Quality Management Plan
for the
Florida Department of Environmental Protection's
Division of Air Resource Management

Revision No. 2014-II

Florida Department of Environmental Protection
Tallahassee, Florida

Contents

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1.0 QUALITY MANAGEMENT PLAN IDENTIFICATION FORM

Document Title: Quality Management Plan for the Division of Air Resource Management
Organization Title: Florida Department of Environmental Protection (FDEP)
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Plan Coverage: This Quality Management Plan (QMP) addresses all monitoring and measurement activities mandated through EPA regulations and memoranda, and is applicable to all programs managed by the Division of Air Resource Management. The purpose of the QMP is to assure that environmental data generated using funds from EPA, in part or in whole, is adequate to support scientifically valid environmental decisions. It specifically applies to all DEP and local air program activities *(e.g.,* monitoring programs) whose purpose is to prevent pollutants from entering the environment or to remove pollutants from the environment. Generally, EPA funding is administered via grants, contracts or cooperative agreements with EPA.

2.0 INTRODUCTION

It is the policy of the U. S. Environmental Protection Agency (EPA)[1] that all environmental programs conducted by, or on behalf of, the EPA, shall establish and implement effective quality systems to support the scientific and legal defensibility of those programs. A quality system is a structured and documented management system that functions to monitor, evaluate, and improve the quality processes within an organization. Key components of the system are the quality assurance (QA) policies and procedures that describe the processes for ensuring that work, products or services satisfy stated expectations or specifications. Both the EPA and any organizations conducting programs on the EPA's behalf must document their quality systems in an approved Quality Management Plan (QMP).

This document is the QMP for the Florida Department of Environmental Protection's (DEP) Division of Air Resource Management (DARM). The purpose of this plan is to document the DARM's quality systems and to provide a blueprint for how the Division will plan, implement, and assess its quality systems for the environmental work performed on behalf of, or funded by, the EPA.

The DEP is Florida's principal environmental and natural resources agency. Although the Department is involved in a wide area of environmental protection and management activities, this QMP details the quality systems currently in place with those air program activities related, or of concern, to the EPA. This includes programs generating environmental data for EPA-mandated activities conducted through monitoring programs, grants, contracts and cooperative agreements.

In 1998, the DEP was granted statutory authority to "establish, by rule, appropriate quality assurance requirements for environmental data submitted to the department and the criteria by which environmental data may be rejected by the department" (Chapter 403.0623, Florida Statutes). The 2008 legislature modified the statute to allow the DEP to further "adopt and enforce rules to establish data quality objectives and specify requirements for training of laboratory and field staff, sample collection methodology, proficiency testing, and audits of laboratory and field sampling activities". From this statutory authority, the Department structured its Quality Assurance Program for air resource management activities. This program is codified in rules that are outlined in Chapter 62-204 of the Florida Administrative Code (F.A.C.)

[1] CIO 2105.0 (formerly Executive Order 5360.1 A2), *Policy and Program Requirements for the Mandatory Agency-wide Quality System,* U.S. Environmental Protection Agency, Washington, D.C. (May 5, 2002).

3.0 MANAGEMENT AND ORGANIZATION

3.1 General Organization

3.1.1 The Secretary of the FDEP, as the Department's senior manager, is responsible for the Department's Quality Programs. The Secretary has designated the Division of Air Resource Management (DARM) as having authority to establish policy for data quality issues and for activities involving air resource management. The QA Manager (QAM) for the air programs is team leader for the Data Validation Team and Quality Assurance Audit Staff.

The funding for the quality system within the Division is determined by the Program Administrator of the Office of Air Monitoring in conjunction with the Division Financial Officer. The allocated funds are tracked by use of specific QA modules. Audits conducted by the QA staff for the OAM and local air programs are funded by the Division.

3.1.2 Senior Management (Division Director and Local Air Program Directors) have the responsibility of ensuring that the programs under their purview implement a quality system that is consistent with the QMP and support such efforts with funding, staff and training.

3.1.3 Middle Management (Program and Section Administrators, and Air Monitoring Staff Supervisors) will ensure that a quality system is implemented. They will

- Periodically require an evaluation of the effectiveness of the QA activities within their program/section;
- Request QA reviews and training through the QAM;
- Evaluate and implement corrective action measures as recommended by the QAM;
- Review of monitoring data and support recommended improvements in their quality systems; and
- Be familiar with the relevant Department and EPA requirements, rules and statutes and ensure that all quality documents are consistent with the applicable federal and state requirements

3.1.4 Program Staff have the responsibility of:

- Routinely carrying out the duties involved in data collection, data evaluation, data interpretation, and the generation of ambient monitoring and quality assurance reports in a manner that ensures scientific defensibility and adherence to the appropriate regulations, rules and policies;
- Evaluating monitoring data using applicable data quality performance criteria;
- Implementing corrective actions as directed by their supervisors and the QAM;
- Providing feedback to the QAM for improving the program's quality system; and
- Understanding and implementing the requirements of the applicable project plans.

3.1.5 Quality Assurance Oversight of the Division's air monitoring activities is handled by the Quality Assurance Manager (QAM) with the assistance of the various

program Quality Assurance Coordinators.

3.1.5.1 The Quality Assurance Manager (QAM) has the overall responsibility for ensuring that the quality systems documented in this QMP meet statutory requirements for EPA-derived work. The QAM also oversees the development, implementation and continued operation of the DARM's QA air monitoring policies. The QAM is responsible for:

- Providing leadership for air monitoring quality issues, providing training and technical assistance;
- Preparing, distributing and providing training for the QMP;
- Ensuring that each monitoring operational activity has a subject-specified project plan.
- Coordinating the efforts of the local program and the Office of Air Monitoring's QA Coordinators by holding regularly scheduled meetings. The Florida Air Monitoring Advisory Committee (FAMAC) is made up of the QA Coordinators from the various agencies operating monitoring programs. The FAMAC meets virtually or in person, on an approximate quarterly basis, with the same group, to address general monitoring as well as quality assurance issues;
- Providing guidance and training to the program QA Coordinators (see 3.1.5.2 below);
- Independently evaluating the effectiveness of the Division's air monitoring quality system and initiating corrective actions where warranted; and
- Decisions on data quality that are independent of management.

3.1.5.2 Each ambient monitoring program, FDEP or local air program, or contractor submitting data for regulatory use in Florida has a designated Quality Assurance Coordinator with the responsibility of ensuring the QMP is implemented. The QA Coordinator:

- Is the focal point for quality assurance questions that may arise in the programs for which they hold oversight responsibility, including providing input on quality and technical issues;
- Is responsible for understanding the contents of the QMP and coordinating the development of program specific project plans that are consistent with the requirements of the QMP;
- Has the authority to independently assess functions under their purview, and to provide recommendations to management when improvements or other actions are warranted;
- Ensures that any specific requirements arising from the EPA or the FDEP delegation grant conditions, contracts, and cooperative agreements are fulfilled.

3.2 Organizational Units The following organizational units within FDEP and/or under contract/agreement with the FDEP have quality assurance responsibilities under this

QMP. The FDEP Division-related organizational charts are shown below.

Figure 1 FDEP Organizational Chart

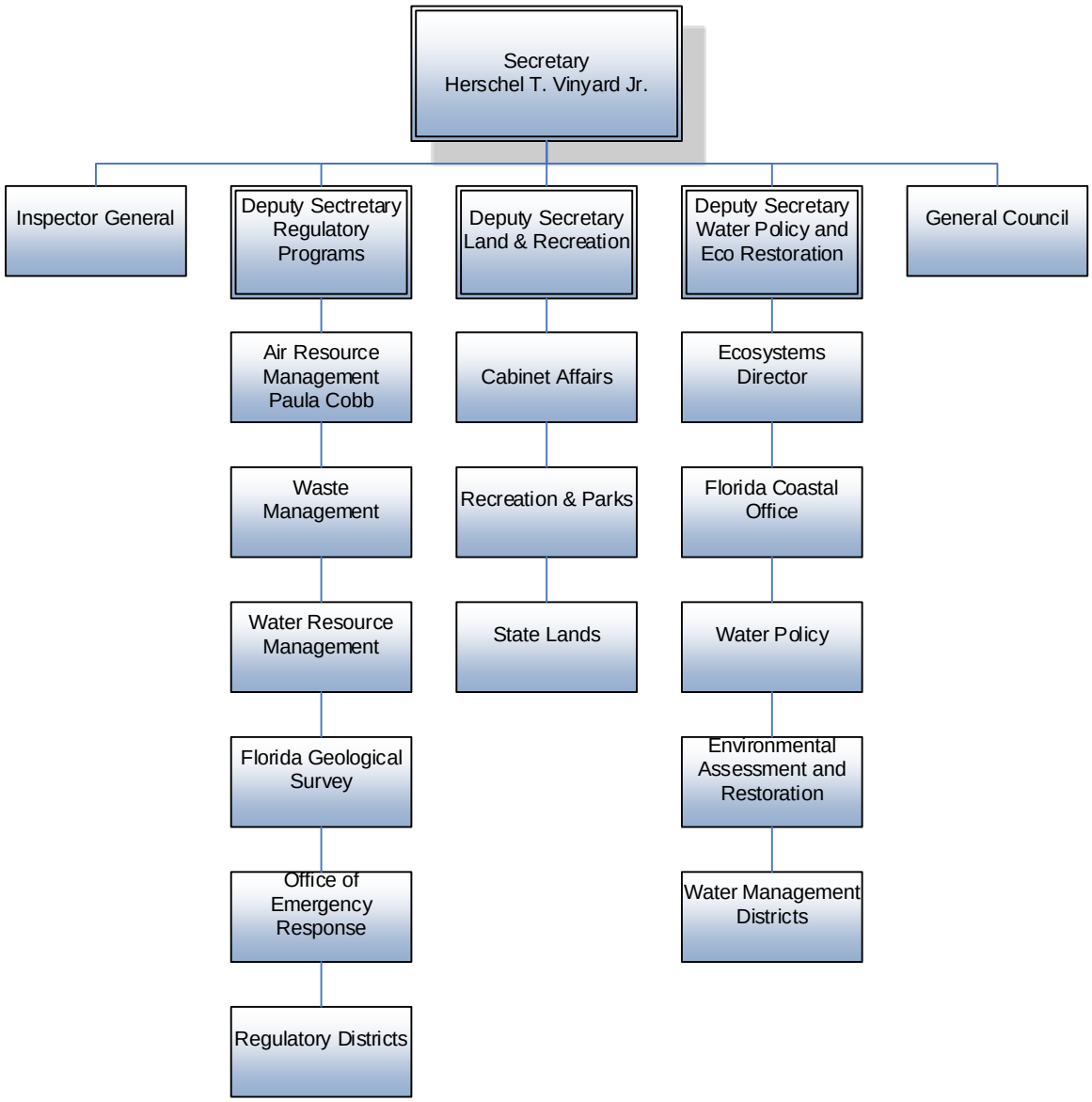
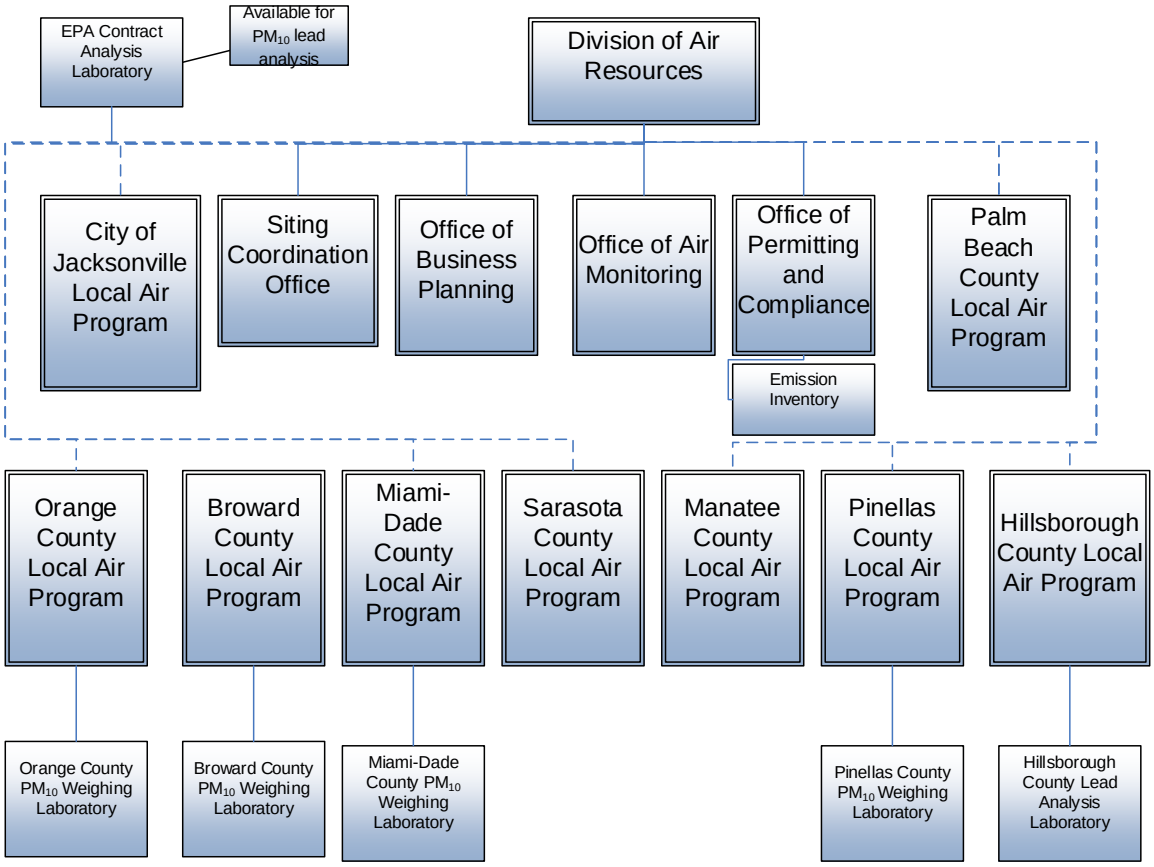
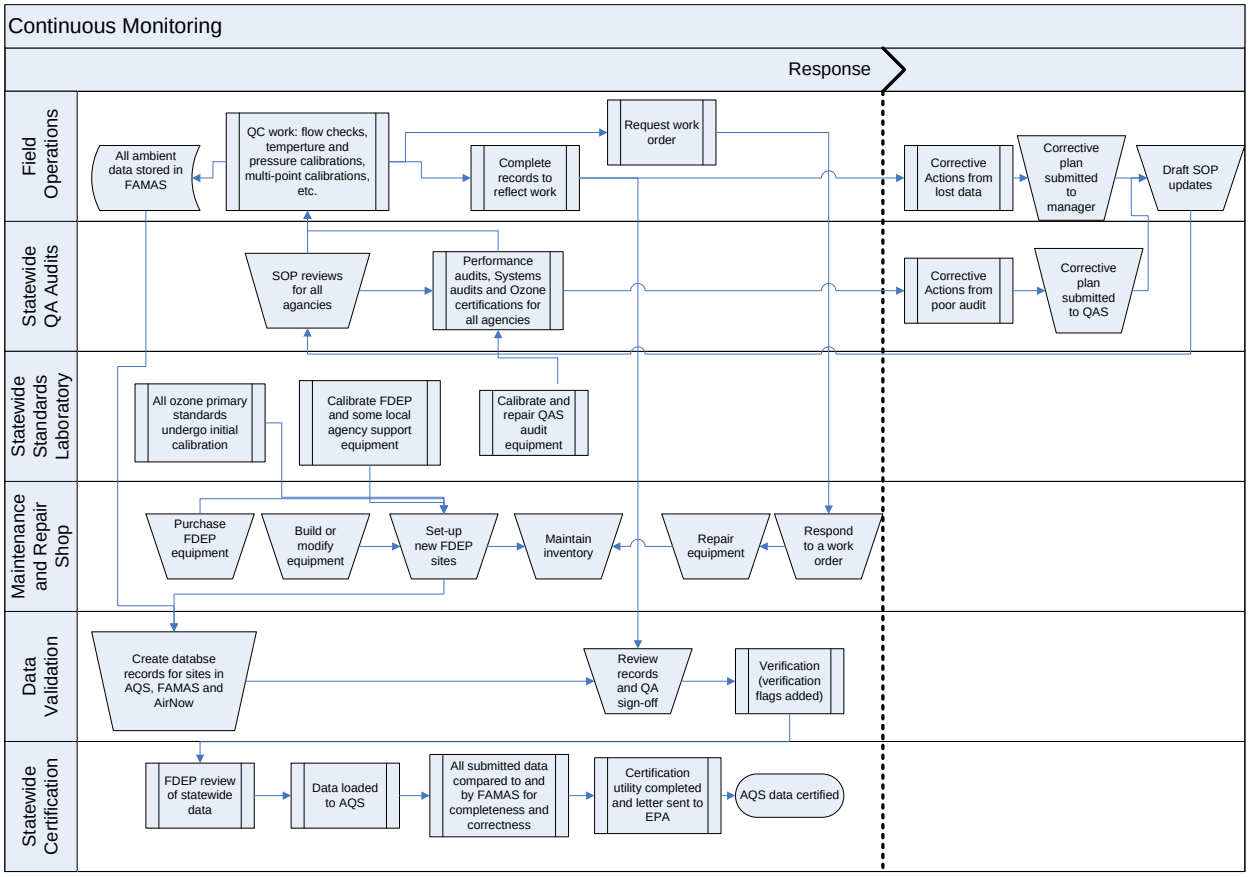


Figure 2 Division of Air Resources Relationship to Monitoring Agencies



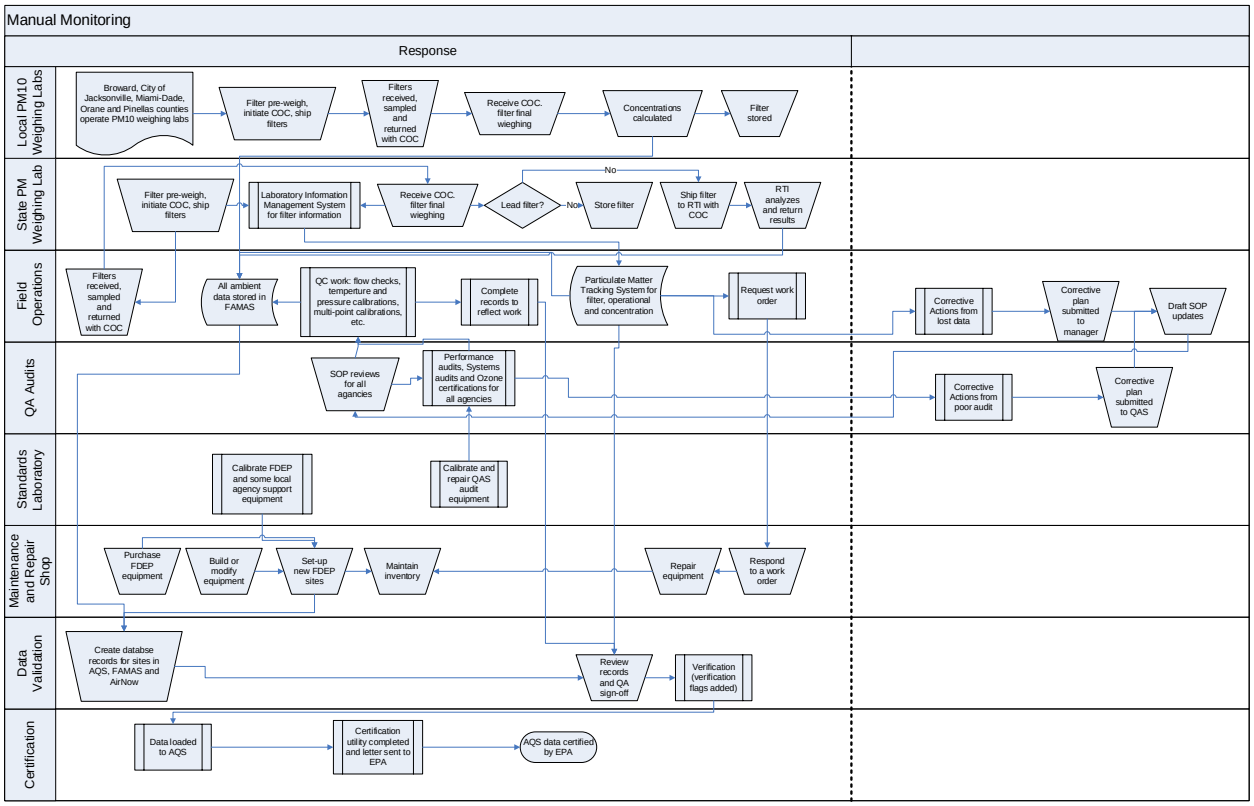
3.2.1 All quality data are produced with integration of staff efforts across agencies. The cross functional activities are illustrated in Figures 3 and 4.

Figure 3 Continuous Monitoring Cross Functional Processes



3.2.2 All laboratories providing data to the FDEP, either directly or through the agencies listed in 3.2 above are required to meet the general requirements as specified in the most recently approved *Quality Assurance Management Plan(s) for the Florida Department of Environmental Protection*. Laboratory data provided from federal contract labs will meet the quality requirements in their federal contracts.

Figure 4 Manual Monitoring Cross Functional Processes



4.0 QUALITY SYSTEM COMPONENTS

Quality system components can be generally characterized as planning, implementation, assessment and documentation. The DEP's quality system consists of the following:

4.1 Planning Each FDEP program and project manager is ultimately responsible for ensuring that data generated by, or submitted to, the FDEP are appropriate for their intended use. This responsibility includes scientific study design, appropriate QA planning, development of DQOs, identification of Quality Control Measures, preparation of QA planning documents where appropriate, and the coordination of technical and data quality issues among field, laboratory, and data assessment staff involved in the activity. Details of the planning process are delineated in Section 9 of this QMP.

4.2 Implementation Once approved, the procedures or processes outlined in the quality plans will be followed. Important elements in the implementation include Standard Operating Procedures, certification and training, and information management. These specific items are discussed in detail in Section 10 of this QMP.

4.3 Assessment Different types of assessment activities are used to verify that measurement systems are operating appropriately and that the data generated by these systems are appropriate for their intended use. The following assessment activities, data quality audits, performance audits, systems audits, the EPA's National Performance Audit Program and the PM-specific Performance Evaluation Program, along with corrective actions, may be used alone, or in conjunction with others, to evaluate the targeted process. These items are discussed in detail in Section 11 of this QMP.

4.4 Documentation An important component of any quality system is the ability to document all the associated activities. The FDEP and DARM archives the records associated with the previously discussed QA System components. Documentation is addressed in detail in Section 7 of this QMP.

4.4.1 The Quality Management Plan for the Florida Department of Environmental Protection governs all of the agencies which produce air monitoring data reported which are used in regulatory activities. There is another Quality Management Plan for the activities of other environmental activities of FDEP.

4.4.2 Quality Assurance Project Plans are required for each air monitoring project that is federally funded, however QAPPs or an equivalent quality assurance document may also be developed for projects that are not federally funded. A QAPP must comply with all applicable requirements, including U.S. EPA's Requirements for Quality Assurance Project Plans (EPA QA/R-5), and must be consistent with the objectives and requirements of FDEP's QMP. A QAPP document includes the following elements:

- Mission, objectives, and policies

- Purpose and background
- Distribution and approval signatures
- Roles and responsibilities
- Resource requirements
- Measurement, sampling, analysis, and chain of custody specifics
- Instrument requirements
- Data acquisition and management specifics
- QA/QC activities
- Assessment activities and responsibilities
- Reports produced for management
- Data validation and DQO reconciliation specifics.

4.4.3 Standard Operating Procedures Pursuant to 40 CFR, Part 58, Appendix A, Section 3.1, all monitoring organizations within FDEP's PQAO are required to adopt and follow OAM's SOPs for each air monitoring instrument they operate and for which ambient air quality data are reported. Air monitoring organizations may adopt and follow alternative SOPs that have been reviewed and approved by OAM.

SOPs are an integral part of a quality system. They provide staff with the information necessary to perform a specified task properly and facilitate consistency which helps ensure the quality and integrity of results. SOPs utilized by OAM and monitoring organizations within its PQAO describe the detailed procedures for air monitoring activities, including sample collection, instrument operation and maintenance and preparation and analysis of samples. New or revised SOPs are developed by experienced staff and are reviewed by the appropriate program manager and other management and staff, as appropriate. They are forwarded for review by OAM quality assurance staff. After the OAM comments are addressed by the submitting agency, they are forwarded to EPA for approval. OAM has developed guidance used in addition to EPA's Guidance for Preparing Standard Operating Procedures (EPA QA/G-6), which identifies the elements of an effective SOP.

4.4.4 Quality Assurance and Technical Training are addressed by each organization involved in the ambient monitoring program. Local programs, OAM and EPA each provide and receive quality assurance and technical training. OAM strives to provide annual statewide hands-on technical training. It also provides quality assurance training, most often through FAMAC and quarterly statewide teleconferences attended by all regulatory agencies in the state.

4.4.5 Data Validation should be completed by the submitting agency. Many of the data validation steps will be repeated by OAM staff prior to submitting the data to AQS quarterly and again on an annual basis before certifying the data to assure proper usability of the data.

4.4.6 Data Assessments include the review, verification, validation, and assessment of data generated or utilized for regulatory purposes. The data assessment process includes both internal and external quality control assessments of the accuracy, precision, data completeness, and criteria identified in associated QMP, QAPPs, and SOPs. Internal assessments are conducted by the producers of the data on a continuous basis to identify issues in real-time.

4.4.7 Quality Assurance Audits are an integral component to the quality system and are discussed in section 11.0 Assessment and Oversight.

5.0 PERSONNEL QUALIFICATIONS AND TRAINING

5.1 The FDEP's Policy is that all staff be fully qualified, per the knowledge, skills and abilities (KSAs) and the licensure/registration/certification requirements specified in the Position Description for each designated monitoring position. Each staff member is to be provided the training necessary, whether on-the-job, on-line, or formal classroom, to enable the staff member to remain fully qualified and current on all aspects of his/her position. This training includes those areas considered general in nature, i.e., ethics, diversity, harassment, and public records; general to the staffs operational area, such as increasing levels of management training for supervisors and managers, and general computer training courses; and specific to the job function, such as FDEP supplied hands-on instrument training courses for field operators and specific EPA-supplied air monitoring training courses. All levels shall obtain quality assurance related training as necessary to perform their designated functions. Specifically, all levels of air operations staffs should attend the APTI 470 Quality Assurance for Air Pollution Measurement Systems course, including completing the necessary prerequisites for this course.

5.2 Management's Responsibility at all levels is to ensure that their staffs receive the training necessary, as stipulated in the **Policy** above, to be and remain fully qualified for their positions. Specifically:

5.2.1 Senior Management (Division Director and Local Air Program Directors) has the responsibility to develop and review the general training plans for its respective agencies, provide the funding and necessary staff time to allow the overall training objectives to be realized.

5.2.2 Middle Management (Program and Section Administrators) has the responsibility to ensure that each member of its staff have the time and the wherewithal to obtain the training necessary to maintain currency in their job functions. Middle management must also ensure that the Senior Managers are aware of the training requirements, affiliated costs and staff time requirements. Middle managers should also be involved in designing the training programs, with the assistance of their staff supervisors, and individual staff members.

5.2.3 Program Staff has the responsibility of ensuring they participate in the training that is offered and required. Individual supervisors will maintain the written training records, review them on a frequent basis to ensure that all staff members are current on their training, and assist the Middle Managers in the design and development of the individual training programs.

5.2.3.1 Identifying Training Needs The Office of Air Monitoring (OAM) works with local air monitoring program staff to identify the training needs of field and laboratory staff, data users and program managers.

5.2.3.2 Developing Training Based on the training needs, the OAM assists the other program areas in the development of presentations and educational materials and conducts air monitoring and quality assurance training workshops and meetings.

5.2.3.3 Availability The presentations developed for these training sessions are generally placed on the Department's network drive for access by anyone in the monitoring community who wants to use the presentations.

5.2.3.4 Training for QA Coordinators The QA Coordinators in the various air monitoring programs are encouraged to attend all related training courses, since these individuals are expected to be able to assist their program staffs in implementing any quality assurance related activities covered during the training sessions. In addition to understanding the 40 CFR Parts 50, 53 and 58, this QMP, the QAPPs and SOPs. The following courses constitute a good basis for understanding quality assurance and ambient air monitoring.

- APTI 470 Quality Assurance for Air Pollution Measurement Systems
- APTI SI:303 Chain-of-Custody APTI OS:411A Series 411 - Computational Atmospheric Sciences: Essential Sciences for Air Quality Modeling
- APTI OS:411B Series 411 - Computational Atmospheric Sciences: Essential Atmospheric Sciences
- APTI OS:411C Series 411 - Computational Atmospheric Sciences: Meteorology for Air Quality Monitoring
- APTI RE:100 Basic Concepts in Environmental Sciences - Module 1: Basic Concepts
- APTI RE:100 Basic Concepts in Environmental Sciences – Module 2: Characteristics of Gases
- APTI RE:100 Basic Concepts in Environmental Sciences – Module 3: Characteristics of Particles
- APTI RE:100 Basic Concepts in Environmental Sciences – Module 4: Liquid Characteristics
- APTI RE:100 Basic Concepts in Environmental Sciences – Module 5: Flowcharts and Ventilation Systems
- APTI RE:100 Basic Concepts in Environmental Sciences – Module 6: Air Pollutants and Control Techniques
- APTI RE:100 Basic Concepts in Environmental Sciences – Module 7: Regulatory Requirements
- APTI SI:100 Mathematics Review for Air Pollution Control
- APTI SI:303 Chain-of-Custody
- APTI SI:400 Introduction to Risk Assessment/Risk Management
- APTI SI:409 Basic Air Pollution Meteorology
- APTI SI:433 Network Design and Site Selection for Monitoring PM 2.5 and PM 10 in Ambient Air
- APTI SI:434 Introduction to Ambient Air Monitoring

- APTI SI:436 Site Selection for Monitoring of SO2 and PM10 in Ambient Air
- APTI SI:471 General Quality Assurance Considerations for Ambient Air Monitoring
- APTI SI:473A Beginning Environmental Statistical Techniques
- APTI SI:474 Introduction to Environmental Statistics
- CARB 101 Uniform Air Quality Training Program (UAQTP)

5.2.3.5 Specific Audit Training Individuals that are involved in the auditing of the quality aspects of the ambient monitoring program are expected to:

- Understand the DARM's audit process;
- Have training and/or prior experience in the technical aspects of the ambient monitoring program;
  - A specific 6 month on the job training protocol has been developed for audit staff;
- Have a working knowledge of the applicable quality documents;
- Understand and be able to apply relevant quality principles;
- Be objective; and
- Where possible, have no direct involvement with the audited agency.

5.2.3.6 Training Proficiency Hands-on training is provided to staff on a regular basis (usually annually). A proficiency training program is being developed by OAM for evaluation of all monitoring personnel in the PQAO.

6.0 PROCUREMENT OF ITEMS AND SERVICES

6.1 The FDEP's Policy is that all procurement of commodities and services required to meet the production and reporting of ambient monitoring related data be completed in accordance with the appropriate department (see FDEP Directives 300. 315 and 316), state and federal policies and procedures, to include the Governor's policy on the use of minority firms. Contracts involving air sampling activities (sample collection and analyses) shall be routed through the Department's Office of Air Monitoring for review and approval prior to contract execution.

6.2 Management's Responsibility at all levels is to ensure that the established policies and procedures regarding the procurement of commodities and services are adhered to and to assist in the formalization of those procedures within each division, office and section. Specifically:

6.2.1 Senior Management (Division Director and Local Program Directors) have the responsibility of overseeing the procurement programs to ensure the policies and procedures are being followed, through delegation of responsibility to the lowest appropriate managerial level, and to ensure sufficient funding is available to complete the procurement activities needed to meet the established program goals and priorities. The FDEP senior staff representative for procurement is the Chief, Bureau of General Services, who acts as the department's liaison with the State of Florida Department of General Services' State Purchasing Office, which is responsible for the development of the overall statewide procurement program.

6.2.2 Middle Management (Program and Section Administrators) have the responsibility for assuring the procurement activities entrusted to them, usually the actual procurement of supplies and the development of contractual services, meet all of the mandated requirements.

6.2.2.1 The procurement process for commodities is handled through a multi-level review process, which includes the Administrator's immediate supervisor (Program Administrator), a procurement review specialist within the Division, and liaison specialist at the Division level, that ensures that the purchase requisitions are accurate, complete and clearly describe the item needed, that the technical requirements are clearly stipulated, and the requirements of the supplier to provide documentation as to the quality of the item (NIST traceability, warranty specifications, etc.). The Administrator is also responsible for the final acceptance approval for all commodities, based on after-receipt reporting from the staff for which the commodity was acquired.

6.2.2.2 The procurement process for contracts for services is also handled through a multi-level review process. In this case, the Administrator serves as the Contract Manager who is responsible for enforcing performance of the contract terms and conditions, serves as the liaison with the contractor, and approves all invoices prior to payment. The department's Contracts Administrator, who is

part of the Administrative Services Division, is responsible for maintaining the contract files and financial information on all contracts and serves as liaison with the Contract Managers. The Contracts Administrator is responsible, along with the Office of General Council's staff, for developing the standard language utilized in all of the department's contracts. Specifics of the requirements, specified in the Grant Work Plan, for each contract is developed by the Contract Manager, in coordination with the contracted agency and the Contracts Administrator.

> "All work performed under this Agreement by the Grantee shall be consistent with the Department's Division of Air Resource Management's Quality Assurance Project Plan for the State of Florida Ambient. Monitoring Program; 40 CFR, Part 58; EPA's Quality Assurance Handbook for Air Pollution Measurement Systems, *EPAl600/R-94/038a,* Volume I: A Field Guide to Environmental Quality Assurance, dated April 1994; EPA's Quality Assurance Handbook for Air Pollution Measurement Systems, EP *Al4541B*08-003, Volume II: Ambient Air Quality Monitoring Program, dated May 2013; EPA's Quality Assurance Handbook for Air Pollution Measurement Systems, EPA-4541B-08-002, Volume IV*:* Meteorological Measurements, dated March 2008; and the Department/EPA approved Standard Operating Procedures which address all instrumentation utilized in the Grantee's ambient air monitoring program."

6.2.3 Program Staff have the responsibility, in coordination with the Administrator, of determining the commodity requirements, researching the availability of the commodities and the possible vendors, to ensure that the research includes a review of available minority vendors to meet the Governor's policy. The program staff then documents all of the following information, including the required specifications for the commodity, to include any traceability requirements. The Administrator then reviews the package to ensure that the commodity will satisfy all of the technical and quality requirements, and once satisfied, forwards the package to the Division's procurement review specialist who then prepares the necessary purchase requisition for review and signature by the Program Administrator. The package is then forwarded to the Division's procurement specialist who prepares the final documents for either a direct purchase by the requestor utilizing a State Purchase Card (credit card) or forwards the package to the department's purchasing section which prepares a Direct Order package which is then forwarded to the vendor and payment, once the commodity has been received and accepted, is handled through the State's Comptroller's Office. The Program Staff also has the responsibility of receiving the commodities, verifying that they meet all of the specified quality requirements and that the commodities are usable for their intended purpose. Once that has been ascertained, the Administrator will formally approve the payment, through the Division's procurement specialists.

7.0 DOCUMENTS AND RECORDS

7.1 Sufficient documented quality assurance is the FDEP's policy that documented quality assurance must show sufficient documented quality assurance activity to assure that the ambient air quality data and other related activities are legally defensible in a court of law to meet and support the regulatory actions based upon those data and activities. Data cannot be admitted as evidence unless it can be shown that they are representative of the conditions that existed at the time that the data (or sample) was collected. Therefore, each step in the sampling and analysis procedure must be carefully monitored and documented. Records created in Florida are subject to broad public records access so there would be no confidentiality unless the records were specifically exempted by Florida Statute 286. There are basically four elements in the evidentiary phase of an overall quality assurance program:

1. Data collection - includes measurement preparation and identification of the sample, sample location and sample time. It also includes the conditions during the measurements in the form of data sheets, logbooks, strip charts, and raw data.
2. Sample and/or measurement result handling - includes evidence that the sample and data were protected from contamination and tampering during transfer between people and from the sampling site to the laboratory and during analysis, transmittal, and storage. This process is documented in chain of custody forms.
3. Analysis - includes evidence that samples and data were properly stored prior to and after analysis, interpretation and reporting.
4. Preparation and filing of measurement report(s) - includes evidentiary requirements and retention of records.

For ambient air samples to provide useful information or evidence, laboratory analyses must meet the following four basic requirements:

1. Equipment must be frequently and properly calibrated and maintained.
2. Personnel must be qualified to make the analysis.
3. Analytical procedures must be in accordance with accepted practice, properly documented and received peer and management review.
4. Complete and accurate records must be kept.

7.2 Management and Staff's Responsibility at all levels is to assure that all required documentation is identified, prepared, reviewed for conformance with technical and quality system requirements, authenticated and approved by the proper level of authority, revised as necessary according to existing policies and procedures, maintained in a secure manner with proper codes being utilized, and archived as necessary to maintain the integrity of the records and documentation.

7.2.1 Field and Laboratory Records Chapter 1B-26, F.A.C., requires that all primary records associated with field activities (including sample collection) and laboratory analyses be retained by the generating entity for at least 10 years after the end of the project or activity. This Chapter also addresses the disposition of records that have exceeded their useful life.

7.2.2 QA Plans if specifically required by the EPA for activities conducted for or funded by the EPA, QA Project Plans (QAPP's) will be prepared in accordance with *Requirements for QA Project Plans* (EPA *QA/R-5,* March 2001). These QAPP's will be reviewed and

approved by the appropriate EPA office. This QMP and the related QAPP's are used to document the Division's quality system as it relates to the ambient monitoring program. Data Quality Objectives (DQO's) and QC measures will be incorporated into these QAPP's. The DQO's were developed as described in *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4, February 2006).

7.2.3 Documentation requirements regarding routine data handling, reports to management, data reporting, document control, archiving, retrieval are addressed in detail in Section 9 of each of the formally approved QAPP's and in various SOP's as those requirements affect the various on-going field and laboratory operations. The specific areas addressed include:

- Management and Organization
- Site Information
- Environmental Data Operations
- Raw Data
- Data Reporting
- Data Management
- Quality Assurance

7.2.4 Quality documents such as QMPs, QAPPs, SOPs and rules are reviewed periodically (at least annually) for effectiveness, content and consistency with State and Federal requirements. They are updated at least every 5 years. Changes to the QA documents must be handled as if the changes were original documents. Revisions to the SOPs must be made in accordance with the specifications of QAPP-002, Appendix A, section A.2.

7.2.5 Internal Records The Department has general policies for archiving or retaining records. The implementation of the policies and the period of time such records are retained are dependent on the nature of the records and the anticipated future need.

7.2.5.1 Records that are retained indefinitely include laboratory records, field records and material associated with rule-making activities and all audit records and corrective actions based on the audit reports. Most paper records are retained in file cabinets for 3 -5 years before archiving. When archived, a majority of departmental records are assigned a retention period of at least 5 years past the time they have been formally archived. Records that are deemed obsolete or have outlived their usefulness are physically removed, sorted to ensure that no personal identification or proprietary information is included, and recycled through a state-contracted service. Those obsolete documents that are found to contain either personal identification or proprietary information are shredded and then recycled. Electronic records must be maintained for the same time period and must be retrievable over the entire 5-year time frame. This usually entails updating the file formats on a routine basis to ensure the current software is capable of reading the stored data.

7.2.5.2 Originator Responsibility The originator of a quality document must ensure that the final version is dated, and that all subsequent revisions are noted as

revisions of the original document. There is no department or division-wide policy for assigning a document control identifier to department publications, however, all external quality documents originated by DARM are assigned a control number identifying the type of document (i.e., QAPP, SOP, etc.) and the sequence in which it appeared for like documents.

7.5.2.3 The general policies for managing records within the department are outlined in FDEP Directive 335. This document is available at the following site: http://www.dep.state.fl.us/admin/depdirs/pdf/335.pdf .

7.5.2.4 Electronic Records are backed-up and retained per the ITR directives. See DEP 390, Backup and Recovery.

8.0 COMPUTER HARDWARE AND SOFTWARE

8.1 FDEP's Office of Technology and Information Services (OTIS) is responsible for managing the hardware, software and communications components that form the foundation of the agency's information technology. OTIS has established hardware and software standards with which the Department must conform. The agency's Information Technology Resources (ITR) and Information Resource Security Standards policies are detailed in DEP Directives 370 and 390.

8.2 Application Support OTIS is the authority on standards, guidelines and approvals of IT service contracts and purchases. Contractor support is provided for the development and support of applications created specifically for the ambient air monitoring community, e.g. the Florida Air Monitoring & Assessment System (FAMAS), which is the repository of the regulatory air monitoring data supporting EPA's AQS.

8.2.1 Software support The Office of Air Monitoring staff, through the maintenance contract requests program design, redesign and development to obtain the hardware and software essential to the operation and maintenance of the ambient monitoring data, its storage, analysis and transmission.

8.2.2 Software implementation The Office of Air Monitoring staff works with the contractors hired by OTIS, to develop, test, and bring to production, those programs necessary to meet the aforementioned criteria. Proposed improvements, testing and trouble shooting of and for these programs to ensure the continued support necessary to meet the federal and state goals of data production is on-going.

8.2.3 Data Accuracy There are three stages of data handling that ensure the database has complete and correct data.

8.2.3.1 The first stage depends on the submitting agency using properly calibrated and maintained instruments according to approved SOPs and in compliance with the applicable QAPP and the CFR. The data are then submitted to the state's regulatory database, the Florida Air Monitoring and Assessment System (FAMAS). Continuous data are polled directly with error checking for many agencies and they complete their data quality handling in FAMAS. The rest complete data quality handling locally on Agilaire's AirVision system, (or its predecessor, EDAS) and submit all but their manual $PM_{2.5}$ data electronically. They complete a file comparison between their AirVision database and FAMAS to ensure correct transmission. The $PM_{2.5}$ FRM data are created in the Particulate Matter Tracking System database storing the laboratory data and the F files from the R&P 2025's which are uniformly used in Florida. The quality data handling is completed by the submitting agency before the data, to be reported to AQS, are electronically uploaded to FAMAS.

8.2.3.2 The second stage requires that all agencies must use a verification utility in FAMAS which reviews their data. It provides information on unusual data and

requires that all scheduled monitoring be complete or accounted for with null codes before the data are submitted to AQS. New data in FAMAS are backed-up nightly and the whole data base is backed-up weekly. A permanent record of the original data is maintained. Password security limits each agency to editing only its own data, though they can view and run reports on all data.

8.2.3.3 The third stage occurs after the data are transferred to AQS and a file comparison is run on the data loaded compared to what FAMAS has stored. Then the steps in the certification policy are completed.

9.0 PLANNING

9.1 Responsibility As specified in Section 4.1 of this QMP, each FDEP program and project manager is ultimately responsible for ensuring that data generated by, or submitted to, the FDEP are appropriate for their intended use. This responsibility includes scientific study design, appropriate QA planning, development of DQOs, identification of quality control measures, preparation of QA planning documents where appropriate, and the coordination of technical and data quality issues among field, laboratory, and data assessment staff involved in the activity. Overall, the success in planning is shown by producing data of sufficient quality to be certified for all uses in AQS as well as the approval of plans and quality documents by EPA.

9.1.1 Agency Agreements -with the exception of permits or compliance monitoring, the ambient air quality data the Department uses are the result of directed monitoring activities. Some of these monitoring activities are accomplished agreements between the FDEP and local air pollution control agencies.

9.1.2. Project Planning During the early planning phase of any investigation or data collection activity, the project manager shall clearly establish the intended use of the data, the time and resource constraints and, in general terms, the required data quality. This planning process identifies and solicits input from all affected parties. If special areas of expertise are required, the project manager is expected to make arrangements to involve the technical experts in the planning process. The overall planning process requires effective communication among the project manager, field, laboratory and QA technical staff, the secondary data users, as appropriate.

9.1.2.1 Sampling Design The selection of sampling sites is predicated on the objectives of a given activity. Sampling locations are selected to provide samples that represent the activity objectives. Compliance with the appropriate portions of 40 CFR, Part 58 regarding network design, sampler selection and probe placement (Appendices C, D and E) is mandatory.

9.1.2.2 The expected data quality is further characterized through data quality objectives (DQO's) that are specific to a project or activity. In identifying these objectives, the managers will consult with other DEP and local program technical staff on data quality issues outside of their areas of technical expertise.

- **Data Quality Objectives** -DQO's are the direct outcome of the process outlined in Guidance on Systematic Planning using the Data Objectives Process (EPA/240/B-06/001, EPA/G-4, February 2006) and is one way of approaching the systematic planning process: DQO's are qualitative and quantitative statements of a study's technical and data quality objectives that define the appropriate types of data and specify tolerable levels of potential decision errors. DQO's are established and documented prior to data collection and/or assessment activities. The DQO's are identified in the

project specific QAPP.

- **Quality Control (QC) Measures** -are a series of indicators that collectively define the quality of the submitted data. There is a baseline level of quality control requirements that are expected of any organization that provides services in support of the Department's programs. These measures include the essential quality control requirements as outlined in the various QAPPs and their related EPA approved standard operating procedures (SOPs).
- Many of the monitoring-based regulatory activities have QC measures such as acceptable precision, bias and accuracy, along with completeness, representativeness and comparability specified in the applicable policies and regulations. These parameters are known collectively as data quality indicators (DQIs).
- The regulatory programs make determinations of attainment or non-attainment with the National Ambient Air Quality Standards (NAAQS) based on the validated, verified and certified ambient monitoring data submitted following the applicable QA and QC specifications.

9.1.3 QA Plans The results of the planning process must be documented. Details of the documentation and record program are delineated in Section 7 of this QMP.

9.1.3.1 Statewide QAPP Development starts by OAM quality assurance staff preparing a draft with input from members throughout OAM. It is reviewed by FAMAC for comments and corrections. After those comments are incorporated, they are reviewed and approved by the quality assurance manager, program administrator for OAM, by the director of DARM, (or designee) and then submitted to EPA for approval.

9.1.3.2 Limited Use QAPP's are developed by the agency or agencies who will be involved in their use. The Toxics QAPP is an example of such a QAPP. The FAMAC structure provides the interaction for agencies to work together to develop plans. After the draft is complete, it is submitted to OAM for review. After comments are incorporated, they are reviewed by the program administrator for OAM, by the director of DARM, (or designee) and submitted to EPA.

9.1.3.3 Contractor's QAPP's have not been used, but rather contractors are expected to use state approved QAPPs where applicable. Any other QAPP's needed would be developed and submitted to OAM for comments. After those comments were incorporated, it would be approved by OAM for use.

10.0 IMPLEMENTATION OF WORK PROCESSES

10.1 Work Processes, once approved, the procedures and processes outlined in the quality plans will be followed. All approved QAPPs are posted on FAMAS, which is used by all monitoring agencies submitting regulatory data for FDEP. FDEP SOPs are also posted on FAMAS as well as residing on all site computers. Local program SOPs are required to be resident at all monitoring sites. Revisions to QAPPs are communicated through the FAMAC and quarterly statewide teleconferences. Implementation is verified through the technical systems audit. Important elements in the implementation are:

10.1.1 Quality Assurance Project Plans (QAPPs) are documents that describe the Division's quality system as it relates to the ambient monitoring program and includes the documentation requirements regarding data collection operations, routine data handling, i.e. data verification, review and validation, reports to management, document control, archiving and retrieval. The QAPPs are reviewed by the QAM and staff on a recurring basis (at least annually) to assure effectiveness, content and consistency with the applicable State and Federal requirements. The documents are revised at least every 5 years. Changes are generally handled as if the revised documents were original publications. That process involves review and written approval by the Program Administrator and Division Director, before the revised document is forwarded to the EPA for review and approval. The revisions are always delineated to assist in the review and approval process.

10.1.2 Standard Operating Procedures (SOPs) are documents that describe the officially approved procedures for performing certain routine or repetitive tasks. SOPs are useful when it is necessary to ensure comparability among activities performed on different occasions, locations or by different individuals. DARM and the other operating local programs are required to develop and utilize SOPs for all routine monitoring and other operational activities.

10.1.2.1. SOPs for laboratory activities are mandatory for any laboratory conducting air quality assessment and will be included as part of the related QAPP. Revisions to the SOPs must be made in accordance with the specifications of QAPP-002, Attachment A, section A.2. (See Appendix C)

10.1.3 Certification and Training

10.1.3.1 Laboratory Accreditation All laboratory data that the FDEP receives from laboratories, (local program and FDEP), within the PQAO shall be produced by a laboratory having accreditation for each reported test result by matrix, method (or analytical technology) and analyte. If initially reporting data without accreditation, the laboratory would be required to request specific analyte accreditation during their next accreditation cycle. DARM will maintain copies of those certifications.

10.1.3.2 Training Monitoring organization and organizations operating in support of the monitoring program are required to maintain records of employee

training. Such training must be designed to be commensurate with the employee's responsibilities. Each agency providing regulatory data for ambient air monitoring is required to maintain current training plans for all employees.

10.1.4 Information Management

10.1.4.1 FDEP's Office of Technology and Information Services (OTIS) is responsible for managing the hardware, software and communications components that form the foundation of the agency's information technology. OTIS has established hardware and software standards with which the Department must conform. The agency's Information Technology Resources (ITR) and Information Resource Security Standards policies are detailed in DEP Directives 370 and 390 . Information security, risk management and coordination of Information Technology disaster recovery supporting the agency Continuity of Operations Plan are all covered in these directives.

11.0 ASSESSMENT AND OVERSIGHT

Different types of assessment activities, as noted in Section 4.3 of this QMP, are used to verify that measurement systems are operating appropriately and that the data generated in support of a program are appropriate for their intended use. All ambient monitoring data producers participate in all forms of assessment. OAM audit staff, who are independent of ambient data production, conduct performance audits and technical systems audits.

11.1 Audits Each of the following activities may be used alone, or in conjunction with others, to evaluate the targeted process:

11.1.1 Data Quality Audits (Data Verification/Validation) -Data quality audits involve evaluating the data generated in support of a program or activity with respect to appropriate quality criteria. These criteria may be established by rule, contract or some other written agreement (e.g. a QAPP). This evaluation process is a shared responsibility among all levels of data consumers at FDEP. This evaluation may be applied to ambient data as well as quality control support data, including those produced from laboratories.

11.1.2 Performance Audits Performance audits are quantitative evaluations of the ability of a system to produce appropriate, accurate, and reliable data. Performance audits involve two distinct approaches. The first involves injection of a test atmosphere containing a known concentration of a National Institute of Standards and Technology (NIST) traceable pollutant gas (ozone, sulfur dioxide, carbon monoxide or nitrogen oxide) to an analyzer through as much of the sample intake system as practical. The second approach, which is used for particulate and metals samplers (either manual or continuous) involves determining the operational flow rates utilizing a NIST certified flow measurement device different from the one utilized for the routine calibration and operational checks on a sampler. The specific requirements for the various performance audits are specified in 40 CFR, Part 58, Appendix A. Performance audits are planned annually to assure that all monitors are audited at the required frequency. At the completion of each audit, the audited agency is provided with a copy of the performance evaluation. Corrective action reports are required for failed evaluations to document the actions taken by the agency to return the monitor to operating within specifications.

11.1.3 Technical Systems Audits The requirements for the systems audits are delineated in 40 CFR, Part 58, Appendix A, 2.5, and detailed example questionnaires are included in the EPA's *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Ambient Air Quality Monitoring Program,* dated December 2008. The systems audits are reviews and inspections of a monitoring organizations ambient air monitoring program to assess its compliance with established regulations, Quality Assurance Project Plans, policies and standard operating procedures governing the collection,

analysis, validation, and reporting of ambient air quality data. The Department has established a Systems Audit Protocol, which follows the EPA's lead, and includes a detailed systems audit checklist, similar to, but more specific to the FDEP operations, which is normally filled out by the audited agency prior to the audit and is then used as a guide for the auditors during the ensuing audit. All aspects of the monitoring program are examined, including laboratories which support ambient monitoring. Each monitoring program receives a systems audit on a triennial basis, unless significant problems are noted. In that instance, a more frequent audit schedule, (generally annually), may be adopted, based on the QAM's decision, until the significant issues have been resolved. Technical Systems Audits are scheduled for the calendar year to assure that audit staff are available and have adequate time to prepare for the systems audits. Each systems audit generates a Systems Audit Report which is provided to the audited agency. The agency then has 30 days to respond to the audit findings. If the response is satisfactory to the QAM, the audit is closed. Otherwise the agency is contacted for additional corrective action.

11.1.4 National Performance Audit Program (NPAP) and PM Performance Evaluation Program (PEP) participation is required by 40 CFR, Part 58, Appendix A, 2.4. Each state is given the option of either participating in the EPA operated programs, with the costs being covered by monies taken from the state's 105 grant, or establishing their own audit program, with proper certification of their auditors, standards and equipment. FDEP will participate in the NPAP and PEP audits conducted by the EPA's contractor and may conduct NPAP audits for PSD programs operated in the state.

The EPA requires certain comparability between the EPA-operated test results and those of the operating state program. FDEP has been certified to perform NPAP audits for PSD monitoring.

11.1.5 Corrective Action All of the audits identified above result in reports of audit findings. These reports may identify deficiencies and corrective actions required of the audited parties. Audited parties are required to submit a corrective action plan for noted deficiencies. Audit reports and corrective action plans are available for review by data consumers. Subsequent audits of the same organization include assessing the effectiveness of the corrective action plan. Final approval of adequacy rests with the QAM.

11.1.6 Dispute Resolution In the event that a quality assurance related dispute arises, the QAM will review and discuss the identified issue with appropriate staff and management. The QAM will recommend corrective action after collaborative discussion with appropriate management from the impacted division or monitoring organization. Within the Florida monitoring community, FAMAC has set and agreed to minimum levels of quality activity

and provide the framework for the course of decisions. The goal is to ensure that data generated within FDEP's PQAO is legally and scientifically defensible. DARM has the authority to address work being done by or on behalf of DARM as a designated program of EPA.

12.0 QUALITY IMPROVEMENT

12.1 The Quality Assurance Manager (QAM) has the primary responsibility for ensuring quality improvements are continually introduced into the DARM's quality program. The QAM has been delegated the authority to oversee all aspects of the quality management program for ambient monitoring. The QAM, with the support of the quality assurance audit and monitoring staff, reviews the EPA publications (federal registers, guidance documents, policy papers, etc.) to discern the latest EPA quality assurance requirements. DARM is committed to ensuring that air monitoring data collected by and on behalf of its PQAO is scientifically and legally valid and of sufficient quality and quantity to meet or exceed all applicable requirements. It is the responsibility of the QAM to ensure that DARM's mission and policies as specified in this document are followed. This is accomplished by implementation and management of a system that emphasizes and promotes continuous quality improvement, utilizes a consistent process of assessing the quality system, encouraging recommendations, identifying and implementing improvements to the quality system, and promoting ongoing training of all staff, as appropriate. Open and timely communication of quality assurance topics are encouraged at all levels within DARM's PQAO through daily review of the ambient data, routine conference calls and virtual meetings. Timely identification and prevention of data errors that potentially affect data quality is achieved through quality control activities prescribed in appropriate quality management documents (QAPPs and SOPs).

12.1.1 Document Review In addition to the above, all of the quality assurance documents, this QMP, the various QAPPs and related SOPs undergo routine review, at least annually, but in-fact, continuously, to assure that those documents provide the direction necessary to produce the legally defensible ambient monitoring data necessary to support the decisions based on those data.

12.1.2 Issues may also be discovered during the routine performance audits, conducted quarterly by the FDEP audit staff at each of the approved local programs and FDEP operations, or the triennial management systems audits. These latter may be conducted by the EPA Region 4 SESD staff as well as by the FDEP audit staff. Those audit results are also reviewed for issues which may be germane to the entire statewide monitoring program, in addition to the audited agency.

12.2 Addressing Issues When specific issues arise, through any of the preceding reviews or audits, those issues are then reviewed, and if necessary, are addressed as changes which are promulgated into state-wide policies and procedures through the FAMAC subcommittee system. The FAMAC subcommittee system involves the assignment for the development of specific policies and procedures to a subset of the FAMAC. The subcommittee must be chaired by a full member of the FAMAC (i.e., one of the agency QA Coordinators) but may be made up of any interested monitoring staff (such as field operators). Once the subcommittee develops a policy or procedure, it is brought before the full FAMAC for a vote. If the policy or procedure is approved by the FAMAC, it is then prepared for submission to the EPA Region 4 SESD staff for review and approval. Once EPA approval is received, the policy or procedure is formally published as part of

the appropriate QAPP for use by all agencies within Florida.

12.2.1 Standard Operating Agreements All of the approved monitoring programs within the state are required, through various Standard Operating Agreements, to adopt and adhere to the EPA-approved state-wide QAPPs. They must also participate in the FAMAC and its subcommittees.

12.3 Documented Corrective Actions are required, as specified in section 11.1.5 of this QMP, for all issues found during audits. Unresolved or conflicting issues revolving around corrective actions will be resolved by the QAM, with direct support of the DARM Director, if required. The results of the resolution will be documented in the division's response to the corrective action plan submittal.

References

(1) Guidance on Assessing Quality Systems (EPA QA/G-3), U.S. Environmental Protection Agency, Office of Information, Washington, DC March 2003.
(2) EPA Requirements for Quality Management Plans (EPA QA/R-2, EPA/240/B-01/002), U. S. Environmental Protection Agency, Office of Information, Washington, DC March 2001.
(3) Guidance on Systematic Planning Using the Data Objectives Process (EPA QA/G-4), U. S. Environmental Protection Agency, Office of Information, Washington, DC February 2006.
(4) Guidance for Developing a Training Program for Quality Systems (**QA/G-10**) U. S. Environmental Protection Agency, Office of Information, Washington, DC December 2000.
(5) Guidance for Geospatial Data Quality Assurance Project Plans (**QA/G-5G**) U. S. Environmental Protection Agency, Office of Information, Washington, DC December 2002.
(6) 40 CFR, Parts 50 and 53.
(7) 40 CFR. Part 58, Appendix A.
(8) Quality Assurance Handbook for Air Pollution Measurement Systems Volume II Ambient Air Quality Monitoring Program, U. S. Environmental Protection Agency, EPA-454/B-13-003 May 2013
(9) Quality Assurance Handbook for Air Pollution Measurement Systems Volume I: A Field Guide to Environmental Quality Assurance, U. S. Environmental Protection Agency, Office of Research and Development, Washington DC EPA/600/R-94/036a April 1994.
(10) Quality Assurance Guidance Document 2.12, monitoring PM2.5 in Ambient Air Using Designated Reference or Class I Equivalent Methods, November 1998.

Organizations Covered by this QMP

The following agencies' ambient air quality work is covered by this Quality Management Plan. Additional informational on local governmental programs is included in the Appendices.

Florida Department of Environmental Protection

Ambient Air Services Incorporated (contractor)

Broward County Pollution Prevention, Remediation and Air Quality Division

City of Jacksonville Environmental Resource Management Department

Environmental Protection Commission of Hillsborough

Manatee County Natural Resources Department, Air & Watershed Management

Miami-Dade County, Permitting, Environment and Regulatory Affairs, Air Quality Management Division

Orange County Environmental Protection Department

Palm Beach County Health Department Division of Environmental Public Health, Florida Health

Pinellas County Air Quality Division

Sarasota County Air & Water Control