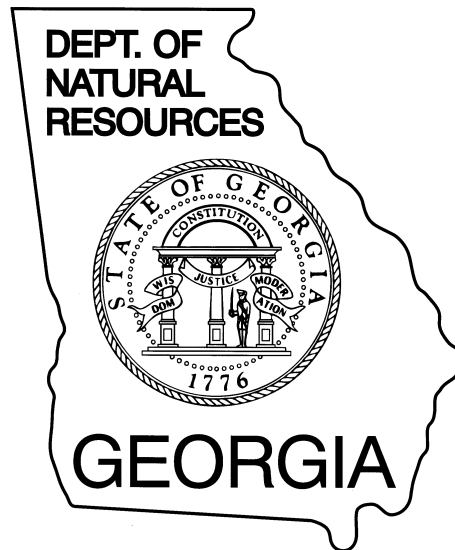


**GEORGIA ENVIRONMENTAL PROTECTION DIVISION**

**Quality Management Plan**

**November 2004**



**Georgia Department of Natural Resources  
Environmental Protection Division  
2 Martin Luther King Jr. Drive SE  
Atlanta, GA 30334**

## Georgia Environmental Protection Division Quality Management Plan

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## Approvals and Concurrence

### Approvals

This is to certify that we have reviewed this document and approve of its contents.

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**Concurrence**

This is to certify that we have conducted an internal review of this Quality Management Plan and we concur with its contents

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## Introduction

This Quality Management Plan has been developed to provide guidance to the management and staff of the Georgia Environmental Protection Division (EPD) in the development, implementation, and assessment of quality system procedures. These procedures require that environmental data collected are of known quality and that environmental technology are designed, constructed, and operated in a manner to ensure they are preventing pollution or removing pollutants from the environment. Included in the procedures are methods used by EPD management to assess the effectiveness of the Quality Management Plan. This plan was developed utilizing USEPA QA/R-2, *EPA Requirements for Quality Management Plans* and meets the requirements of ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*.

Decisions made by the technical staff and management of the Georgia EPD directly impact the lives of all Georgia citizens. It is essential that decisions be made on environmental data and technology that are of the highest possible quality. Considerable funds are expended each year by EPD to collect and administer environmental data and to ensure environmental technology performs as approved by the EPD, in the control and removal of pollution from Georgia's environment. In response to rules and regulations administered by the EPD, our regulated community has invested in data collection and technology improvements to meet Georgia regulatory requirements and improve our environment. The goal of EPD management, through this Quality Management Plan, is to have sufficient quality system elements in place to ensure that all technical decisions are based on scientifically sound data and technology.

### Primary Terms

Data Quality Objectives - Qualitative and quantitative statements that require predefined acceptable levels of measurement or decision error.

Environmental Data - Information collected directly from measurements, produced by models, or collected from data bases or literature and used for making decisions.

Environmental Technology - Pollution control devices and systems, waste treatment processes and storage facilities including site remediation technologies used to remove contaminants from the environment or prevent contaminants from entering the environment.

Quality Assurance Project Plan - A critical planning document for a project or task, describing how data collection activities are planned, implemented and assessed.

Quality Assurance - An integrated system of procedures that include planning, implementation and assessment to ensure environmental data are of known and documented quality and that environmental technology produces the desired result.

Quality Control - The overall system of technical procedures that measure the performance of a process or item against defined standards to ensure that the process or item meets the predefined standards of the customer.

Quality Management Plan - A document that describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing all activities conducted.

## **1.0 Management and Organization**

### **1.1 Mission and Policy Statement**

Note: The Georgia Environmental Protection Division is in the process of updating our mission and vision statements.

This Quality Management Plan supports the Georgia Environmental Protection Division (EPD) mission to:

- Ensure that Georgia's citizens are not harmed because of contamination or misuse of the State's environmental resources.
- Ensure that no land in Georgia is incapable of productive use because of contamination.
- Ensure that Georgia's waters (lakes, streams, and aquifers) are of the highest possible quality, at a minimum meeting state and federal standards.
- Ensure that Georgia's air is of the highest possible quality, at a minimum meeting state and federal standards.
- Ensure that Georgia's environmental resources are sustainably allocated to meet the present and future needs of our citizens.

The Division's quality policy affirms that environmental data quality is the responsibility of all EPD technical staff directly responsible for the collection and generation of internal data or oversight of externally collected data. Sufficient quality system activities will be required by the EPD Branches to provide reasonable assurance that environmental data generated and prepared is scientifically valid, of adequate statistical quantity, of known precision and accuracy, of adequate completeness, representative, and comparable, and where required, legally defensible. Environmental technologies and system components will be designed, constructed, operated and assessed to ensure they are preventing pollution or removing pollutants from the environment.

### **1.2 Organizational Commitment and Delegation of Responsibility**

The management and staff of the EPD are committed producing environmental data and technology consistent with the guidelines presented in the Quality Management Plan. Adherence to quality system requirements assures that environmental data and technology is suitable for the technical decision making process, protection of the environment, and management of the EPD mission.

Administration of the Quality Management Plan includes the following Division personnel: Division Director, Assistant Directors, Branch Chiefs, Program Managers, Technical Staff and Division Quality Assurance Manager. Branch Chiefs will ensure sufficient elements of the quality system are conducted within each Branch to produce the predefined results necessary for each type of work. The Branch Chief may delegate the assignment of data

quality objectives for each type of project or work activity to the appropriate organizational level. However, responsibility for administration of the quality system within the Branch remains with the Chief. Individual responsibilities for administration of the Quality Management Plan are as follows:

Division Director and Assistant Directors - Overall responsibility for implementation of the Quality Management Plan. Ensures that the Branch Chiefs administer the elements of the Quality Management Plan. Ensures that sufficient procedures are in place to adequately measure compliance with Quality Management Plan guidelines for each type of project or work activity.

Branch Chief - Responsible for implementation of the Quality Management Plan within their Branch. Ensures that sufficient elements of the quality system are conducted within each Branch to produce the predefined results necessary for each program or type of work. Recommends revisions for the Quality Management Plan to the Quality Assurance Manager. Reports directly to the Assistant Directors on matters of noncompliance with Quality Management Plan guidelines.

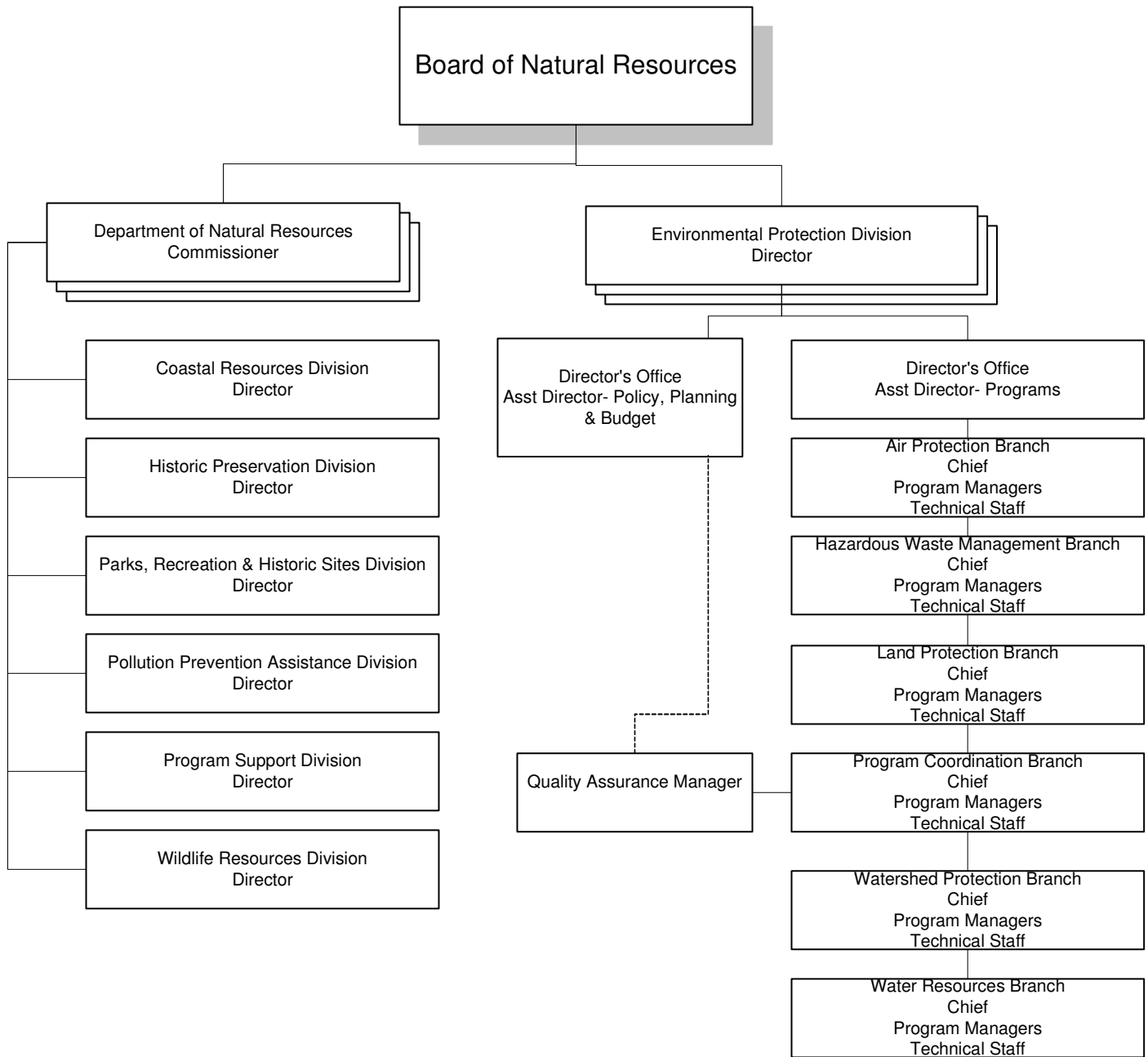
Program Managers - Performs Quality Management Plan related activities as delegated by the Branch Chief.

Technical Staff - Performs Quality Management Plan related activities as delegated by the Program Manager.

Quality Assurance Manager - Reports directly to the Assistant Directors on matters concerning adherence to the guidelines of the Quality Management Plan. Performs or delegates internal assessments of individual Branch compliance with the Quality Management Plan. Conducts evaluations and makes recommendations to the Assistant Directors on Quality Management Plan issues.

### **1.3 Quality System Organizational Chart**

The following functional organization chart depicts the reporting relationships in EPD's Quality Management Plan as of the end of calendar year 2004.



### 1.4 EPD Branches Supporting the Quality Management Plan

The individual branches within EPD have developed quality systems that are in compliance with the guidelines of the EPD Quality Management Plan. Branches are required by the Assistant Directors to have sufficient quality system elements in place to ensure consonance with the EPD Policy Statement for projects and work activities. Listed below

are the individual EPD branches and their responsibilities to the overall Mission Statement presented in the introduction to the Quality Management Plan.

1.4.1 Air Protection Branch is responsible for protecting Georgia's air quality through the regulation of emissions from industrial and mobile sources. This Branch also monitors levels of air pollutants throughout the State. The Branch administers air pollution control programs through the U.S. Clean Air Act (42 USC 7401 et seq.) and the Georgia Air Quality Act, Part 1 of Chapter 9 of Title 12 of the Official Code of Georgia Annotated (abbreviated as OCGA Section 12-9-1, et seq.). Georgia has promulgated regulations to implement the programs as required for states complying with the U.S. Clean Air Act. The Air Protection Branch serves as the technical and program authority for ambient air quality monitoring, regulation and plan development, source permitting, source monitoring and inspection, and enforcement. The Air Protection Branch administers the Georgia Motor Vehicle Emissions Inspection and Maintenance Act (OCGA Section 12-9-40 et seq.).

1.4.2 Hazardous Waste Management Branch regulates facilities that treat, store or dispose of hazardous wastes. The state Superfund is also administered by this Branch. Georgia's Hazardous Waste Management Plan is authorized under Section 3006 of the Resource Conservation and Recovery Act of 1976 as amended (Public Laws 94-580, 96-482, 98-616). Additional reference in these rules to standards, procedures, and requirements of the Title 40 of the Code of Federal Regulations (40 CFR) Parts 260-268, 273 and Part 279 or 40 CFR Parts 124 or 270 shall be constituted in the full adoption by reference of the Part, Subpart, and Paragraph so referenced including and notes and appendices as may be associated. Administration of these regulations and rules is implemented in the Georgia Hazardous Waste Management Act (OCGA Sections 12-8-60, 12-8-90 et seq.) and the Hazardous Site Reuse and Redevelopment Act (OCGA Section 12-8-200, et seq.).

1.4.3 Land Protection Branch regulates solid waste disposal and treatment, scrap tire clean ups, lead and asbestos abatement, underground storage tank registration and remediation, and surface mining permitting and reclamation. The Land Protection Branch regulates solid waste disposal under Section 3006 of the Resource Conservation and Recovery Act of 1976 as amended (Public Laws 94-580, 96-482, 98-616). The Branch administers and enforces the Georgia Comprehensive Solid Waste Management Act, (OCGA Sections 12-8-20, 12-8-30, 12-8-40, et seq.). Management of under ground storage tanks is regulated under both the Federal (40 CFR, Parts 280-281) and the Georgia Underground Storage Act (OCGA Section 12-13-1, et seq.). The Lead Abatement Program is administered in accordance with the Georgia Lead Poisoning Prevention Act of 1994 (OCGA Section 31-41-1, et seq.). Asbestos removal and encapsulation are regulated through the Georgia Asbestos Safety Act, (OCGA Section 12-12-1 et seq.). Surface mining activities are regulated through administration of the Georgia Surface Mining Act of 1968 (OCGA Section 12-4-70 et seq.).

1.4.4 Program Coordination Branch functions are Division-wide in scope and include district offices, emergency response, laboratory operations, radiological licensing, radiological surveillance, and toxicology. The six environmental management district

offices are located throughout Georgia. These districts are responsible for regulatory oversight in their respective geographic area and function under the same federal and state regulations as other parts of the Division. The environmental laboratory provides analytical support to the individual branches in support of their missions. The environmental laboratory operates under regulatory requirements included in this section. The Program Coordination Branch hosts the Division Quality Assurance Manager and regulates environmental laboratories under the Georgia Commercial Analytical Laboratories Act (OCGA 12-2-9, et seq.). The Environmental Radiation and Radioactive Materials Program also operate under this Branch. Activities of the Radiation and Radioactive Materials Program are directed by the Georgia Radiation Control Act, (OCGA Section 31-13-1, et seq.). The emergency response program enforces all environmental laws listed in this section and additionally enforces the Oil and Hazardous Spills or Releases Act (OCGA Section 12-14-1, et seq.). The environmental toxicology and training support functions are also administered under this Branch.

1.4.5 Water Resources Branch regulates the use of Georgia's surface and ground water resources for drinking water, impoundment, agriculture irrigation, and other non-agricultural uses. This Branch administers rules and regulations concerning ground water resources through the Georgia Ground Water Use Act, (OCGA Sections 12-5-90 and 12-5-105, et seq.) and the Georgia Water Well Standards Act (OCGA Section 12-5-120, et seq.). Public water supplies and distribution systems are regulated by the policies, procedures and requirements of the Georgia Safe Drinking Water Act of 1977 (OCGA Section 12-5-70 et seq.) and meets the requirements of the Federal Drinking Water Act (Public Laws 93-523).

1.4.6 Watershed Protection Branch is responsible for protecting Georgia's surface waters. It regulates municipal and industrial wastewater discharges, non-point source pollution, storm water discharges, erosion and sedimentation. This Branch is also responsible for monitoring and modeling of Georgia's waterways. The Water Protection Branch administers rules and regulations through the Georgia Water Quality Control Act (OCGA Sections 12-5-20 and 50-13-1 et seq.). This act was delegated by the U.S. National Pollutant Discharge Elimination System (NPDES) for the issuance of permits under Section 402 of the Federal Water Pollution Control Act Amendments of 1972 (known generally as the Clean Water Act). Storm water along with Erosion and Sedimentation are regulated through both the Georgia Water Quality Control Act and the Georgia Erosion and Sedimentation Act (OCGA 12-7-1, et seq.). Planning is authorized through the Georgia River Basin Management Planning Act (OCGA 12-5-520, et seq.). The Watershed Protection Branch regulates the use of surface waters and water supplies through the Georgia Water Quality Act (OCGA Section 12-5-20, et seq.), the Georgia Flint River Drought Protection Act (OCGA Section 12-5-540, et. seq.), and the Georgia Water Supply Act (OCGA Section 12-5-470, et seq.).

## **1.5 EPD Quality System Goals and Objectives**

1.5.1 Goal 1 - Evaluate procedures to ensure all environmental data and technologies are consonant with EPD's quality policy.

Objective 1- A re-evaluation of Branch procedures for establishment of project quality assurance project plans, data quality objectives and compliance reviews will be performed. Develop a Division-wide guidance procedure to aid in establishment project quality assurance project plans, data quality objectives and compliance reviews.

1.5.2 Goal 2 - Evaluate the quality system training for technical staff.

Objective 2 - Branch Chiefs along with their Branch Program Managers and the Division Quality Assurance Manager will evaluate individual Branch needs in regards to quality system training for technical staff. Training material will be developed by the Division Quality Assurance Manager to ensure analogous presentations of the quality system tools.

1.5.3 Goal 3 - Maintain staff awareness of quality system requirements.

Objective 3 - The Division Quality Assurance Manager will through meetings and presentations of the Quality Management Plan and quality system requirements will ensure the EPD technical staff is aware of the importance of establishing quality assurance project plans, data quality objectives for all projects. Training of new employees in Quality Management Plan requirements will be the responsibility of the Branch Chiefs and Program Managers.

1.5.7 Goal 4 - Improve the Quality Management Plan continually.

Objective 4 - Regular meetings and input from the EPD technical staff and managers strive to continually improve the Division quality system guidelines.

## **1.6 Implementation of Quality Management Plan Guidelines**

Dissemination of the Quality Management Plan guidelines to the EPD technical staff is the direct responsibility of the Division Quality Assurance Manager at the direction of the Assistant Directors. Branch Chiefs will use the Quality Management Plan guidelines to establish sufficient quality system components that will ensure the requirements of Section 1.1 are met for all projects and work activities. The Branch Chiefs along with their respective Program Managers (or a representative appointed) will report to the Division Quality Assurance Manager and Assistant Directors on the specific quality system tools utilized in their Branch to ensure quality.

Initial training materials directing the use of Quality Management Plan guidelines will be developed and presented by the Division Quality Assurance Manager. This will ensure analogous presentations of the quality system tools and requirements. Additional training will be available at the discretion of the Branch Chiefs for new employees and as refresher training for existing technical staff. A copy of the Division Quality Management Plan will be made available to all staff members.

A continued emphasis in the use of the Quality Management Plan guidelines will be included in annual EPD work plans and will include continued implementation and improvements of the Quality Management Plan process. Branch Chiefs will require use of the Quality Management Plan guidelines throughout all staff levels in the performance of project related work activities.

## **2.0 Quality System Description**

### **2.1 Introduction**

The comprehensive quality system in place at EPD ensures the requirements in the EPD policy statement are met in the collection of environmental data and technology activities. The quality system includes guidelines to assist Branch Chiefs in the development of project quality system controls including planning, implementation, and assessment. The Assistant Directors require each Branch Chief to identify sufficient quality system controls for each project or work activity. Sufficient controls will vary from project to project depending on the final use of the data or technology and the decision-making requirements.

### **2.2 Project Planning and Data Validation**

As an environmental investigation project is identified, the project personnel must identify the overall quality of data and sampling activity required for project decisions through systematic planning. All project activities are identified and documented in the project's quality assurance project plan. Activities associated with environmental investigations include project personnel, goals and objectives, schedule, data quality, sample collection and laboratory analytical procedures, final laboratory deliverables and data validation. A copy of the project's quality assurance project plan should be provided to the EPD Laboratory when data collection involves sample analysis performed at the EPD Laboratory.

#### **2.2.1 Contractor Requirements**

Most activities associated with environmental data collection or technology review projects are conducted by EPD personnel. In the few activities in which outside contractor assistance is required, the contractor employees are required to meet project specific quality related activities as specified in the project's quality assurance project plan and contract.

#### **2.2.2 Systematic Planning Process**

Environmental investigations requiring data collection are designed using a systematic planning process based on scientific methodology. This planning process prescribes a common sense and graded approach to ensure sufficient quality system components and documented guidance procedures are employed to produce a final product that meets predefined standards for quality. Data quality objectives will be utilized to ensure measurable conformance to quality standards, whenever possible. Many data collection projects are designed using prepared planning documents that specify project requirements and data quality objectives.

A project manager or compliance officer will be identified by the Branch Chief or Program Manager for all planning and project activities. The project manager will oversee the

planning process including quality assurance project plan design and execution. The project manager is responsible for documenting all phases of the planning process and data collection activities. During the planning process the project manager will develop a list of project required documentation. All documentation will be evaluated to ensure documents are current and approved for the specific work activity. Each Branch will develop a master document log in order to maintain a comprehensive and current inventory of project related documentation. The project manager ensures that final data acceptance or rejection is based on the expressed requirements of the quality assurance project plan. Components of the systematic planning process may include the following:

- 2.2.2.1 Title and approval sheet.
- 2.2.2.2 Table of contents.
- 2.2.2.3 Distribution list.
- 2.2.2.4 Staff in support of the project.
- 2.2.2.5 Problem definition.
- 2.2.2.6 Project description.
- 2.2.2.7 Quality objectives and performance criteria.
- 2.2.2.8 Special training.
- 2.2.2.9 Documentation and records.
- 2.2.2.10 Sampling process design.
- 2.2.2.11 Sampling methods.
- 2.2.2.12 Sample handling and custody.
- 2.2.2.13 Analytical methods.
- 2.2.2.14 Quality control.
- 2.2.2.15 Equipment testing, inspection and maintenance.
- 2.2.2.16 Equipment calibration and frequency of calibration.
- 2.2.2.17 Inspection of supplies.
- 2.2.2.18 Non-direct measurements.
- 2.2.2.19 Data management.
- 2.2.2.20 Assessments and response actions.
- 2.2.2.21 Management reports.
- 2.2.2.22 Data review, verification and validation criteria.
- 2.2.2.23 Verification and validation methods.
- 2.2.2.24 User requirement reconciliation.

### 2.2.3 Sampling Standard Operating Procedures

Sample collection procedures are detailed guidelines developed within the Branches to ensure sample integrity, comparability and representativeness. The sampling procedures have predefined sampling activities designed to meet specific project requirements based on the level of decision making or regulatory circumstance. The standard operating procedure have been developed to specifically address the work activities of each Branch and are identified by reference or included in the project quality assurance project plan.

### 2.2.4 Data Quality Objective Establishment

Predefined data quality objectives for precision, accuracy and completeness are a critical part of the planning activity for any data collection activity and are based largely on the

quality of data required to support the decision process. The project manager and field support personnel must work closely with the analytical laboratory to define the level of data quality and laboratory deliverables. Laboratory deliverables can include several different levels of report detail depending on the decision support required by project personnel. Standard laboratory data quality objectives for each analytical method are presented in the EPD Laboratory Quality Assurance Manual. The project quality assurance project plan documents the analytical method required and includes by reference or the actual Laboratory data quality objective tables. Detailed guidance for developing data quality objectives is provided in the EPA document *Guidance for the Data Quality Objectives Process*, EPA QA/G-4 and *Guidance for Data Quality Assessment-Practical Methods for Data Analysis*, EPA QA/G-9.

#### 2.2.5 Data Validation

Based on defined data quality objectives, environmental data or technology are accepted or rejected. Individual EPD Branches maintain data validation procedures for the various types of environmental data collection and work activities they perform. Data and technology validation criteria are specified in the project quality assurance project plan. Included in the data validation procedure is guidance for the validator in the process. Acceptance or rejection of data is based on the quality system criteria being met during the collection or analytical process that created the data and/or the final use of the data in the decision making process.

### 2.3 Quality System Assessment

An important component of any quality system is management assessment of the system's effectiveness. Periodic assessments ensure the continual improvement of the quality system and initiates correction of system deficiencies. These assessments are expected to be performed annually. This Quality Management Plan requires four specific types of quality system assessments and includes evaluations of measurement system performance in analytical operations, data collection and technology review procedures, data quality assessment procedures, and management system procedures. A brief overview of each system assessment is presented below.

#### 2.3.1 Measurement System Audit

The EPD Laboratory Quality Assurance Manager conducts internal measurement system audits. Performance assessments involve the analysis of Proficiency Testing samples four times each year. Additionally the Laboratory Quality Assurance Manager performs individual method audits to ensure compliance with the laboratory quality assurance system and the current method procedure. Method deficiencies initiate a laboratory corrective action to resolve identified deficiencies. Audits of the laboratory are also conducted by US EPA Region 4 every two years to assess the laboratory's compliance with National Environmental Laboratory Program requirements. Project personnel may request external measurement system audits as needed to ensure the quality of analytical data collected in support of an EPD project.

### 2.3.2 Data Collection and Technology Review Audit

The Division Quality Assurance Manager under the authority of the Assistant Directors conducts Data Collection and Technology Review Audits. Branches are audited to ensure compliance with the guidelines of the Quality Management Plan. Specific projects or work activities are identified. A complete assessment is scheduled with the Branch Chief. The audit includes qualitative assessments of the quality assurance project plans, personnel, project planning and documentation, data quality objective development, data collection, and senior management review of the project. Technology review audits are conducted in a similar fashion and will involve a review of the technology approval process.

### 2.3.3 Data Quality Audit

Data Quality Audits are conducted in coordination with the Data Collection and Technology Review Audit conducted by the Division Quality Assurance Manager on specific projects. Environmental data collected in support of the project's decision making process are quantitatively evaluated for compliance with the project's defined data quality objectives.

### 2.3.4 Management Procedures Audit

Management Procedures Audits are conducted by the Division Quality Assurance Manager. This is an assessment of the Division's ability to ensure compliance with the guidelines of the Quality Management Plan. This audit is based largely on the findings of the three other types of audits performed throughout the evaluation period on Division projects and work activities. The final audit report is presented to the Assistant Directors by the Division Quality Assurance Manager along with summary recommendations to correct deficiencies identified in previous audits.

## **2.4 Response to Audit Findings**

In response to audit deficiencies Branch Chiefs will provide the Assistant Directors and Division Quality Assurance Manager a written response. The response should clearly identify the corrective action initiated to correct deficiencies and the date by which management can expect the deficiency to be corrected.

## **3.0 Personnel Qualification and Training**

### **3.1 Introduction**

The Georgia Merit System maintains technical staff job descriptions and minimum levels of education and training and experience for positions within EPD. During the hiring process the Program Manager verifies all credentials. EPD and DNR Personnel staff review employment packages to verify credentials and technical qualifications of applicants.

### **3.2 Technical Training and Documentation**

Branch Chiefs and their Program Managers are responsible for reviewing technical qualifications of employees and determining when and if additional professional development is needed. Programs within the Branches have implemented specific policies requiring initial demonstrations of proficiency and continuing demonstrations of technical ability. Training records are maintained within the individual programs and are available for review by the Branch Chief. Technical employees' performance is also evaluated on a continual basis by peer and supervisor review of an employee's performance on work assignments. If inadequacies in performance are noted, the Program Manager and Branch Chief may recommend additional professional development. Annual evaluations are conducted for all technical employees of the EPD. The Assistant Directors are notified of any circumstance in which an employee is not meeting minimum acceptable performance standards.

### **3.3 Quality Related Training**

This Quality Management Plan requires that all technical employees be adequately trained in the requirements of the quality system. Branch Chiefs are responsible for quality system training, but may delegate the training to the appropriate level of management within their Branch. The effectiveness of the Divisions quality system training is assessed through audits required by this Quality Management Plan. The Management Procedures Audit summarizes to the Assistant Directors the need, if necessary, for a more intense quality system training program than currently administered in the Branches.

## **4.0 Procurement of Items and Services**

### **4.1 Introduction**

Ensuring the quality of purchased items and contracted services is the responsibility of the individual Program Managers. Sufficient quality system components will be included in the project quality assurance project plans and work activity procedures to meet the requirements of the Quality Management Plan. The Project Manager is responsible for developing project specific quality system criteria for each type of activity with respect to purchased items and/or contracted services. The Branch Chief or Program Manager must approve subcontracted quality system criteria included in the project quality assurance project plan and contract for each project. Adherence to Quality Management Plan requirements for items and services will be evaluated in quality system audits. The Division Quality Assurance Manager monitors the effectiveness of the quality system in regards to purchased items and services through audits and summarizes the effectiveness to the Assistant Directors in the Management Procedures Audit report.

### **4.2 Quality System Requirements for Items**

Sufficient planning activities will be conducted to ensure purchased items meet defined standards and specifications for quality. The technical staff will make decisions for quality standards in the use of the item unless specific quality standards are specified in a regulatory document such as an analytical method. Standards and specifications, if not defined, are developed in the planning process and will be included in project quality assurance project plan. Upon receipt of purchased items the project manager will inspect the item for adherence with the specifications required by the quality assurance project plan. The quality of items is monitored by various methods within the individual Branches. Specific guidance is available in Branch procedures. The Division Quality Assurance Manager monitors the effectiveness of the quality system in regards to purchased items through audits and summarizes the effectiveness to the Assistant Directors in the Management Procedures Audit report.

### **4.3 Quality System Requirements for Services**

Most service related activities are conducted by in-house services at EPD. When an outside contractor is required, the Program Manager ensures that sufficient quality standards and performance-based quality requirements are included in the contract. Standards and specifications, if not defined, are developed in the planning process and will be included in a project quality assurance project plan or vendor contract. All contracts originating from EPD include standard terms and conditions for quality related issues; additional project related quality standards are added as required by the Branch Chief or project manager. Inspections of contracted services are conducted during and after the work activity to ensure contract defined criteria are met. Payments for services are not

made until all work is completed, inspected and approved by the project manager. The Division Quality Assurance Manager monitors the effectiveness of the quality system in regards to contracted services through audits and summarizes the effectiveness to the Assistant Directors in the Management Procedures Audit report.

#### **4.4 Contractor and Assistance Agreement Holders Quality Systems**

EPD requires that contractors and assistance agreement holders have sufficient elements of an approved quality system in place for each work activity to ensure compliance with the project defined quality objectives. The contractor or assistance agreement holder must have a quality management plan in place prior to the awarding of a contract or agreement. As part of the planing process, project personnel review and evaluate the quality systems of the contractor or assistance agreement holder. The Program Manager must approve the quality systems as suitable for the expected work activity. The Program Manager prepares a quality system compliance report for the Branch Chief. This report must document all aspects of the contractor's or assistance agreement holder's quality system and compliance with EPD quality requirements.

Both internal (EPD) and external (contractor or assistance agreement holder) assessment procedures will be utilized to assess work activity compliance with quality objectives. These assessments will be conducted independently and reported to the Program Manager through a formal reporting process. Deficiencies identified through either assessment will result in the initiation of a corrective action report that will require resolution of the identified deficiency prior to approval and acceptance of the work activity by EPD. The Division Quality Assurance Manager monitors the effectiveness of the quality system through audits and summarizes the effectiveness to the Assistant Directors in the Management Procedures Audit report.

## **5.0 Documents and Records**

### **5.1 Introduction**

This policy applies to all documents and records generated or maintained by EPD, including, but not limited to, the Quality Management Plan, data quality objectives, quality assurance project plans, and standard operating procedures. The policy applies regardless of medium. All records created or received by EPD must be maintained and be available for public review (with certain exceptions for confidential business information). Records are archived if they are no longer of active interest or may be destroyed if no regulatory requirement precludes destruction.

### **5.2 Identification of Quality Controlled Documents and Records**

Current EPD policies require that records be maintained and available for public review. Records that are no longer of active interest may be archived, either in original format or on microfilm or destroyed if there are no regulatory requirements for retention. Policies regarding the possible electronic archiving of records are currently in development.

### **5.3 Process Maintenance**

Responsibility for maintaining quality related documents rest with each Branch Chief. Each EPD Branch must establish procedures to ensure that these documents are accessible and protected from damage or deterioration. Further, each Branch establishes procedures for preparation, review approval, use, issuance and revision.

### **5.4 Documents**

Quality controlled documents and records are prepared, reviewed, approved, issued and revised according to guidelines adopted by each EPD Branch Chief as reviewed by the Division Quality Assurance Manager.

Each EPD Branch is responsible for establishing the necessary procedures to ensure that all quality-related documents are maintained in accordance with EPD policy and State law. These procedures are coordinated and reviewed with the Division Quality Assurance Manager. Each procedure addresses the management, planning and development, procedures for revision and review, distribution, completeness and accessibility of the documents.

### **5.5 Compliance**

Records and documents are public property and must be maintained in accordance with State law. The appropriate EPD personnel receive training in these procedures as a portion of their overall training plan. Each EPD manager is responsible for ensuring that all documents under their control are properly maintained. In addition, EPA Directives 2100 and 2160 are followed.

### **5.6 Documentation System Assessment**

Branch Chiefs will provide copies of procedures for document control to the Quality Assurance Manager as developed. Each Branch's procedures are reviewed by the Division Quality Assurance Manager to verify that procedures are adequate and are being appropriately implemented. The effectiveness of the procedures will be assessed during Data Collection and Technology Review Audits conducted by the Quality Assurance Manager. The Quality Assurance Manager will report to the Assistant Directors on the individual Branch procedures for controlling documents as required by the annual Management Procedures Audit report.

## **6.0 Computer Hardware and Software**

### **6.1 Introduction**

The Georgia Department of Natural Resources (DNR) Program Support Division establishes computer system hardware and software standards. This DNR Division approves all hardware and software acquisitions. Minimum standards for hardware and software compatibility requirements are presented in this Quality Management Plan.

### **6.2 Desktop and Notebook Computer Minimum Standards**

#### **6.2.1 Desktop Unit**

The minimum desk top system purchased by any DNR associate or program should be configured as follows: 128 MB RAM memory, 30 GB hard disk, Windows 2000/NT, integrated 10/100 3Com network card (built into the motherboard), CD-ROM, 17" or larger monitor. Systems purchased should be in the Dell product family. Any new system purchased should be purchased with Microsoft Office Suite installed. Exceptions must be approved by the Director of Systems Development.

#### **6.2.2 Laptop Unit**

The minimum laptop (notebook) configuration purchased by any DNR associate or program should be configured as follows: 128 MB RAM, 30 GB hard disk, Windows 2000/NT, CD-ROM, 56K modem, and Ethernet PC Card. Systems purchased should be in the Dell product family. Any new system purchased must be purchased with Microsoft Office Suite installed. Exceptions must be approved by the Director of Systems Development.

### **6.3 Printer Standards**

Any printer purchased within DNR must be in the Hewlett-Packard product family or closely compatible.

### **6.4 Software Installations**

Most software installations are generally without installation and configuration problems. However, instances do occur where software is installed that impacts the working capability of the computer because of inappropriate installation configuration or conflicts with software already installed on the computer. In addition, there are standards and licensing issues that the DNR is responsible for meeting. Therefore, it is suggested that any software installations, at the very least, be approved through DNR Computer Support before installation, and usually be installed by Computer Support.

## **6.5 Software Development Standards**

### **6.5.1 Selection of Database Platform**

If the application will involve five or fewer persons within a workgroup, the data should be stored in a Microsoft Access database. If the database will reside on a file server, then the database installation must be coordinated with the Computer Support Section. Contact either the Director of System development or the Director of Network and User Services to coordinate the installation. If the application is to be used by more than five persons, then that application should be stored in an Oracle database. Contact the Director of Systems Development or the Oracle Database Administrator to coordinate the installation.

### **6.5.2 Exceptions**

Computer systems that have existed prior to July 1, 1998 will be permitted to continue using database platforms currently supported. Any substantial rewrites or redefinitions of database functionality should support either Access or Oracle as previously indicated.

## **6.6 Client Applications**

Client applications are any applications that permit new data entry or modification of data that are stored in databases. Client applications should be written using one of the following tools: Microsoft Visual Basic, Oracle Developer/2000, MS Access or PL/SQL. Exceptions to these development environments may be made depending on the requirements of the application. Contact the Director of Systems Development for approval prior to deviating from an approved development tool. All software development accessing the DNR Oracle database must be certified and approved by the Director of Systems Development.

### **6.6.1 Exceptions**

Client applications that support commercial software and are not developed expressly for a program or workgroup and software mandated for use by some external agency such as US EPA is exempted from the requirements stated above. In the event of a substantial rewrite of a system application, the client software should be written using one of the approved programming tools.

## **6.7 Contract Software**

Software that is contracted for development should support one of the approved databases and the contract must be approved and certified by the Director of Systems Development. Client software should be written using one of the approved tools, and where possible, the software should be purchased with rights to the programming code.

## **6.8 Web Pages and Web-based Data Access**

The Project Manager for Internet and Intranet Services supports efforts to provide information including database access via the web. The Project Manager must be consulted with respect to any significant web-based development efforts.

## **6.9 Web Browser Software**

All associates are required to run either Netscape or Microsoft Internet Explorer as the web browser software.

## **6.10 Database Quality Verification**

The Branches within EPD have in place or are developing procedures to evaluate the quality of data contained within individual databases. Databases are maintained for support of environmental data generated through the analysis of environmental samples at the EPD Laboratory. The EPD Laboratory has in place a comprehensive LIMS management plan that meets the requirements of *Good Automated Laboratory Practices* (USEPA document 2185). Data integrity controls are a component of the Laboratory Information Management software program. These controls include among others, stringently controlled access to data tables and audit procedures that require the identification and confirmation of personnel altering environmental data in the database. Database synchronization is maintained between the EPD Laboratory and the Branches by careful visual assessment of data exports to the Branches. Additionally, comparisons of exported environmental data are conducted electronically between databases by laboratory developed procedures utilizing Microsoft Access to identify inconsistencies in data transfer.

## **7.0 Quality Improvement**

### **7.1 Introduction**

If any quality system is to be effective, it must have a mechanism to continually improve the process. The quality system at EPD is modified as required to improve the overall quality of data collection, management and decision making processes. The technical staff is encouraged to notify the Division Quality Assurance Manager when a system deficiency is discovered.

### **7.2 Quality System Improvement Activities**

The Division Quality Assurance Manager and Branch Chiefs shall meet on a periodic basis to assess the effectiveness of the quality system. Through the system assessments the Division Quality Assurance Manager evaluates quality system requirements and recommends improvements to the Assistant Directors annually at a minimum. Revisions in system requirements are also made throughout the period if regular and systematic deficiencies are resulting in less than desired improvements in data quality. Additionally, the Branch Chief can bring recommendations directly to the attention of the Assistant Directors and Division Quality Assurance Manager at any time.

### **7.3 Corrective Action Program**

A corrective action program to ensure conditions adverse to quality are identified promptly and corrected is conducted through memorandums to the Division Quality Assurance Manager. Any EPD technical staff member can initiate a corrective action memorandum to the Quality Assurance Manager and does not require routing through a Branch Chief. Routing through the Branch Chief is recommended for some corrective actions. As adverse conditions are identified, a corrective action memorandum is initiated and forwarded to the Branch Chief and Program Manager. A log is maintained to document corrective actions and resolutions. The corrective action memorandum should identify the adverse condition, present an evaluation of the condition and recommend a resolution. A summary of corrective actions are reported to the Assistant Directors in the Management Procedures Audit report.