the Navy Principal Representative (Ms. Jackie Sample) leads the Quality Systems Tier; and the Air Force Principal Representative (LtCol Barbara Larcom) leads the Laboratory Oversight Tier. The Tier leads coordinate the activities of the multi-component subgroups and task actions teams, which are responsible for developing specific policies, procedures, and guidance documents, as tasked by EDQW.

### **1.4 March 2002 Status Update:**

The EDQW Organization and Principal Representatives remained constant in 2001; however, significant changes in the Administration have occurred following the 2000 elections. The Deputy Assistant Secretary of the Navy (Environment) (DASN(E)), Mr. Donald Schregardus, is Lead Service for data quality and therefore has signature authority for EDQW recommendations. In this capacity, DASN(E) reports to the Assistant Deputy Under Secretary of Defense (Environment) (ADUSD(E)), Mr. John Woodley. Ms. Jackie Sample, EDQW Chair, plans to brief the DoD Environment Safety and Occupational Health (ESOH) Policy Board during the second quarter of FY02 on data quality improvement initiatives over the past year.

As part of its quality systems implementation initiatives, EDQW participated in a number of intergovernmental outreach and training initiatives since the November 2000 Update was published. These initiatives, targeted to both DoD contractors and DoD program managers, include the following:

- National Defense Industrial Association (NDIA) Conference, Austin, Texas, April 2001 – EDQW team members presented a series of papers describing the EDQW accomplishments.
- Waste Testing and Quality Assurance Symposium, Arlington, VA, August 2001 – EDQW conducted a workshop that focused on environmental data quality improvements, including tools for streamlined project planning, use of the UFP/QAPP, and implementation of the DoD QSM.
- National Environmental Laboratory Accreditation Conference (NELAC), Salt Lake City, Utah, May 2001 (Annual Meeting), and Arlington, Virginia, December 2001 (Interim Workshop) – EDQW co-sponsored the workshop, participated in committees, assisted in developing the NELAC Chapter 5 standard on ethical practices, and sponsored two training courses on quality systems implementation – the first courses to be presented since NELAP's inception.
- ISEERB training – Navy members of the EDQW Field Sampling subgroup provide an *Environmental Quality Sampling Course*, approved by the Interservice Environmental

Education Review Board (ISEERB). The course, which provides hands-on training in the appropriate procedures for collecting environmental samples (water, soil, hazardous waste, etc.), is offered twice a year through Navy's Civil Engineer Corps Officers School (CECOS). It is designed for DoD and contractor personnel who collect or oversee the collection of environmental samples.

- Environmental Protection Agency (EPA), Office of Environmental Information (OEI), Quality Assurance (QA) Staff Workshop, Atlanta, GA, January 2002 – The workshop was held to begin development of a course to train laboratory assessors in practices necessary to detect quality systems weaknesses and evaluate the potential for inappropriate laboratory practices.

## 2 DoD BEST PRACTICES FOR DATA QUALITY OVERSIGHT OF ENVIRONMENTAL SAMPLING AND TESTING ACTIVITIES

### 2.1 Using Data Quality Objectives

The DQO process is a strategic planning approach that is used to prepare for data collection activities. The DQO process establishes specific objectives for an environmental study or sampling program and focuses data collection and analysis to meet those objectives. Appropriate use of the DQO process achieves two major objectives: (1) It ensures that the type, quantity, and quality of data collected are appropriate for the decision at hand, and (2) it eliminates the collection of unnecessary, redundant, and overly precise data.

Involvement of regulatory technical staff is needed throughout the DQO process. In particular, Federal, State, and regional regulatory agency technical staffs need to be involved up front in site investigation and remediation projects. Working with regulators throughout project planning and execution helps to ensure that DQOs are appropriate for the intended data use, information is shared by all parties, and they reach agreed upon goals.

#### 2.1.1 *Use a Systematic Planning Process for Data Collection Activities*

**Best Practice:** Use a systematic planning process for designing data collection activities to ensure that the requisite type, quality, and quantity of data are obtained to meet project objectives. DQOs are established for each project by technical staff in consultation with stakeholders, such as regulators, at the beginning of an investigation and in the design and execution of data collection and remedial action activities. The DQO process is typically documented in the Quality Assurance Project Plan (QAPP) and may be further defined in site-specific Field Sampling Plans (FSPs).

**Implementation Status:** DoD uses DQOs extensively for the cleanup program and to a lesser extent in the compliance program. DQO guidance is provided in *US EPA Guidance for the Data Quality Objectives Process, EPA QA/G-4, September 1994*. DoD incorporates this document by reference in many service-specific documents. Other guidance is provided by the USACE in Engineering Manual 200-1-2, *Technical Project Planning Process, Guidance for HTRW Data Quality Design*. Recently, the U.S. Army Corps of Engineers (USACE) updated EM-200-1-2, which outlines a four-phase Technical Planning Process (TPP). The TPP can be used at small, simple sites as well as large, complex ones.

**Discussion:** In the DQO process, decision-makers define data requirements and acceptable levels of data error based on data uses during planning, site investigation, engineering design, and remediation. The goal of the DQO process is to minimize expenditures while producing data of sufficient quality and quantity needed to make decisions. Data requirements are determined by site and project strategies as well as the effects of cost, schedules, and other constraints. The advantages of this approach to project planning are that the right data are gathered within the constraints of the project so that data quality and quantity are based on intended use at various stages of the process. The short-term disadvantage is the up-front planning time required by

technical personnel and stakeholders to properly establish definitive DQOs. The DQO process, as defined by EPA in QA/G-4, is a seven-step process for “data collection efforts that will require or result in a substantial commitment of resources.”

In the TPP, the USACE defined a graded approach for planning data collection activities, which is designed to provide a sound basis for site decisions and accelerates progress to site closeout. The process has four phases, including the establishment of DQOs, and it implements an overarching quality management system based on ANSI/ASQC E4. (See DoD Best Practice “Implement ANSI/ASQC E4.”)

Because DQOs are performance based, the process promotes the use of expedited site characterization and innovative monitoring technologies that may prove to be more cost effective or technically superior. DQOs provide an operational tool for facilitating the use of Performance Based Measurement Systems (PBMS), thereby replacing traditional reference methods with improved technology, where appropriate.

**Recommendations:** The EDQW should continue to emphasize DQOs and incorporate a systematic planning process for data collection activities into policy documents for both cleanup and compliance programs. The EPA QA/G-4 document and the USACE TPP provide models to accommodate both small and large projects and include the use of definitive DQOs for sound decision-making within project constraints. Appropriate technical staff (chemists, geologists, engineers, etc.) must be involved in setting and assessing DQOs to ensure proper use of the process. In addition, laboratories should be involved up front in the DQO planning process. Finally, appropriate personnel, such as remedial project managers and sampling personnel, should receive DQO training as part of their initial training process, and refresher training at specified intervals, to ensure they have a practical understanding of DQO application.

| <b>Rating</b>   | <b>Improves Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|---|-------------------------|-------------------|---------------------|
| <b>Use a Systematic Planning Process for Data Collection Activities</b> | <b>A</b>                | <b>A</b>          | <b>A</b>            |

### **2.1.2 *Involve Regulators***

**Best Practice:** Projects should involve EPA and other cognizant regulatory agency technical staff throughout their life cycles. This is especially critical at junctures such as developing DQOs and incorporating the use of innovative monitoring and analytical technologies. EPA and DoD should also share information on laboratory capabilities.

**Implementation Status:** DoD policy promotes timely acceptance of EPA and other regulatory agency approved performance based improvements in sample collection and preparation and analytical techniques. DoD encourages up-front planning that involves regulators so that cost-effective data are gathered to meet project needs.

**Discussion:** Involvement by Federal, State, and regional regulatory agency technical staffs working in partnership throughout the life cycle of DoD restoration projects will ensure that

appropriate DQOs and QAPPs are established and implemented. Joint participation will enable all parties to focus on crucial issues and identify prompt and appropriate resolutions. Involvement of technical staff will also facilitate using PBMS, which promotes the use of new monitoring technologies, field analytical techniques, and laboratory testing methods to take advantage of cost efficiencies resulting from state-of-the-art innovations.

**Recommendations:** The EDQW should continue to engage cognizant regulators regarding proactive involvement in environmental programs, and in particular seek involvement of regulatory technical staffs for setting and assessing data quality objectives. In addition, the EDQW and EPA headquarters should work together to promote appropriate use of PBMS and provide consistent guidance to the field, both on a program-wide and project-specific basis.

| <b>Rating</b>             | <b>Increases Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|---------------------------|--------------------------|-------------------|---------------------|
| <b>Involve Regulators</b> | <b>A</b>                 | <b>A</b>          | <b>A</b>            |

### 2.1.3 November 2000 Status Update

#### ***Use a Systematic Planning Process for Data Collection Activities:***

The term “Data Quality Objectives Process” generally has been replaced by the more descriptive term “Systematic Planning Process.” The Systematic Planning Process (SPP) results in the generation of project-specific Data Quality Objectives (DQOs), which are specific statements that describe the requirements to ensure that the type, quantity, and quality of data are appropriate for the decisions to be made. Both the Environmental Data Quality Workgroup (EDQW) and the Intergovernmental Data Quality Task Force (IDQTF) are working on quality systems documents that implement DQO/SPP. Developments include the following:

- EPA has revised its guidance on DQO/SPP, *EPA QA/G-4, Data Quality Objectives*.
- The IDQTF has prepared a draft consensus Quality Assurance Project Plan (QAPP) guidance that includes an overview of the SPP. The draft guidance has been released for informal review and comment. Components—with cooperation from the Environmental Protection Agency (EPA), the Federal Facility Restoration and Reuse Office (FFRRO), and EPA regional offices—plan to test the usefulness and validity of the guidance for “graded approaches” by applying it to several types of cleanup/compliance projects, in a joint series of “beta tests.”
- The EDQW established a SPP/QAPP subgroup under the Quality Systems Tier to develop DoD-wide guidance on systematic planning and to represent DoD interests on the IDQTF QAPP subgroup. The SPP/QAPP subgroup is currently proposing to use the U.S. Army Corps of Engineer’s (USACE’s) *Technical Project Planning* document as a starting point for detailed DoD-wide SPP guidance. Once this guidance is developed, EDQW proposes to develop SPP training programs.

#### ***Involve Regulators:***

The DQO/SPP is a process that requires participation by all project stakeholders and decision-makers, including regulators. Promoting the DQO/SPP, therefore, is a key EDQW initiative for promoting regulatory involvement at the project level.

At the policy or program level, EDQW promotes regulatory involvement by participating in intergovernmental data quality initiatives. Key intergovernmental efforts include participation in 1) the IDQTF to develop intergovernmental quality systems policy and 2) the National Environmental Laboratory Accreditation Conference (NELAC) to develop a uniform, national, environmental laboratory accreditation program. Through its interactions with EPA in IDQTF and NELAC, EDQW also promotes the development of PBMS. These efforts are discussed further in subsequent sections of this update.

## 2.1.4 March 2002 Status Update

### ***Use a Systematic Planning Process for Data Collection Activities:***

Both the Environmental Data Quality Workgroup (EDQW) and the Intergovernmental Data Quality Task Force (IDQTF) continue to work on quality systems documents that implement DQO/SPP. Developments include the following:

- The IDQTF revised the draft Quality Assurance Project Plan (QAPP) guidance to eliminate redundancies and decided to rename it the *Uniform Federal Policy for Quality Assurance Policy Plans* (UFP/QAPP). In its 17 October 2001 letter to Assistant Deputy Under Secretary of Defense (Environment) (ADUSD(E)), EPA requested a formal review of the document and, accordingly, ADUSD(E) requested that Components send technical comments to EDQW for consolidation in early 2002. Once technical comments are addressed, the interim final UFP/QAPP will be submitted for final review and Component concurrence. Meanwhile, services concluded their QAPP beta tests in 2002.
- In a related initiative, the IDQTF QA Matrix subgroup, in which EDQW participates, began development of a Quality Assurance Compendium, which will be an appendix to the UFP/QAPP. It contains the minimum QA/QC requirements for Superfund projects.
- The EDQW's Systematic Planning Process (SPP)/QAPP subgroup continued to represent DoD interests on the IDQTF QAPP subgroup. The SPP/QAPP subgroup is currently proposing to use the U.S. Army Corps of Engineer's (USACE's) *Technical Project Planning* document as a starting point for detailed DoD-wide SPP guidance. Once this guidance is developed, EDQW proposes to develop SPP training programs.

### ***Involve Regulators:***

At the policy or program level, EDQW promotes regulatory involvement by continuing to participate in intergovernmental data quality initiatives. Key intergovernmental efforts during 2001 included participation in the following programs:

- 1) EDQW continues to support IDQTF in the development and implementation of intergovernmental quality systems policy. Components have concurred upon the *Uniform Federal Policy for Quality Systems* (UFP/QS). The ADUSD(E) drafted a letter to EPA, acknowledging DoD acceptance of the Interim Final UFP/QS, and agreeing that EDQW will continue to work with IDQTF to improve data quality management at federal facilities.
- 2) EDQW continues to participate in NELAC to develop a uniform, national, environmental laboratory accreditation program:
  - EDQW members are active on NELAC standing committees and subgroups tasked with program development.
  - At EPA's request, DoD (EDQW) co-sponsored the NELAC 7i Interim Meeting Workshop in December 2001.
  - DoD sponsored the presentation of two quality systems implementation training courses during the workshop, including *Measurement Uncertainty* and *Detecting and Correcting Inappropriate Laboratory Practices*.

Through its interactions with EPA in IDQTF and NELAC, EDQW also promotes the development of PBMS. These efforts are discussed further in subsequent sections of this update.

## 2.2 Improving Policy, Guidance, and Documentation

Extensive guidance developed both by DoD and other agencies is in widespread use throughout DoD's environmental programs. As guidance is refined and updated, DoD issues policy and adapts the program to accommodate the updates. Best Practices include

### 2.2.1 *Develop DoD Policy and Guidance Documents*

**Best Practice:** DoD policy and guidance documents provide thorough and extensive program guidance. DoD updates these guidance documents as environmental programs develop to reflect new standards and innovative methods.

**Implementation Status:** Each DoD Component develops and maintains policy and guidance documents tailored to its individual needs to ensure effective and efficient compliance with environmental regulations. Examples of these documents include:

- U.S. Army Corps of Engineers EM 200-1-1, *Validation of Analytical Chemistry Laboratories*, 1 July 1994
- U.S. Army Corps of Engineers EM 200-1-6, *Chemical Quality Assurance for HTRW Projects*, 10 October 1997
- HQ Air Force Center for Environmental Excellence, *Quality Assurance Project Plan Version 3.0*, March 1998
- Chief of Naval Operations OPNAVINST 5090.1B CH-1 of 25 August 1997, Chapter 25 "Sampling and Laboratory Testing," 2 February 1998
- Naval Sea Systems Command, *Navy Environmental Compliance Sampling and Field Testing Procedures Manual*, NAVSEA T0300-AZ-PRO-010, 10 June 1997
- Navy Installation Restoration Laboratory Quality Assurance Guide*, February 1996

**Discussion:** The DoD EDQW has established a library of information, policy, and guidance documents related to environmental sampling and testing. These documents are updated regularly to accommodate program changes and have the flexibility to accommodate new information. Policy and guidance documents are vital to execution because they direct the individuals who implement and carry out quality assurance programs within each of the components.

**Recommendations:** The EDQW should continue to update and/or develop policy and guidance. The process should include a review of all DoD environmental guidance documents to determine the best approach to developing documents for DoD-wide use. DoD-wide Sampling and Laboratory Quality Assurance Procedures Manuals should be a top priority.

| Rating   | Increases Quality | Saves Time | Reduces Cost |
|--|-------------------|------------|--------------|
| <b>Develop DoD Policy and Guidance Documents</b> | A                 | B          | A            |

### 2.2.2 Implement ISO/IEC Guide 25

**Best Practice:** Adopt a policy to require personnel, equipment, and a quality system that meet ISO/IEC Guide 25 *General Requirements for the Competence of Calibration and Testing Laboratories* for environmental testing activities; this policy will include field analysis.

**Implementation Status:** The DoD EDQW has recommended the adoption of ISO/IEC Guide 25 as a uniform quality system standard for testing. A promulgation letter is currently in draft form and is being reviewed. In the interim, DoD Component services are implementing ISO/IEC Guide 25 for both laboratory and field testing on an individual basis. For example, the policy to implement ISO/IEC Guide 25 was recently issued in Chief of Naval Operations *Environmental and Natural Resources Program Manual*, OPNAVINST 5090.1B CH-1 of 2 February 1998, Chapter 25, “Sampling and Laboratory Testing.”

**Discussion:** A comprehensive consensus standard such as ISO/IEC Guide 25 is useful as the basis for producing program policy, guidance, and sampling and analysis plans for environmental data gathering. ISO/IEC Guide 25 sets general criteria to ensure the competence of testing laboratories (mobile and fixed). The criteria complement the DQO process and provide uniform, minimum requirements for testing laboratories. Uniform requirements set a “level playing field” and facilitate compliance assessment activities. Use of ISO/IEC Guide 25 for field testing activities also ensures that important quality systems are in place for activities that are often considered the weakest link in the data collection process.

**Recommendations:** The EDQW should officially implement a policy to require that laboratories performing environmental testing for DoD comply with ISO/IEC Guide 25. The EDQW should develop an overarching quality system for all DoD environmental sampling and testing to unify existing Component programs, and use this as a basic criterion for laboratory assessment. The quality system, method-specific criteria, and related documents and checklists also provide a platform for a DoD-wide laboratory approval or accreditation program. Use of ISO/IEC Guide 25 is also consistent with the quality system defined in the National Environmental Laboratory Accreditation Program (NELAP).

| Rating               | Increases Quality | Saves Time | Reduces Cost |
|----------------------|-------------------|------------|--------------|
| Implement ISO/IEC 25 | A                 | B          | B            |

### 2.2.3 Implement ISO/IEC Guide 58

**Best Practice:** All DoD Component and private environmental laboratories supporting DoD environmental restoration and compliance activities need credentials to perform testing. Accreditation programs should be based on an ISO/IEC Guide 25 quality system, and operated and recognized per criteria in ISO/IEC Guide 58, *Calibration and Testing Laboratory Accreditation Systems, General Requirements for Operation and Recognition*.

**Implementation Status:** DoD is moving from individual laboratory approval programs to broad-spectrum environmental laboratory accreditation programs conforming to ISO/IEC Guides 25 and 58 standards. DoD supports the development of the NELAP to demonstrate laboratory competency and is considering becoming an Accreditation Authority for in-house laboratories under the NELAP.

**Discussion:** Accreditation programs should grant formal recognition of laboratories that have been assessed against the “general requirements” specified in ISO/IEC Guide 25. The program should also address “specific requirements” in evaluating the scope of testing performed by the laboratory and accommodate both prescriptive and performance based QA approaches, including the EPA PBMS initiative. For DoD, the accreditation should document and attest to conformance of the laboratory quality system to all elements of ISO/IEC Guide 25, as well as any DoD Component-specific elements.

The scope of the laboratory assessments should include:

- Review of current/historical PT sample results
  - Review of laboratory quality assurance plans and standard operating procedures
  - Performance of on-site laboratory audits.

Use of ISO/IEC Guides 25 and 58 for assessing laboratory competence and laboratory accreditation system comparability will facilitate a level playing field for sharing assessment information. As a result, laboratory evaluations (laboratory audit reports, PT results, and other internal and external documented assessments) can be used by all Components and should be available throughout DoD.

**Recommendations:** Until a national program is developed and implemented, the EDQW is working to unify Component programs to promote uniform standards of quality for laboratory assessment and approval/accreditation. The EDQW should continue to support development of NELAP and consider whether Components should become Accreditation Authorities under the NELAC, which oversees NELAP. Component laboratory evaluation systems could supplement NELAP for use in accrediting laboratories and focus on overall DoD and project-specific requirements.

| Rating               | Increases Quality | Saves Time | Reduces Cost |
|----------------------|-------------------|------------|--------------|
| Implement ISO/IEC 58 | A                 | B          | B            |

### 2.2.4 Implement ANSI/ASQC E4

**Best Practice:** Use ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*, as the basis for an over-arching system for quality management of environmental data collection and evaluation activities. Use related ISO standards, such as ISO/IEC Guides 25 and 58, and ISO series standards 9000 (international standards on quality management and quality assurance) and 14000 (environmental management systems), as appropriate, for more specific or supplemental guidance.

**Implementation Status:** The EPA Quality System Series, QA/G-0, provides an overview of the policy and philosophy behind the EPA Quality System, the Quality System components, and their interrelationships. In QA/G-0, EPA notes the adoption of E4 as the basis for the EPA Quality Manual. A companion document, EPA QA/R-1, *EPA Quality Systems Requirements for Environmental Programs*, is the external policy document by which EPA announces its implementation of E4. Currently, EPA is sponsoring an Intergovernmental Data Quality Task Force (IDQTF), under the direction of OSWER/FFRRO, to attain a set of mutually accepted quality systems requirements for the management of environmental data quality related to all environmental media, beginning with hazardous wastes. The IDQTF is using E4 as a model for developing more specific system requirements. The DoD EDQW plans to recommend adoption of the E4 standard to parallel EPA implementation.

**Discussion:** A consistent DoD quality system will provide the needed management and technical practices to ensure that environmental data used to support decisions are of adequate quality and usability for their intended purpose. The DoD quality management system needs to describe policies, objectives, principles, organizational authority, responsibilities, accountability, and an implementation plan for ensuring an appropriate level of quality for environmental data collection and evaluation.

**Recommendations:** Based on the decision by EPA to implement E4, this standard should be used as a guide for development of the DoD environmental data quality management plan. The EDQW should continue to participate in the IDQTF to define an agreement as to what constitutes an acceptable quality system. The EDQW has recommended that EPA include in the IDQTF other government agencies who are involved in environmental sampling and testing, in addition to the Department of Energy (DOE) and DoD.

| Rating       | Increases Quality | Saves Time | Reduces Cost |
|--------------|-------------------|------------|--------------|
| Implement E4 | A                 | C          | B            |

## 2.2.5 November 2000 Status Update

### ***Develop DoD Policy and Guidance Documents:***

Appendix D provides an updated list of standards, policy, and guidance documents pertaining to environmental sampling and testing programs. (The EDQW DENIX website found at <http://www.denix.osd.mil/denix/DOD/Working/EDQW/edqw.html> provides links to many of these documents.) EDQW is not attempting to recreate quality systems documents, but rather to use existing standards and Component-specific documents as the foundation for DoD-wide policy and guidance.

### ***Implement ISO/IEC Guide 25:***

The EDQW Quality Assurance subgroup completed the final *DoD Quality Systems Manual for Environmental Laboratories*, in June 2000, and it was approved by the components in September. The QSM, based on the final NELAC standards and ISO/IEC Guide 25, provides guidance to all environmental laboratories performing work for DoD. DoD solicited comments from both EPA and commercial laboratories during development of the QSM. EDQW plans to update the QSM regularly to keep pace with developing standards and technology (for example, ISO/IEC Guide 25 has now been superseded by ISO 17025). The Quality Assurance subgroup is continuing to develop technical appendices to the QSM to further clarify DoD expectations for laboratory performance. The EDQW Accreditation subgroup continues to monitor developments in NELAC, and is responsible for developing recommendations for implementing a national environmental laboratory accreditation program within DoD consistent with ISO 17025.

### ***Implement ISO/IEC Guide 58:***

The EDQW continued to promote interstate recognition of laboratory accreditation through its support of, and participation in, NELAC.

### ***Implement ANSI/ASQC E4:***

DoD entered into a Memorandum of Understanding (MOU) with EPA on 3 February 2000, in which both parties agreed to develop consensus Environmental Quality Systems policy based on ANSI/ASQC E4. (EPA and DOE entered into a similar but separate MOU.) The final draft *Uniform Federal Policy for Environmental Quality Systems (UFP)*, Part A, is being provided for formal Component review in October 2000. The *Consensus QAPP Guidance* and the *Roles and Responsibilities Guidance* (Part B) are in development. Once the complete Quality Systems guidance documents are concurred upon, DoD and EPA will develop an implementation strategy as outlined in a second MOU.

## 2.2.6 March 2002 Status Update

### ***Develop DoD Policy and Guidance Documents:***

At the request of the Environment, Safety and Occupational Health (ESOH) Policy Board, EDQW prepared a draft DoD Instruction on Environmental Data Quality Assurance that will authorize the development of DoD quality systems publications (including the UFP/QS, DoD QSM, and UFP/QAPP) as DoD manuals. The Instruction is driven by DoD Directive 4715.1, *Environmental Security*. Two of these publications have been posted in the Defense Technical Information Center (DTIC) system and have the following DTIC numbers: UFP/QS (ADA395303), DoD QSM (ADA396793).

### ***Implement ISO/IEC Guide 25:***

To help implement the *DoD Quality Systems Manual for Environmental Laboratories* (DoD QSM) throughout the DoD, the Deputy Under Secretary of Defense (Environmental Security) (DUSD(ES)) signed a QSM policy letter on 5 December 2000. It was followed by a letter from the Deputy Assistant Secretary of the Navy (Environment and Safety) (DASN(E&S)) to DUSD(ES) transmitting proposed changes to existing DoD Directives and Instructions regarding referencing the QSM. The Components have developed QSM implementation plans and provided them to ADUSD(E), and implementation is underway. The EDQW issued a revised draft QSM, Version 2, in June 2001, which included four draft technical appendices that further clarify DoD expectations for laboratory performance. They include 1) DoD reporting requirements, 2) DoD target analyte lists, 3) Quality Control (QC) checklists for SW846 methods, and 4) Laboratory Control Sample (LCS) acceptance limits. Once the NELAC Standards have been updated to incorporate ISO 17025 (expected July 2002), EDQW will prepare a corresponding update to the QSM (Version 3).

The EDQW Accreditation subgroup continues to participate in and monitor developments in NELAC, and subgroup members attended the NELAC 7 and 7i meetings in May and December 2001. At EPA's urging, DASN(E&S) agreed to co-sponsor the NELAC 7i Interim Meeting, provided it could be conducted as a workshop, which would include quality systems implementation training courses. DoD sponsored two training courses during the December 2001 Workshop, which included *Measurement Uncertainty* and *Detecting and Correcting Inappropriate Laboratory Practices*. Also, the EDQW Quality Assurance TAT developed the standard on ethical practices in laboratories, which has been incorporated by NELAC as the Chapter 5 standard.

### ***Implement ISO/IEC Guide 58:***

The EDQW has continued to promote interstate recognition of laboratory accreditation through its support of, and participation in, NELAC. EDQW promoted mutual recognition of laboratory approvals by conducting joint (Army, Air Force, Navy) laboratory assessments during FY01. Additional joint assessments are planned for FY02.

***Implement ANSI/ASQC E4:***

DoD Components concurred upon the final draft *Uniform Federal Policy for Environmental Quality Systems* (UFP/QS, previously referred to as the UFP, Part A), which is based on ANSI/ASQC E4, the accepted standard for environmental data quality systems. EDQW worked with the IDQTF to draft a Memorandum of Understanding (MOU) that defines a plan for implementing the UFP across federal agencies and defines the basic content for “agency-specific” implementation plans. EDQW also drafted a DoD implementation plan in accordance with the MOU. EDQW also developed a DoD Roles and Responsibilities (R&R) strawman, based on the Federal Facilities Restoration and Reuse Office (FFRRO) mission statement, which was submitted to the IDQTF. The draft R&R guidance clarifies responsibilities at the department/agency level for quality assurance oversight at federal facilities. When completed, the R&R guidance will become an appendix to the UFP/QAPP.

As part of quality systems implementation efforts conducted since the November 2000 update, EDQW has supported a number of specific training and outreach activities:

- National Defense Industrial Association (NDIA) Conference, Austin, Texas, April 2001 – EDQW team members presented a series of papers describing the EDQW accomplishments.
- Waste Testing and Quality Assurance Symposium, Arlington, VA, August 2001 – EDQW conducted a workshop that focused on environmental data quality improvements, including tools for streamlined project planning, use of the UFP/QAPP, and implementation of the DoD QSM.
- National Environmental Laboratory Accreditation Conference (NELAC), Salt Lake City, Utah, May 2001 (Annual Meeting), and Arlington, Virginia, December 2001 (Interim Workshop) – EDQW co-sponsored the workshop, participated in committees, assisted in developing the NELAC Chapter 5 standard on ethical practices, and sponsored two training courses on quality systems implementation – the first courses to be presented since NELAP’s inception..
- ISEERB training – Navy members of the EDQW Field Sampling subgroup provide an *Environmental Quality Sampling Course*, approved by the Interservice Environmental Education Review Board (ISEERB). The course, which provides hands-on training in the appropriate procedures for collecting environmental samples (water, soil, hazardous waste, etc.), is offered twice a year through Navy’s Civil Engineer Corps Officers School (CECOS). It is designed for DoD and contractor personnel who collect or oversee the collection of environmental samples.
- Environmental Protection Agency (EPA), Office of Environmental Information (OEI), Quality Assurance (QA) Staff Workshop, Atlanta, GA, January 2002 – The workshop was held to begin development of a course to train laboratory assessors in practices necessary to detect quality systems weaknesses and evaluate the potential for inappropriate laboratory practices.

During 2002, EDQW plans to support an expanded workshop at NDIA (Charleston, SC, March 2002), WTQA (Arlington, VA, August 2002), and the annual ACS meeting (Boston, MA, August 2002).

## 2.3 Improving Laboratory Oversight Practices

The EDQW is responsible for the quality of the data used to make environmental decisions. By using a quality systems approach such as ISO/IEC Guide 25 to set standards, DoD can improve laboratory oversight while reducing costs.

### 2.3.1 *Perform Laboratory Audits*

**Best Practice:** Laboratory assessments consist of on-site audits to review and verify compliance with general quality systems, methods, and project-specific criteria. An initial audit is performed prior to sample submission. In addition, periodic audits are performed during the life of the contract to assess maintenance of proficiency.

**Implementation Status:** DoD Components have QA/QC programs in place that typically require on-site assessments of contract testing laboratories. Some Components have accreditation requirements that include on-site assessments. DoD is working to develop a uniform quality system, standard audit criteria, and a program of reciprocal recognition of each Component's audit systems.

**Discussion:** Laboratory audits evaluate numerous items that impact data quality. Audits include the evaluation of management, technical expertise, facilities, equipment, reference materials, methods, calibration, training, documentation, and reporting. A pre-performance audit can identify the capabilities of a laboratory before any samples are submitted. Annual follow-on audits can be used to identify problems and deficiencies so they can be corrected early in the project, thereby saving both time and money. Audits also send the message that the government will closely monitor contract laboratory performance, which may be a deterrent to fraud.

**Recommendations:** Audits should be performed to evaluate a laboratory's conformance with ISO/IEC Guide 25 quality systems criteria, specific testing procedures, and, where applicable, the EPA's Good Automated Laboratory Practices (GALP). Audits should be performed initially and periodically throughout the life of the project or contract. The EDQW should promote the exchange of audit information among the Components. Copies of the audit report should be provided to the appropriate DoD QAO for dissemination. Historical audit reports should be used as a reference for follow-on audits.

| Rating                           | Increases Quality | Saves Time | Reduces Cost |
|----------------------------------|-------------------|------------|--------------|
| <b>Perform Laboratory Audits</b> | <b>A</b>          | <b>D</b>   | <b>B</b>     |

### 2.3.2 *Include Proficiency Testing Samples*

**Best Practice:** Proficiency testing (PT) samples can demonstrate a laboratory’s proficiency to analyze selected analytes. Periodic analysis of PT samples can provide an on-going check to determine if proficiency is maintained. Single-blind and double-blind samples are effective QA/QC tools for detection and deterrence of environmental laboratory performance problems, including fraud. DoD components should share the results of PT sample analyses.

**Implementation Status:** DoD reviews the EPA Water Pollution/Water Supply PT sample results and each component uses PT samples to evaluate laboratory performance. The Army has used PT samples developed in-house, the Air Force uses double-blind PT samples, and the Navy uses commercially available PT samples.

**Discussion:** PT samples not only are useful for assessing proficiency and identifying laboratory problems, but they also send a message to the laboratory community that DoD intends to actively assess lab performance. These PT tools can be used in a variety of combinations and at variable frequency depending on the size, duration, and complexity of a project or contract.

**Recommendations:** The EDQW should develop a program by which Components can share individual laboratory PT sample results. The EDQW should work with EPA as EPA transitions to using commercial PT sample providers and consider using these sources for qualification of laboratories to perform DoD work. The EDQW should monitor the Air Force Center for Environmental Excellence (AFCEE) double-blind PT sample program for cost and effectiveness and consider using it DoD-wide as a method for monitoring lab data quality. The EDQW should also consider using the USACE single-blind program as an additional DoD-wide QA resource. The EDQW should review available PT sample services and make recommendations on how to integrate the EPA PT sample program and existing DoD PT sample programs to support an overall QA oversight strategy for DoD environmental testing.

| <b>Rating</b>             | <b>Increases Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|---------------------------|--------------------------|-------------------|---------------------|
| <b>Include PT Samples</b> | <b>A</b>                 | <b>C</b>          | <b>B</b>            |

### 2.3.3 Use Standard Electronic Data Deliverables

**Best Practice:** A standard electronic data format should be selected for use by all Components. All chemical data should be provided in this format, which should be compatible with global information system (GIS) database requirements. Basic data validation should be performed electronically, using a program based on the standard electronic data format. Laboratories should comply with EPA’s Good Automated Laboratory Practices (GALP).

**Implementation Status:** DOE has developed an electronic data format entitled “Department of Energy Environmental Management Electronic Data Deliverable Master Specification,” commonly known as DEEMS. DoD is evaluating the use of DEEMS as a standard electronic data deliverable (EDD) and as a tool for electronic data validation. Currently the Defense Environmental Security Corporate Information Management (DESCIM) Program Office is developing a standard EDD and database structure. Components are supporting this effort and will determine individually whether to adopt the standard. Components are also participating in a DESCIM workgroup to define requisite data elements for sampling and testing. The USACE has developed an electronic data format and accompanying data processing software. The data format and data processing software are in use by two divisions, other Federal agencies, and private industry. The AFCEE has developed and implemented a similar program, the Environmental Restoration Program Information Management System (ERPIMS).

**Discussion:** Common electronic data formats will allow transfer of data among the Components. Also, a common format enables efficient data entry and use of GIS databases to manage, track, and query historical data. Standard electronic data will facilitate computer validation of the data. While electronic data validation cannot replace manual data validation, it can save time and increase accuracy for assessment of general data quality indicators such as spike recoveries, holding time excursions, and blank contamination. Some commercially available data validation software can detect certain types of fraud. Use of such software could deter fraudulent laboratory practices.

**Recommendation:** The EDQW should evaluate the available electronic data formats and select one as the DoD-wide data transfer standard. The EDQW should also evaluate electronic data validation software and make recommendations regarding its use.

| Rating            | Increases Quality | Saves Time | Reduces Cost |
|-------------------|-------------------|------------|--------------|
| Use Standard EDDs | B                 | B          | A            |

### 2.3.4 *Validate Data*

**Best Practice:** Review and validate data collected for restoration or compliance program support. Determine the amount of data validation required during the DQO process. Summarize and report results.

**Implementation Status:** DoD currently reviews the quality and usefulness of the data collected as part of the DQO process.

**Discussion:** Data review and validation ensure the reliability of analytical data. When performed in conjunction with previously determined DQOs, data of sufficient quality and quantity will be obtained for making decisions.

**Recommendations:** Data validation requirements should be identified and documented in advance of any sampling and analysis. Data validation requirements should be specified using a tiered approach oriented to the DQOs and specified in the QAPP, where applicable. Sample collection information should be included in this review because the external environment can impact the validity of the sample and the usability of analytical data. Summary tabulation of data and associated “flags” should be provided in a standard format to facilitate data review. The EDQW should continue to work with the IDQTF to develop common data validation practices for Federal departments and agencies.

| <b>Rating</b>        | <b>Increases Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|----------------------|--------------------------|-------------------|---------------------|
| <b>Validate Data</b> | <b>A</b>                 | <b>D</b>          | <b>B</b>            |

**2.3.5      *Institute the National Environmental Laboratory Accreditation Program***

**Best Practice:** DoD, DOE, EPA, and other affected departments and regulatory agencies are partnering to develop and implement a national program that sets minimum criteria for laboratory competency, assesses laboratories against those criteria, and monitors on-going proficiency through a uniform laboratory accreditation system, such as the EPA NELAP. In addition, Components should consolidate program requirements and institute a DoD-wide laboratory approval program, consistent with NELAC standards, to achieve uniformity in program requirements.

**Implementation Status:** EPA is working to develop and implement the NELAP, and DoD is an active participant in standing committees and subgroups tasked with program development. The proposed program incorporates uniform quality standards and reciprocal recognition of laboratory accreditation based on ISO/IEC Guides 25 and 58, respectively. DoD has also recognized the need to develop a consolidated laboratory approval program among Components, consistent with NELAC standards; the EDQW has already begun this process.

**Discussion:** EPA has the lead to set uniform quality and accreditation requirements for environmental laboratory testing, which will facilitate the comparison of laboratory performance and reciprocal recognition of laboratory services. DoD fully supports the NELAP initiative.

**Recommendations:** DoD and EPA policymakers should work to achieve uniform laboratory quality and accreditation standards so that laboratories performing environmental testing meet minimum performance criteria and demonstrate on-going proficiency. Established standards must conform with international standards for laboratory testing to ensure the widest acceptance of decisions based on testing data. The EDQW should incorporate ISO standards through Component policy. In addition, the EDQW should continue to be involved in NELAP and consider whether Components should apply for NELAP recognition as Accreditation Authorities. This would enable DoD to accredit in-house laboratories, thereby reducing national security concerns from external inspections and inconsistency from using State programs, while achieving mutual recognition from all Federal, State, and territorial NELAP Accreditation Authorities. In addition, this would allow DoD to accept NELAP accreditation, on a matrix and method-specific basis, as initial demonstration of a private sector laboratory’s competency to perform DoD testing. This would reduce costs by eliminating laboratory pre-approval inspections (restoration testing), and allow DoD to focus scarce resources on DoD and project-specific requirements, including proper oversight of environmental sampling and testing activities.

| <b>Rating:</b>         | <b>Increases Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|------------------------|--------------------------|-------------------|---------------------|
| <b>Institute NELAP</b> | <b>A</b>                 | <b>A</b>          | <b>A</b>            |

### **2.3.6 November 2000 Status Update**

#### ***Perform Laboratory Audits/Assessments:***

The EDQW Assessments/Oversight/PT task action team (TAT) has been tasked to develop a framework for a laboratory oversight program. This includes first defining all elements (e.g., assessments, proficiency testing, training, etc.) necessary for effective laboratory oversight and then developing specific oversight protocols. Recent DoD experience has also shown that effective laboratory oversight must include protocols to detect and deter inappropriate laboratory practices. The TAT has been tasked to develop mechanisms to share assessment resources and assessment reports across Components. Inter-Component EDQW laboratory assessment teams have conducted joint assessments, and more are planned. Note: In this report, the term “assessment” is preferred to “audit” because the latter usually refers to a specialized, formal process conducted by licensed auditors.

#### ***Include Proficiency Testing Samples:***

Proficiency-testing (PT) is one element of laboratory oversight, and the TAT is developing recommendations for a joint PT program including mechanisms for sharing PT data. In a related initiative, the IDQTF Quality Assurance (QA) Matrix subgroup is evaluating how batch-specific PT samples might reduce data validation costs.

#### ***Use Standard Electronic Data Deliverables:***

The EDQW Data Management subgroup, under the Policy, Resources and Integration Tier, has been tasked to develop standardized DoD electronic data deliverables (EDDs) and work toward DoD-wide compatibility in Laboratory Information Management Systems (LIMS).

#### ***Validate Data:***

The EDQW Data Validation TAT is reviewing existing data validation guidance (including the USACE HTRW/CX draft document, *Performance Based Data Evaluation*) for developing DoD-wide guidance. Data validation guidance needs to consider procedures for Performance-Based Measurement Systems (PBMS). If standard EDDs can be developed, electronic validation methods may reduce costs.

#### ***Institute NELAP:***

The first NELAC standards were issued in July 1999. There are now eleven NELAP-approved State accrediting authorities (AAs), and the first NELAP-approved laboratories are expected to be announced in January 2001. The EDQW Accreditation subgroup, under the Quality Systems Tier, is tasked with monitoring the continuing development and implementation of the NELAC standards and developing recommendations for a coordinated DoD approach to laboratory accreditation. EDQW continues to endorse NELAP and participate in NELAC meetings and committee workgroups.

### **2.3.7 March 2002 Status Update**

#### ***Perform Laboratory Audits/Assessments:***

The EDQW Assessments/Oversight/PT task action team (TAT) is developing a laboratory assessment procedures manual that provides a standard protocol for laboratory assessments executed in support of DoD environmental programs. The TAT also completed a standard operating procedure for reviewing analytical method-specific procedures that is ready for laboratory evaluation..

DoD is actively supporting ongoing intergovernmental efforts to detect and deter inappropriate laboratory practices. During the NELAC 7i Workshop (December 2001), DoD sponsored and conducted a course, *Detecting and Correcting Inappropriate Laboratory Practices*, designed to improve laboratory assessor skills and the effectiveness of laboratory assessments. EDQW representatives also participated in a workshop of federal laboratory oversight personnel conducted by EPA/OEI QA Staff. The workshop was held to begin development of a course to train laboratory assessors in practices necessary to detect quality systems weaknesses and evaluate the potential for inappropriate laboratory practices. EDQW is continuing to monitor the development of emerging EPA regional policy designed to control the performance of manual integration in environmental laboratories, because this can have far-reaching implications for all Components.

#### ***Include Proficiency Testing Samples:***

The EDQW Assessments/Oversight/PT TAT used a proficiency testing (PT) plan submitted by the USACE, in conjunction with other Component PT practices, to develop a DoD PT program. A product of that effort is a PT implementation schedule. This sampling strategy is intended to serve an integrated/coordinated DoD program. EDQW representatives also participated in the IDQTF QA Matrix Subgroup, which developed requirements in the QA Compendium to address batch-specific PT samples.

#### ***Use Standard Electronic Data Deliverables:***

The EDQW Data Management Subgroup has been investigating the development of standardized electronic data deliverables (SEDDs) for use with environmental data. Efforts have focused on updating the Department of Energy Environmental Management Electronic Data Deliverable Master Specification (DEEMS) system into an XML format to give it greater flexibility. Tests have produced promising results and the structure is in place to transmit all the needed data. The next step is to find laboratories that can create SEDDs and perform a demonstration with all three services.

#### ***Validate Data:***

The EDQW Data Validation TAT evaluated existing data validation guidance and suggested using the USACE HTRW/CX draft document, *Performance Based Data Evaluation*, as a starting point for developing a DoD-wide guidance. The USACE recently revised its performance-based data evaluation guidelines [date]; the revised draft version of the document was made available to the EDQW for review and has been posted on DENIX. The IDQTF QA Matrix Subgroup is also addressing data validation requirements in its draft QA Compendium.

***Institute NELAP:***

The EDQW Accreditation Subgroup continued to monitor the development and implementation of the NELAP standards and developed recommendations for a coordinated DoD approach to laboratory accreditation. Called the NELAP Plus, this approach 1) builds on NELAC requirements, 2) provides a standard for quality system implementation for all lab testing performed for DoD, 3) serves as a standard reference for DoD representatives, and 4) enhances the ability to share laboratory performance information and deter inappropriate lab practices.

## 2.4 Improving Management and Contracting Practices

Management needs to facilitate exchange of laboratory performance information throughout DoD to rapidly identify data quality problems before they become widespread. In addition, using performance based criteria as a basis for contracting laboratory testing services will improve acquisition as well as reduce costs. Best Practices include:

### 2.4.1 *Share Laboratory Performance Data*

**Best Practice:** DoD shares laboratory performance information within DoD and other Federal agencies. DoD considers past environmental laboratory performance during laboratory selection.

**Implementation Status:** DoD Components currently operate separate laboratory approval programs, and they typically contract for laboratory services through a prime contractor, using different laboratory acceptance criteria. This results in program dissimilarities that make sharing laboratory performance data difficult. There is currently no centralized database that tracks laboratory performance analogous to the Architect/Engineer Contract Administration Support System (ACASS) or Construction Contractor Appraisal Support System (CCASS) for tracking contractor performance.

**Discussion:** Setting uniform requirements among DoD Components is requisite to effecting a level playing field for sharing laboratory performance reviews and performance data. DoD plans to achieve this goal through development of consolidated program requirements paralleling those developed for NELAP. Development of an easily accessed database that contains laboratory performance information will facilitate use of quality laboratories and recognition of laboratory problems. The database could include information about laboratory performance similar to contractor performance recorded in ACASS/CCASS. This is an interim step to streamline the system while standard guidance procedures using ISO/IEC Guides 25 and 58 are developed and instituted under NELAP. Under NELAP, lab audit and PT results will be made available in a national database.

**Recommendations:** DoD, DOE, EPA, and other government agencies should share environmental laboratory performance data during laboratory selection and ongoing proficiency testings. EDQW should resolve program differences that make reciprocity difficult among the components. EPA should proceed with NELAP. The EDQW should develop a database to track laboratory performance so laboratory strengths and weaknesses can be monitored among Components and across agencies.

| <b>Rating</b>                            | <b>Increases Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|--|--------------------------|-------------------|---------------------|
| <b>Share Laboratory Performance Data</b> | <b>A</b>                 | <b>B</b>          | <b>A</b>            |

### 2.4.2 Use Standard Performance-Based Laboratory QA/QC Contracts

**Best Practice:** DoD environmental contracts for data services should require laboratories to have in place a quality system that meets ISO/IEC Guide 25 criteria and demonstrates compliance through an accreditation program that meets ISO/IEC Guide 58 criteria. Contracts should require NELAP accreditation when the program is implemented. DoD contracts for environmental testing services should be based on best value and not purely on cost.

**Implementation Status:** DoD Component laboratory contracts have many of the same general requirements. DoD is increasing the use of quality-based contracts, even for compliance testing services, which were historically low-bid contracts.

**Discussion:** The EDQW is tasked with improving contracting procedures among the services. DoD needs to incorporate additional performance-based standards for acquiring commercial laboratory services. This should include developing contract award criteria, setting on-going performance standards, developing standardized Statements of Work, and having appropriate remedy clauses. Incorporating PBMS also introduces contract flexibility, which encourages the use of innovative technologies for sampling and testing activities. Use of innovative technologies can reduce cost, increase timeliness, and increase data reliability.

**Recommendations:** The EDQW should facilitate setting DoD policy for quality systems in sampling and testing and unify laboratory QA system requirements for contract testing among Components. These policies can be incorporated in contract specifications and serve as a basis for improving DoD contracts, sharing performance information, and exercising remedy clauses. Quality system criteria also provide a basis for awarding value-based contracts. In addition, the EDQW should provide templates for use in preparing contracts in the field, and new contracts should include PBMS flexibility, where appropriate quality systems and accreditations are in place. The EDQW should also investigate the feasibility of using centralized or regional contracting. Part of this investigation should include benchmarking the industry and tracking the success of a comparable centralized contracting program that has been in operation for at least one year. Recommendations on the use of centralized contracting would be based on the investigation.

| Rating  | Increases Quality | Saves Time | Reduces Cost |
|---|-------------------|------------|--------------|
| Use Standard Performance Based Laboratory QA/QC Contracts | B                 | B          | B            |

### 2.4.3 *Maintain DoD Core Capability in Environmental Data Analyses*

**Best Practice:** DoD maintains a core capability in environmental analyses for the restoration and compliance programs.

**Implementation Status:** Presently DoD Components have a core capability in environmental analyses. Numerous initiatives are underway to reduce infrastructure and to consolidate and regionalize in-house laboratory services.

**Discussion:** Although DoD makes extensive use of commercial laboratories for environmental testing, DoD also needs to retain a core technical capability in order to develop contract specifications, manage contracts for testing services, assess contractor performance, and protect the government’s interests throughout environmental data collection and analysis activities. DoD must also maintain core competencies for military-unique testing, and provide the capability and capacity to conduct short turn-around, mission critical, and emergent sampling and testing services. As a whole, DoD currently contracts out about 80% of testing services. Each Component continuously reviews these activities for opportunities to improve efficiency and reduce cost through increased out-sourcing. DoD Components are also reducing infrastructure and consolidating laboratories to achieve a core capability structure that is cost effective and can be sustained for mission readiness. The Navy is tasked as the lead service for environmental data quality and in this capacity interfaces with private and public sector agencies to coordinate, review, and comment on legislation and regulations that could adversely impact the performance of functions that are inherently governmental or mission critical.

**Recommendation:** The EDQW should develop a core capability model and rationale that would focus on maintaining within DoD 1) the core laboratory competencies necessary to perform quality assurance oversight of contracted services and 2) the laboratory infrastructure required to support mission needs at minimum costs.

| <b>Rating</b>  | <b>Increases Quality</b> | <b>Saves Time</b> | <b>Reduces Cost</b> |
|--|--------------------------|-------------------|---------------------|
| <b>Maintain DoD Core Capability in Environmental Data Analyses</b> | <b>B</b>                 | <b>B</b>          | <b>B</b>            |

#### 2.4.4 Use a Quality Assurance Officer

**Best Practice:** All DoD projects involving environmental analyses should have a DoD employee, acting on behalf of the DoD, as a laboratory data QAO. The QAO, however named, provides independent review and oversight of data collection. Laboratories performing testing must also have a designated QAO per ISO/IEC Guide 25 quality system criteria.

**Implementation Status:** DoD uses QAOs on many large projects. In-house laboratories also have QAOs to provide independent review and QA/QC oversight of laboratory services. Typically, commercial laboratories also have a designated QAO. EPA Order 5360.1, CHG 1, *Policy and Program Requirements for the Mandatory Agency-Wide Quality System*, requires assignment of a quality assurance manager (QAM) to function independently of direct environmental data generation, model development, or technology development responsibility and to report on quality issues to the senior manager having executive leadership authority for the organization. This requirement applies to all environmental data collection and environmental technology programs performed by or for EPA. The QAM must possess sufficient technical and management expertise and authority to conduct independent oversight and ensure the implementation of the organization's quality system.

**Discussion:** An ISO/IEC Guide 25 based quality system requires that laboratories have a designated QAO. The QAO should be technically qualified and independent of the project manager or laboratory supervisor responsible for the testing performed. The QAO is directly involved in the project from the requirements planning stage through closure. Project QAOs ensure that DQOs are established and incorporated into the FSP and QAPP. The QAO also develops a systematic review plan for sampling and data collection. Laboratories must ensure the independence of the QAO in reviewing data and reporting results.

**Recommendation:** The EDQW should review the role of QAOs in laboratory and field testing, sampling operations, and project management across DoD. The review should include the description of duties and the level of independence relative to the oversight function. A report will be issued detailing the adequacy of the various QAO oversight functions and any needed improvements.

| Rating                          | Increases Quality | Saves Time | Reduces Cost |
|---------------------------------|-------------------|------------|--------------|
| Use a Quality Assurance Officer | B                 | C          | B            |

## 2.4.5 November 2000 Status Update

### ***Share Laboratory Performance Data:***

Recent, highly publicized incidents related to allegations of environmental laboratory fraud emphasize the need for DoD to be able to detect and deter inappropriate laboratory practices. The EDQW Assessment/Oversight/PT TAT has been tasked to develop recommendations for sharing laboratory performance information. Army and Navy currently share laboratory performance data (e.g. assessment reports) on an informal basis. To formalize this process, a database is needed. Additionally DoD needs to monitor the NELAP database. EDQW has tasked the Assessment/Oversight/PT TAT to work with the Data Management subgroup to develop specific mechanisms (similar to ACASS and CCASS) by which laboratory performance information can be formally shared.

### ***Use Standard Performance-Based Laboratory Quality-Based Contracts:***

The EDQW Contracting Subgroup has been tasked to develop laboratory qualifications and laboratory selection criteria for use in quality-based contracting. This includes the development of model standardized contract language and remedy clauses. Examples of qualifications to be considered are NELAP accreditation, adherence to the DoD QSM, and past performance.

### ***Maintain DoD Core Capability in Environmental Analyses:***

The EDQW Resources subgroup, under the Policy, Resources, and Integration Tier, has been tasked to develop a baseline DoD laboratory inventory, and to assess the capabilities of DoD laboratories performing DoD environmental testing. Particular areas of concern are 1) maintaining adequate DoD analytical capabilities in the testing of military-unique compounds, and 2) retaining the technical expertise necessary to provide effective oversight for environmental sampling and testing contracts. EDQW has developed a draft data call to collect information for these purposes.

### ***Use a Quality Assurance Officer:***

The IDQTF UFP requires independent quality assurance oversight as an essential Quality System element, and the planned IDQTF work product, *Roles and Responsibilities Guidance*, will outline DoD and EPA oversight responsibilities. DoD is continuing to participate in IDQTF as this group completes the components of the intergovernmental quality systems.

## 2.4.6 March 2002 Status Update

### ***Share Laboratory Performance Data:***

The EDQW's Assessment/Oversight/PT TAT is evaluating the use of a password-protected website through which laboratory performance information, including assessment reports and Proficiency Testing (PT) results, can be formally shared among the Components.

### ***Use Standard Performance-Based Laboratory Quality-Based Contracts:***

The EDQW Contracting Subgroup reviewed existing contract language and developed a draft template for use in developing standard laboratory contract language. The subgroup plans to complete the development of standard contract language during FY02.

### ***Maintain DoD Core Capability in Environmental Analyses:***

EDQW drafted a position paper explaining the importance of involving a project chemist during the planning, execution, and oversight of environmental data collection efforts. The chemist's input is essential for developing appropriate data quality objectives, negotiating with regulators to develop reasonable action levels and reporting limits, procuring qualified laboratory services, and providing laboratory analysis and field sample collection oversight.

The EDQW Resources Subgroup drafted a lab survey to collect information needed to develop a baseline DoD laboratory inventory and to assess the capabilities of DoD laboratories performing DoD environmental testing. Of particular interest are those fields of testing necessary to support operational readiness and domestic defense programs.

### ***Use a Quality Assurance Officer:***

The IDQTF UFP requires independent quality assurance oversight as an essential Quality System element, and the planned IDQTF work product, *Roles and Responsibilities Guidance*, will outline DoD and EPA oversight responsibilities. EDQW developed a strawman DoD Roles and Responsibilities document for use in this effort. Moreover, the DoD QSM contains QAO requirements for in-house and contract labs.

### 3. NEXT STEPS

The DoD EDQW was established to coordinate the development of environmental policy pertaining to environmental sampling and testing issues. The charter includes a responsibility to develop and recommend broad Component policy affecting sampling and testing operations that perform analyses of environmental samples in order to:

- Ensure the Generation of Environmental Data of Known and Documented Quality;
- Reduce Unnecessary Duplication and Program Costs;
- Ensure Compliance with Established Standards;
- Promote Wise Use of Environmental Resources; and
- Improve Overall Performance

The EDQW has established subgroups to carry out its responsibilities. Figure 1 provides the EDQW organizational structure.

The appropriate EDQW subgroup will assess the Best Practices, develop a strategy for implementing the recommendation(s), and develop a Plan of Action and Milestones (POA&M) for completion of the recommendations. All POA&Ms should be in place within 90 days from the final issuance of this report. Table 2 shows the lead assignments for these actions. The Deputy Assistant Secretary of the Navy (Environment and Safety) (DASN(E&S)) will track completion of the actions.

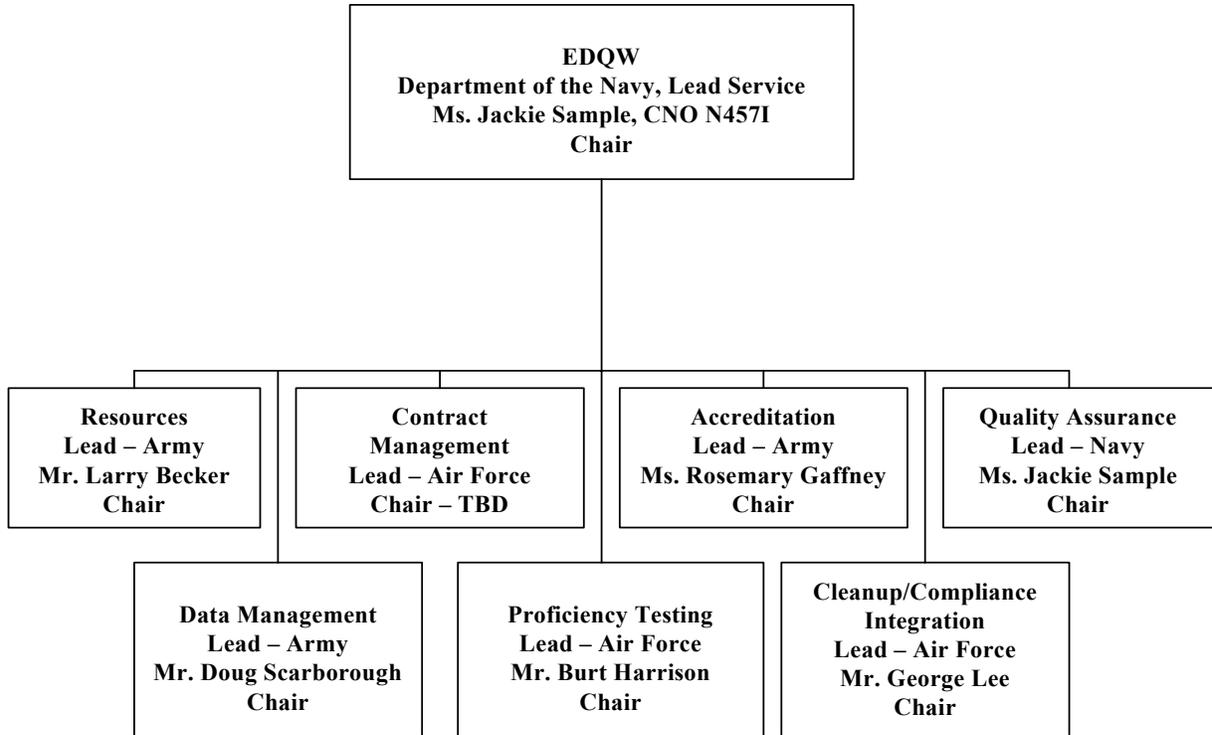
#### **3.1 March 2002 Status Update**

Appendix C, EDQW Subgroup Taskers, summarizes the currently planned activities for EDQW.

**FIGURE 1**

*[Superseded – See Appendix B – EDQW Organizational Structure]*

## ***EDQW Subgroups***



**Table 2**  
**LEAD ASSIGNMENTS AND ACTIONS**  
*[Superseded – see Appendix C – EDQW Subgroup Taskers]*

| <i><b>Best Management Practice</b></i>                                       | <i><b>EDQW Subgroup</b></i> | <i><b>Lead Service</b></i> | <i><b>Action Officer</b></i>  |
|--|-----------------------------|----------------------------|-------------------------------|
| <b>Use a Systematic Planning Process for Data Collection Activities</b>      | QA                          | Navy                       | Jackie Sample                 |
| <b>Involve Regulators</b>  | ALL                         | Navy                       | Jackie Sample                 |
| <b>Develop DoD Policy and Guidance Documents</b>                             | ALL                         | Navy                       | Jackie Sample                 |
| <b>Implement ISO/IEC Guide 25</b>  | QA                          | Navy                       | Jackie Sample                 |
| <b>Implement ISO/IEC Guide 58</b>  | Accreditation               | Army                       | Rosemary Gaffney              |
| <b>Implement ANSI/ASQC E4</b>  | QA                          | Navy                       | Jackie Sample                 |
| <b>Perform Laboratory Audits</b>   | Accreditation/QA            | Army                       | Rosemary Gaffney              |
| <b>Include Proficiency Testing Samples</b>                                   | PT                          | Air Force                  | Burt Harrison                 |
| <b>Require Standard Electronic Data Deliverables</b>                         | Data Management             | Army                       | Doug Scarborough              |
| <b>Validate Data</b>   | Data Management             | Army                       | Doug Scarborough              |
| <b>Institute the National Environmental Laboratory Accreditation Program</b> | Accreditation               | Army                       | Rosemary Gaffney              |
| <b>Share Laboratory Performance Data</b>                                     | PT                          | Air Force                  | Burt Harrison                 |
| <b>Use Standard Performance Based Laboratory QA/QC Contracts</b>             | Contract Management         | Air Force                  | TBD                           |
| <b>Maintain DoD Core Capability in Environmental Analysis</b>                | Resources/QA                | Army                       | Larry Becker<br>Jackie Sample |
| <b>Use a Quality Assurance Officer</b>                                       | QA                          | Navy                       | Jackie Sample                 |

## **Appendix A EDQW CHARTER**

### **CHARTER FOR THE DEPARTMENT OF DEFENSE ENVIRONMENTAL DATA QUALITY WORKGROUP (DoD EDQW)**

Reference: ODUSD(ES)EQ-CM Memorandum of 10 September 1996

**A. PURPOSE:** To facilitate compliance with a broad range of environmental sampling and testing regulations and requirements within the Department of Defense (DoD), the Environmental Data Quality Workgroup (EDQW) will coordinate the efforts of DoD Components by developing and recommending broad DoD Component policy affecting environmental sampling and testing operations. This action is being taken in response to an increasing number of legislative and regulatory actions, related to environmental laboratories, which may affect DoD. These include legislation that would mandate the use of private laboratories, EPA's streamlining program that permits modification of environmental test methods, and the National Environmental Laboratory Accreditation Conference (NELAC), which is coordinated by EPA to develop standards for accrediting environmental laboratories. The EDQW will 1) promote the generation of environmental data of known and documented quality, 2) reduce unnecessary duplication and program costs, 3) develop policy to ensure compliance with established standards, 4) promote wise use of environmental resources, and 5) improve overall performance. The EDQW will also facilitate the rapid, comprehensive, and coordinated response to legislative and regulatory initiatives and other requests for Component information and policy, and coordinate the exchange of information among the DoD Components to share knowledge and best practices.

**B. CANCELLATION:** This is the initial charter of the EDQW. The need to continue this workgroup or modify the purpose will be reviewed every other year in January (even years), and recommendations will be made to the appropriate Deputy Assistant Secretaries of the Military Departments and Director, Defense Logistics Agency (DLA).

**C. AUTHORITY:** The EDQW is chartered under Navy's Executive Agent (EA) status for Clean Water Act implementation. Navy is designated EA for Clean Water Act implementation by DoD Instruction 4715.6, "Environmental Compliance", dated 24 April 1996. Deputy Undersecretary of Defense (Environmental Security) (DUSD(ES)) letter of 10 September 1996 established the EDQW and designated Navy to chair the workgroup. The Deputy Assistant Secretary of the Navy (Environment and Safety) (DASN(E&S)) designated the Chief of Naval Operations, Environment, Safety, and Occupational Health (CNO N45) to chair the EDQW and execute the operations and functions of the EDQW. The workgroup will make recommendations on actions through the Defense Environmental Security Council (DESC) Cleanup or Compliance Committees, as appropriate. The Navy will represent DoD at NELAC.

The EDQW is authorized to represent DoD on routine issues both inside and outside the Department. For significant issues, the EDQW will consult with DUSD(ES). The EDQW may represent DoD inside and outside the Department on significant issues, as directed by DUSD(ES). Significant issues typically include those that involve: 1) White House interests; 2) major funding implications; 3) major internal or external disagreements; 4) international treaties or negotiations; 5) congressional negotiations, reports, investigations, and legislation; and 6) DoD Inspector General or external investigative inquiry.

**D. FUNDING:** Navy as chair will fund the program administrative support for the EDQW meetings. DoD Components will fund their own participation and negotiate funding for specific EDQW work products.

**E. TIME-CRITICAL ITEMS:** The DoD Components shall appoint representatives authorized to act on time-critical items. If appropriate, DUSD(ES) will identify an ad hoc representative for significant policy issues. Any action by Components on time-critical items will be presented for information at the next regularly scheduled EDQW meeting.

**F. PROCEDURES:** The EDQW will meet at regularly scheduled times and additionally as needed. Notice of EDQW meetings will be sent to all members of record. Written minutes shall be kept of each EDQW meeting and posted on the Defense Environmental Network Information Exchange (DENIX) EDQW webpages. Any policy or security sensitive issues may be discussed in a closed session and not reflected in the minutes.

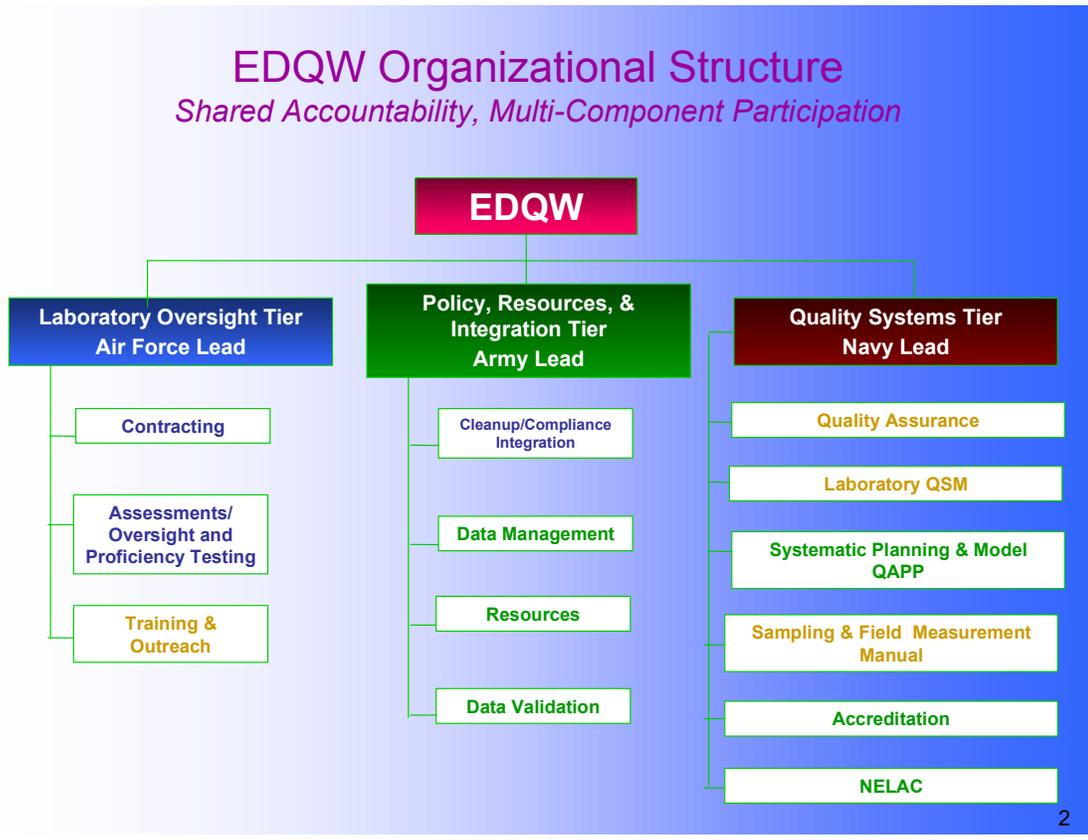
Whenever possible, decisions of the EDQW will be reached by consensus; if unanimous decisions cannot be reached, the majority decision can be forwarded to the DASN(E&S) with the minority opinion identified. The DASN(E&S) will raise issues needing resolution to the DESC Cleanup or Compliance Committee(s) as necessary. All actions, policy, and commitments of resources must be approved by the appropriate DoD Component and, if involving significant issues, the OSD chain of command. Reports will be provided as required by DoD Instruction 4715.6.

**G. MEMBERSHIP:** The EDQW Chair shall be a designated representative from the Chief of Naval Operations, Environment, Safety, and Occupational Health (CNO N45). In addition to the Chair, permanent voting members will be senior military or civilian officials of the Army, Air Force, Marine Corps, and Defense Logistics Agency having responsibilities for environmental sampling and testing quality management programs with the ability to recommend resources and policy affecting environmental sampling and testing issues to appropriate authorities within their Component. Each Component shall designate one voting member and one or more alternates. The EDQW voting members will elect a Vice Chair. Each permanent voting member may appoint additional members with special technical or legal expertise, as they deem appropriate.

At the invitation of the Chair, representatives from non-DoD federal organizations or activities may participate in the regularly scheduled meeting, and/or serve as members of any subgroup. Representatives from non-DoD, non-federal organizations may be invited to address EDQW at the discretion of the Chair.

**H. TECHNICAL SUBGROUPS:** As necessary, the EDQW shall establish Technical Subgroups to examine specific sampling, testing, and quality management issues. Each DoD Component with an interest in the issue will nominate knowledgeable individuals from that Component to serve on the subgroup. The EDQW will assign one Component as the subgroup lead. The subgroups will report their findings and recommendations as well as provide periodic status reports to the EDQW.

# Appendix B



## Appendix C

### EDQW SUBGROUP TASKERS

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Laboratory Oversight Tier, LtCol Barbara Larcom (USAF), Lead

Subgroup/TAT: Assessments/Oversight/PT Program

Members: Dr. George Lee (USAF/AFIERA) – Lead  
Mr. Burt Harrison (USAF/AFCEE)  
Mr. Kevin Coats (USACE)  
Ms. Pati Moreno (Navy/NFESC)  
Mr. Bill Ingersoll (Navy/NAVSEA)

Backup Members: Mr. William C. Neal (USAF/AFIERA)  
Dr. William Batschelet (AFCEE)  
Mr. Richard D. Kissinger (USACE)

Additional Ad Hoc members as determined by the TAT.

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03***

1. Continue development of the laboratory oversight program
  - a. Develop DoD laboratory assessment procedures manual
  - b. Establish and promote inter-component assessment teams
  - c. Develop pass-word protected web-site for sharing laboratory assessment and performance information
  - d. Develop assessment SOP for evaluating laboratory SOPs
  - e. Develop DoD-wide PT program
2. Develop DoD assessor training program

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Laboratory Oversight Tier, LtCol Barbara Larcom (USAF), Lead  
Subgroup/TAT: Contracting

Members: Daria Robinson – (USAF) Lead  
Capt. Freeman Holifield (USAF)  
Mr. Cliff Trimble (USAF Contract Specialist)  
Dr. David Koran (USACE)

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Develop model standardized laboratory contract language (with remedy clauses) for graded approaches
2. Incorporate DoD Laboratory Quality Systems Manual
3. Address technical requirements
4. Address legal requirements, including remedy clauses.
5. Develop laboratory qualification and laboratory selection criteria (for use in quality-based contracting). Address concerns related to the use of small, disadvantaged businesses.

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Laboratory Oversight Tier, LtCol Barbara Larcom (USAF), Lead

Subgroup/TAT: Outreach/Training

Members: Mr. Doug Scarborough (Army)  
Skip Darley (Navy)  
Jordan Adelson (Contractor)  
**Someone from Bosworth? ISEERB?**

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Promote UFP/QS and UFP/QAPP implementation
  - a. Develop web-based manager's training course (front-end overview) for UFP/QAPP
  - b. Work with IDQTF to develop classroom training course (step-by-step "how-to" for preparing QAPPs)
2. Obtain ISEERG approval for final training products
3. Promote DoD Quality Systems training and outreach activities at key technical conferences and symposia (e.g. NELAC, WTQA, and Component conferences)

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Policy, Resources & Integration, Army Lead

Subgroup/TAT: Integration of Cleanup/Compliance Quality Systems

Members: Mr. Ed Miller (DUSD(I&E)) –lead  
LtCol Barbara Larcom (SAF/IEE)

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Draft Data Quality Instruction
  - a. Include measures of merit
  - b. Monitor quality systems implementation
2. Coordinate issuance of DoD Quality Systems documents through DTIC
3. Prepare and issue Best Practice update reports

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Policy, Resources, and Integration Tier, Army Lead

Subgroup/TAT: Resources

Members: Dr. David Koran – Lead  
Mr. Fred McLean (Navy)

Additional Ad Hoc members (e.g., subject matter experts) as determined by the subgroup.

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Assess DoD Core Capabilities requirements (address testing requirements to address military-unique compounds and domestic security)
2. Define and identify different categories of laboratories (e.g. government-owned/contractor-operated).
3. Develop resource lists for Regional Environmental Coordinators (RECs)

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Policy, Resources & Integration Tier, Army Lead

Subgroup/TAT: Data Validation

Members: Dr. Thomas Georgian (USACE) – Lead  
Mr. Kevin Coats (USACE)  
Mr. Fred McLean (Navy)  
Mr. Doug Scarborough (Army)  
Mr. Burt Harrison (USAF)

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Coordinate data validation issues with IDQTF QAPP Subgroup.
2. Proceed to develop DoD Data Validation Guidance, considering graded approaches.
3. Work with Data Management Subgroup to address electronic data validation, consider existing guidance.

***EDQW Subgroup/Task Action Team Assignment:***

Date: March 2002

Tier: Policy, Resources & Integration Tier, Army Lead

Subgroup/TAT: Data Management

Members: Mr. Doug Scarborough (Army) – Lead  
Mr. Ed Hartzog (Navy)  
Mr. Joe Solsky (USACE)  
Mr. Bill Crowley (USACHPPM)  
Dr. George Lee (USAF/AFIERA)  
Dr. David Koran (USACE)

**AFCEE?**

Additional ad-hoc members (e.g. subject matter experts) as determined by the subgroup.

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Investigate use of standardized DoD Electronic Data Deliverables (EDDs)
2. Maintain DENIX EDQW Webpages.
3. Post DoD In-house lab listings.
4. Evaluate data validation software.

***EDQW Subgroup/Task Action Team Assignment:***

Date: March 2002

Tier: Quality Systems Tier, Ms. Jackie Sample (Navy), Lead

Subgroup/TAT: Quality Assurance

Members: Ms. Jackie Sample (Navy) – Lead  
Mr. Tom Flor (Navy)  
Dr. David Koran (Army)  
Ms. Rosemary Gaffney (Army)  
Dr. George Lee (USAF)  
Mr. Burt Harrison (USAF)  
Mr. Doug Scarborough (Army)

Additional ad-hoc members (e.g. subject matter experts) as determined by the subgroup.

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Develop DoD Quality Systems policy/documentation.
2. Implement ISO 17025 and Guide 58, and NELAC standards.
3. Implement DoD Quality Systems (based on ANSI/ASQC E4), including Uniform Federal Policy
4. Coordinate completion of Component QMPs.
5. Promote use of the Systematic Planning Process.
6. Promote use of a Quality Assurance Officer.

***EDQW Subgroup/Task Action Team Assignment:***

Date: March 2002

Tier: Quality Systems Tier, Ms. Jackie Sample (Navy), Lead

Subgroup/TAT: Quality Assurance Authors

Members: Mr. Fred McLean (Navy) – Lead  
Ms. Chang-Rei Mao (USACE)  
Dr. William Batschelet (AFCEE)  
Ms. Pati Moreno (Alternate)  
Ms. Clem Rastatter (Contractor)

Additional ad-hoc members (e.g. subject matter experts) as determined by the subgroup.

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Complete LCS Study and QSM Version 2
2. Update QSM based on NELAC Chapter 5 (2002) and ISO 17025.

***EDQW Subgroup/Task Action Team Assignment:***

Date: March 2002

Tier: Quality Systems Tier, Ms. Jackie Sample (Navy), Lead

Subgroup/TAT: UFP/QAPP (Part B)/Systematic Planning Process

Members: Mr. Fred McLean (Navy) lead  
Ms. Rosemary Gaffney (USACHPPM)  
Mr. Kevin Coats (USACE)  
Mr. Burt Harrison (USAF)

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Complete UFP/QAPP

***EDQW Subgroup/Task Action Team Assignment:***

Date: March 2002

Tier: Quality Systems Tier, Ms. Jackie Sample (Navy), Lead

Subgroup/TAT: Sampling & Field Measurements

Members: Mr. Skip Darley (Navy) – Lead  
Dr. David Koran (USACE)  
Mr. Paul Randolph (USAF)  
Mr. Kevin Coats (USACE)  
Mr. Fred McLean (Navy)  
Mr. Dennis How (NFESC)  
Donald Hummer (IERA)  
John Dow (OESO)

***General procedures:*** See Attachment A.

***Key initiatives for FY02/03:***

1. Develop DoD sampling and testing guidance for range sustainability
2. Develop standardized, DoD-wide field audit criteria

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Quality Systems Tier, Ms. Jackie Sample (Navy), Lead

Subgroup/TAT: Accreditation

Members: Ms. Rosemary Gaffney (Army)  
Mr. Dave Evans (Navy)  
Mr. Ron Lewis (Navy)  
Dr William Batschelet (AFCEE)  
Dr. George Lee (AFIERA)  
Ms. Maude Bullock (Contractor)

Additional ad-hoc members (e.g. subject matter experts) as determined by the subgroup.

***General procedures:*** See Attachment A.

***Tasks proposed by EDQW:***

1. Monitor NELAC standards development and implementation.
2. Recommend DoD Policy on accreditation issues, and develop resource estimates
3. Coordinate NELAP accreditation outreach.
4. Monitor implementation of ISO 17025 to ensure DoD compliance.
5. Coordinate and monitor NELAC TAT activities, including DoD participation in NELAC Committees.

***EDQW Subgroup/Task Action Team Assignment:***

Date: April 2002

Tier: Quality Systems Tier, Ms. Jackie Sample (Navy), Lead

Subgroup/TAT: NELAC

Members: Ms. Rosemary Gaffney (Army) – Lead  
Army Coordinator (TBD)  
Navy Coordinator (TBD)  
(Floating membership includes all DoD NELAC participants)

***General procedures:*** See Attachment A.

***Tasks proposed by EDQW:***

1. Review NELAC standards under development.
2. Generate DoD Comments to proposed NELAC standards and proposed revisions.
3. Attend NELAC meetings and represent DoD on Committee work.
4. Serve as DoD advocates in Committee meetings and NELAC open sessions.
5. Provide DoD comments/positions resulting from meetings and open sessions to DoD NELAC voting member at annual conference.

## ***Attachment A: General Procedures***

**POA&M:** The subgroup (or TAT) shall consider the tasks proposed by EDQW, propose changes and/or make additional recommendations if necessary, and submit a Plan of Actions and Milestones (POA&M) to EDQW. The POA&M should include the schedule for all meetings, phone conferences, and deliverables (including interim review and discussion drafts). EDQW will consider and reach concurrence on all subgroup recommendations during the quarterly meeting following receipt of the POA&M.

**Resource Estimate:** If requested by the Tier Lead, the subgroup shall submit a resource estimate to EDQW. The resource estimate should cover the performance period specified in the POA&M and be updated as required.

**Meetings:** The subgroup shall determine the frequency and format of meetings necessary to accomplish the tasks on schedule. A suggested format is semiannual face-to-face meetings, supplemented with monthly conference calls.

**Meeting Minutes:** The subgroup shall document all meetings/phone conferences in meeting minutes. Draft minutes shall be posted on the subgroup's DENIX web page for comment. Unless comments are received, minutes shall be considered final two weeks after posting. Final meeting minutes also shall be posted on the subgroup's web page.

**DENIX:** Subgroup members shall provide their DENIX user IDs to Mr. Jordan Adelson, ADI ([jordan.adelson@aditech.com](mailto:jordan.adelson@aditech.com)) so that access to the appropriate EDQW and subgroup webpages can be established. Mr. Adelson will coordinate access authorization with Mr. Doug Scarborough. All interim and final work products shall be posted on the subgroup web page to facilitate review and comment by both subgroup members and EDQW.

**Annual Reports:** The subgroup Lead shall prepare annual progress reports to be provided to EDQW for incorporation in periodic strategy updates. The subgroup Lead is encouraged to attend the Principals' Meetings to report to and obtain input from the EDQW. Reports shall include the status of all tasks, as well as any subgroup recommendations (see below). Reports shall be submitted electronically to the Tier Lead.

**Subgroup Recommendations:** All ongoing recommendations for changes or additions to the tasks proposed by EDQW shall be presented in writing to the Tier Lead for consideration and concurrence by EDQW. Recommendations must provide an estimate of any changes or impacts to the resource estimate and the POA&M. EDQW will consider and reach consensus on all recommendations during the quarterly meeting following receipt of the recommendations.

## Appendix D

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