
# Quality Assurance Plan for DEP Waste Program

## Division of Waste Management
## District Waste Programs

**2600 Blair Stone Rd.**
**Tallahassee, FL 32399**

**August 2009**

**(Revised June 2011)**

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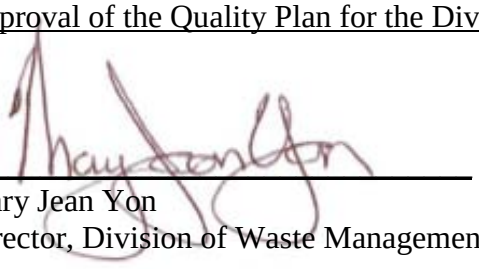
# Plan Approval

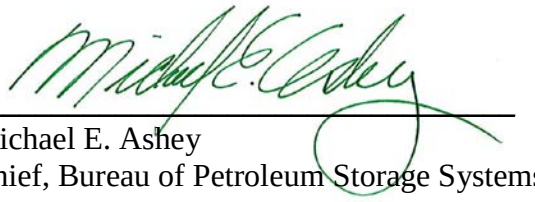
This plan documents the quality system used by the Florida Department of Environmental Protection's (DEP) Waste Program. The plan covers quality assurance policies, roles, and responsibilities for environmental data collection activities associated with the Waste Program implemented by both the Division of Waste Management (DWM) and the DEP District Offices. This plan covers the collection, evaluation, and use of environmental data produced by laboratories, regulated entities, project managers, data generators, or partnerships between any of these groups.

Approval of the Quality Plan for the Division of Waste Management



Mary Jean Yon
Director, Division of Waste Management

Approval for Implementation of the Quality Plan by Each Bureau



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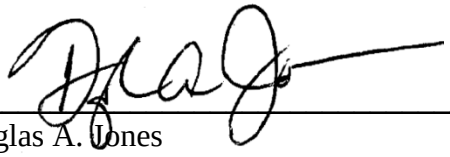

Douglas A. Jones
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# 1. Introduction

The DEP Quality Assurance (QA) program involves the implementation of a management system (planning, review, training, and assessment) to ensure that data collection, generation, interpretation, reporting, evaluation and archiving is of sufficient quality to support the Division and District Office decisions in all areas of the Waste Program—Solid Waste, Hazardous Waste, Petroleum Storage Systems and Cleanup, and Hazardous Waste Cleanup. The effectiveness of the QA program is dependent upon the actions of all DEP staff, from "front line" employees to management, meaning QA is a function distributed throughout the entire organization. The DEP Secretary is committed to implementation of the quality assurance requirements in the Department's Quality Management Plan (QMP) (Draft Revision 9/2/08) and as authorized in Section 403.0623, Florida Statutes (F.S.) and Chapter 62-160, Florida Administrative Code (F.A.C.) also known as the DEP QA Rule. It is the Secretary's intent to carry out these obligations and requirements as detailed in the Department's QA Directive (Draft Revision January 2008).

The Waste Program's QA Plan explains both the process and criteria by which the quality system is managed. The plan is utilized as an instrument of internal communication to inform waste program staff in Tallahassee and the District Offices of current and future quality assurance activities. It discusses how specific QA duties are assigned to responsible staff. The QA Plan will be revised as needed to ensure the consistent application of procedures and criteria for the generation or use of our environmental data. The QA Plan will also be used as a training document for new staff and as a reference for experienced personnel. The QA Plan and its revisions also serve as an archival record of our formal quality system.

The elements of the QA Plan are consistent with the DEP Quality Management Plan, Quality Assurance Directive and Quality Assurance Rule, Chapter 62-160, F.A.C. The plan addresses all activities associated with sampling, field testing, laboratory analyses and data review of any type, including those activities associated with database construction and management. The QA Plan also discusses how decisions about data use are made based on data quality objectives.

In order to execute the components of the DEP QA Directive, the Waste Program has developed a quality system. This document describes the steps to be taken to ensure the scientific and legal defensibility of environmental data that is generated or used. It details the process of planning, training, execution, assessment and corrective action undertaken to ensure that environmental data meets the established quality criteria.

## 1.1. Essential Definitions

The following definitions are essential to understanding the roles, responsibilities, policies, and procedures outlined in this document.

1.1.1. ADaPT (Automated Data Processing Tool) – A quality control software application based in Microsoft Access used by the DWM for processing electronic data deliverables (EDD).

1.1.2. Sample Collection –The process of collecting environmental samples for analysis. Field and laboratory Standard Operating Procedures (SOPs) shall address the steps which must be used to avoid errors in the sample collection process.

1.1.3. Data Quality Indicator (DQI) – A specified numerical or qualitative criterion used to evaluate data for conformance with Data Quality Objectives. Examples of DQIs include specific method numbers to be used for laboratory analyses, specified spike recovery and duplicate precision numerical targets, specified method detection limits (MDL) and practical quantitation limits (PQL), numerical targets for reported non-detect and estimated sample concentrations.

1.1.4. Data Quality Objective (DQO) – A systematic planning system designed to produce qualitative and quantitative statements that clarify project objectives, define the appropriate type of environmental data, delineate the decision rules, and specify tolerable levels of decision error.

1.1.5. Data Validation – An analyte- and sample-specific process that extends the evaluation of data points beyond procedural compliance to determine the analytical quality of a specific data set. Criteria for data validation shall be specified in the applicable Data Quality Indicators (DQIs).

1.1.6. Department of Health (Environmental Laboratory Certification Program) – The state agency responsible for certifying environmental laboratories per the Department of Health certification rule, Chapter 64E-1, F.A.C.

1.1.7. Environmental Data – Information collected directly from measurements, generated from models, or compiled from other sources such as databases or literature, which are used for decision making purposes.

1.1.8. The National Environmental Laboratory Accreditation Program (NELAP) – The Program used to ensure that the National Environmental Laboratory Accreditation Conference (NELAC) standards for the accreditation of environmental laboratories are followed.

1.1.9. Quality Assurance (QA) – An integrated system of activities including planning, implementation and assessment to ensure that environmental data are of known and documented quality.

1.1.10. Quality Control (QC) - The overall system of technical activities that measure the performance of a process or item against defined standards.

1.1.11. Quality System – A structured and documented management system describing the process of planning, review, training, and assessment to ensure that the collection, generation, evaluation, interpretation, and reporting of data are sufficient to support the use of the data for Department decisions.

## 2. Waste Program Policies

The Waste Program is strongly committed to sound science and QA practices that will produce environmental data of appropriate quality to be used for decision making. It is the policy of the Waste Program that all decisions which are made to protect human health and safeguard the environment will be based on data of sufficient known quality to support the level of decision required. The policy also includes a commitment by management that the quality system supporting the generation of data of known quality and effective environmental technology will be implemented as described in this plan. The policy is achieved by ensuring that adequate and acceptable planning, implementation, and assessment procedures are utilized through all phases of projects / studies / tasks which require the generation of environmental data.

It is the Waste Program's policy to:

- Use scientifically valid and legally defensible data for its decisions affecting protection of public health and the environment.

- Have and implement the Quality System described in this document.

- Adaptively manage its Quality System to be consistent with provisions of the DEP Quality Management Plan.

- Ensure that individuals are properly trained to execute their assigned functions.

- Implement procedures to evaluate the quality of the data used and to implement corrective actions when data do not meet its DQOs.

- Periodically audit the performance and record-keeping practices of data generators for which it has responsibility.

- Implement quality assurance procedures for the management of its data repositories.

- Perform a yearly systematic assessment of its quality assurance activities, including any corrective actions, with the findings submitted to the Department's Standards and Assessment Section.

The Waste Program managers and staff will assure that there are sufficient QA activities conducted by the programs to provide reasonable confidence that all environmental data generated are scientifically valid, of adequate statistical quantity, of known precision and bias, of acceptable completeness, representative, comparable, usable, and where appropriate, legally defensible. Environmental data quality is the responsibility of all Division and District staff who are directly or indirectly involved in the generation of data. Senior managers are responsible for assuring that adequate resources are available to implement the quality assurance system.

DEP employees are held to high professional ethical standards in the performance of their duties. All employees are required to read, understand and sign an "Acknowledgment of Key Directives Form" that acknowledges Directive # 202 (Code of Ethics). In addition, all employees are required to attend an annual DEP Code of Ethics class. Improper, unethical or illegal actions will be dealt with according to the published DEP Administrative Directives.

## 3. Waste Program Organization and Responsibilities

The Division of Waste Management works closely with the Department's District Offices to implement state and federal laws relating to the Waste Management Program. The Division oversees the development of program policy, rulemaking, and grants management. Additionally the Division regulates and registers aboveground and underground pollutant storage systems. It also oversees and contracts for the assessment and cleanup of sites contaminated with petroleum products, drycleaning solvents, or other hazardous wastes.

The District Offices are the regulatory arm of agency that ensures statewide compliance with Department rules. Most permits are issued from the District Offices. District staff are available to answer environmental questions and assist the public and local governments.

There are three bureaus within the Division of Waste Management – the Bureau of Petroleum Storage Systems (BPSS), the Bureau of Solid and Hazardous Waste (BSHW) and the Bureau of Waste Cleanup (BWC). Each District Office has a Waste Management Program overseen by a District Waste Program Administrator who works closely with the three bureaus.

## 3.1. Bureau of Solid and Hazardous Waste

The BSHW function is to implement state and federal laws relating to recycling, pollution prevention and solid and hazardous waste management. The BSHW works closely with the District Waste Management Programs to implement permitting, compliance and enforcement activities in order to protect the environment from the improper handling and disposal of solid and hazardous wastes. The BSHW includes regulatory programs for solid and hazardous waste management facilities and non-regulatory activities such as financial and technical assistance for recycling and waste reduction. There are three sections within the BSHW – the Hazardous Waste Regulation Section, the Solid Waste Management Section and the Waste Reduction Section.

### 3.1.1. Hazardous Waste Regulation Section

The section's function is to manage and implement the statewide Hazardous Waste program which includes interaction with EPA, District Offices and other Department programs pertaining to hazardous waste compliance, enforcement and permitting. The section is also responsible for the implementation of the federally delegated Resource Conservation and Recovery Act (RCRA) program, which issues permits for hazardous waste treatment, storage, and land disposal facilities. Technical assistance and training are provided to the District Offices and the regulated community.

### 3.1.2. Solid Waste Management Section

The Section is responsible for solid waste management. The core responsibilities are overseeing compliance monitoring and enforcement activities at solid waste processing, recycling and disposal facilities performed by the District Offices. The Solid Waste Management Section also reviews and approves statewide requests for beneficial use of solid waste and administers the Financial Assurance Program for solid waste facilities.

### 3.1.3. The Waste Reduction Section

The section is responsible for monitoring and reporting on recycling and waste reduction programs across the state, as well as providing technical assistance. It manages the Recovered Materials Dealers Certification program and the Construction and Demolition Debris Facilities Reporting program. It administers the Innovative Recycling and Waste Reduction Grants program and it assists Florida First Capital Finance Corporation in administering the Florida Recycling Loan Program. The section currently has no QA responsibilities.

## 3.2. Bureau of Petroleum Storage Systems

The Bureau's function is to regulate petroleum storage systems (and certain other regulated storage systems) pursuant to Chapters 62-761 and 62-762, F.A.C., and to oversee the assessment and environmental rehabilitation of petroleum-contaminated facilities and other petroleum-contaminated properties pursuant to Chapter 62-770, F.A.C. The BPSS comprises five sections: the Storage Tank Regulation Section and Petroleum Cleanup Sections 1 through 4.

### 3.2.1. Storage Tank Regulation Section

The section is responsible for the regulation of underground and aboveground storage tank systems, and for overseeing the installation and operation of these systems. Compliance inspections are performed by District Office staff and county personnel under contract to the BPSS.

Inspectors from District and county programs review Storage Tank Closure Assessment Reports to determine whether closure assessments were performed according to tank closure guidelines, whether the samples for laboratory analyses were collected at appropriate locations, and whether the analytical results show that a discharge to the environment did or did not occur.

### 3.2.2. Petroleum Cleanup Sections

These four sections are responsible for overseeing the rehabilitation of facilities contaminated with petroleum or petroleum products as defined in Section 376.301, F.S. under the Preapproval and State Cleanup programs. These include sites where the petroleum product discharges are eligible for State funding assistance and sites where one or more discharges are ineligible but the responsible party has entered into a Site Rehabilitation Funding Allocation Agreement with the DEP. In addition, the BPSS assists the District Offices with technical review of documents submitted pursuant to Chapter 62-770, F.A.C., for discharges ineligible for State funding assistance. Two environmental companies (WRScompass and Ecology & Environment) and 14 county programs have been contracted by the BPSS to assist in the cleanup of petroleum-contaminated sites.

Site managers review technical reports which usually contain documentation of sample collection and analytical results associated with the sites they manage. Usually those reports are co-reviewed by a Professional Engineer or a Professional Geologist. This process includes the review of field and laboratory procedures to evaluate the validity of the data that will be used to make decisions about the next scope of work, whether cleanup completion has been achieved, or whether the site is in compliance with other regulatory requirements.

## 3.3. Bureau of Waste Cleanup

### 3.3.1. Bureau Chief's Office

The Bureau Chief's Office is responsible for all activities relating to the cleanup of sites contaminated by pollutants and hazardous substances and for conducting investigations of ground water contamination. The Bureau Chief's Office contains the state and federal Brownfields programs and the Voluntary Cleanup Tax Credit Program. The Brownfields staff manages the state Brownfields Redevelopment Program and the EPA Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) section 128(a) Cooperative Agreement (CA) funding.

### 3.3.2. Hazardous Waste Cleanup Section

This section is responsible for managing state-funded investigation and cleanup of hazardous waste sites and coordinating with the EPA during cleanup of federal Superfund NPL sites. The section is also responsible for implementing the Drycleaning Solvent Cleanup Program.

The section oversees 11 contractors that are responsible for preparing work plans, information collection, site access, site assessment, reports, remedial action plans, and site remediation.

### 3.3.3. Site Investigation Section (SIS)

This section investigates known or suspected cases of groundwater contamination statewide. The section provides scientific and technical assistance to support recommendations used in district enforcement actions. In addition, the section provides site screening services, well replacement, phase-one environmental assessments and environmental sampling support for other Department programs. The section also oversees contractors working on the investigation and cleanup of state-owned lands.

Sites assessed by the SIS include, dry-cleaning facilities, municipal wellfields, landfills, orphan plumes, abandoned sites, state-owned lands, printing establishments, electronic manufacturing operations, automotive service stations, military installations and numerous other types of businesses. The SIS assists in the development of the DEP standard operating procedures (SOPs), ground water sampling methodologies and procedures and in sample equipment testing and selection. The SIS provides technical support and assistance to various law enforcement agencies to assist in the investigation of environmental crimes.

The SIS's personnel are grouped into three teams and administrative and support staff. The teams consist of scientists, licensed water well contractors and technicians. Two of the teams conduct field assessments. The third team manages six environmental consulting firms that are assigned overflow work.

### 3.3.4. Federal Programs Section

This section oversees assessment and cleanup of Department of Defense and other current and former federal facilities. Current sites include military bases, Kennedy Space Center, former Department of Energy (DOE) plants and several formerly used defense sites (FUDs). The section is also responsible for providing oversight during the Base Closure and Realignment process which requires closing military bases to work together with the state and EPA prior to transferring property for reuse.

### 3.3.5. Program and Technical Support Section

This section provides program guidance and technical support to the District Waste Cleanup sections and the Division's non-petroleum cleanup programs. The section also provides toxicological support and assistance with evaluating innovative technologies. The section also contains the CERCLA Site Screening subsection, which maintains a cooperative agreement with the EPA to perform Superfund Preliminary Assessments and Site Investigations at sites throughout Florida. This activity is authorized under the Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA) of 1980 ("Superfund"), and is detailed in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR § 300.

## 3.4. District Office Waste Programs

The District Waste Management Programs implement state and federal laws relating to solid and hazardous waste management by issuing permits, conducting compliance inspections, and initiating enforcement actions as needed while encouraging recycling and pollution prevention. The Districts also regulate aboveground and underground pollutant storage systems and oversee responsible party funded cleanups of contaminated sites pursuant to enforcement actions or voluntary cleanups. There are six District Offices. Each District Office has sections or areas of responsibility that correspond with the Division's Bureaus. These include the Solid Waste, Hazardous Waste, Waste Cleanup and Petroleum Storage Tanks sections.

The Solid Waste Sections are charged with the responsibility to process permit applications and regulate permitted solid waste management facilities as well as respond to complaints concerning the improper management of solid waste. District staff determines whether water quality (surface and ground) and leachate were monitored correctly. This involves reviewing technical reports concerning sampling procedures, analytical results, and recommendations about future actions.

The Hazardous Waste Management Sections provide compliance assistance to the public and the regulated community, and enforce the laws regulating the handling of various types of regulated waste (e.g., hazardous waste, used oil, mercury containing devices). District staff may perform field sampling of waste, soil, or water (surface or ground).

Staff must interpret the analytical results to determine whether a compliance issue must be resolved. Staff will also review technical reports concerning sampling procedures, analytical results, and determine whether appropriate actions were taken based on the results (e.g., waste determinations).

The Waste Cleanup Sections oversee cleanup activities associated with contamination of soils, groundwater and surface waters. In some Districts they also serve as the technical resource to assist other program staff reviews of Solid Waste permits and sites submitting contamination assessment reports, site assessment reports, remedial action documents as well as interim remedial and remedial action plans.

The Petroleum Storage Tank Sections oversee compliance assurance related to underground and aboveground storage tanks, including enforcement for non-compliant facilities that have been referred by contracted counties. Staff performs contract management and auditing of compliance contracts. The sections also oversee the cleanup for sites not eligible for state-funded cleanup in counties without cleanup contracts. The process includes the review of field and laboratory procedures to evaluate the validity of the data that will be used to make decisions about whether site assessment and cleanup completion has been achieved.

## 3.5. Quality Assurance Areas of Responsibility

Implementation of the Quality Assurance Plan requires active participation throughout all levels of the Division and District Offices. The Division Director has delegated to the bureau chiefs, administrators, managers and staff the following responsibilities enumerated below as they conform to the Department's QA Directive (Draft Revision January 2008).

### 3.5.1. Bureau Chiefs

The Bureau Chiefs have the overall responsibility for the development, implementation, and continued operation of the QA Program requirements as they relate to the Waste Program. Key responsibilities of the Bureau Chiefs are:

- Ensure that each program area develops and carries out a Quality System, designates Quality Assurance Officers, and provides resources and staff training for implementation.

- Evaluate internal and public feedback related to DEP data and quality-related issues

- Review the Waste Program annual Quality Assurance Report to the Secretary.

### 3.5.2. Program and Section Administrators

Program and section administrators are responsible for ensuring that QA activities within their program areas are conducted in accordance with Department policy. Key responsibilities of administrators are:

- Ensure that a Quality System that conforms to the DEP Quality Assurance Management Plan is fully operational in their program.

- Designate Quality Assurance Officers, and provide general oversight.

- Evaluate proposed Data Quality Objectives and Data Quality Indicators to ensure they meet program needs.

- Periodically evaluate the effectiveness of staff's data quality activities, including review of audit results.

- Evaluate corrective action policies and procedures to be implemented when data do not meet program Data Quality Objectives.

- Review annual Quality Assurance Report to the Secretary, and discuss findings with the QA Officer.

### 3.5.3. Quality Assurance Coordinator and Officers

The Division's Quality Assurance Coordinator (QAC) generally oversees the implementation of the QA Plan and serves as the Waste Program contact with the Standards and Assessment Section. The QAC is Chad Fetrow.

Each Division Waste Program and each District Office Waste Management Program has identified a QA Officer that coordinates with and provides information to the Division QAC. The QA Officers are identified as follows:

| | | |
|---|---|---|
| Chad Fetrow (QAC) | Solid Waste | 850/245-8785 |
| Bryan Baker | Hazardous Waste | 850/245-8787 |
| Nick Contos | Petroleum Cleanup | 850/245-8914 |
| Melissa Garvin | Hazardous Waste Cleanup | 850/245-8994 |
| Dave Meyers | Site Investigation | 850/245-8945 |
| Teresa Booeshaghi | Bureau Chief's Office | 850/245-8933 |
| Brian Dougherty | Program and Technical Support | 850/245-7503 |
| David Grabka | Federal Programs | 850/245-8997 |
| Charlie Reyes | Northwest District | 850/595-0637 |
| John Phillips | Northeast District | 904/256-1549 |
| Tom Lubozynski | Central District | 407/893-3327 |
| Beth Knauss | Southwest District | 813/632-7600 x 383 |
| Robyn James | Southeast District | 561/681-6737 |
| Charles Masella | South District | 239/332-6975 x 174 |

Key responsibilities of the QA Officers are:

- Coordinate and participate in the quality evaluation of program data, and provide oversight to ensure that staff performs their QA functions.

- Perform audits of internal and external data generators (lab and field) when there are concerns about the quality of the data.

- Ensure that corrective actions are implemented for data non-conformance incidents as determined by evaluation of the data against program Data Quality Objectives.

- Assist program managers in developing the Quality System and other logistical aspects of its implementation, such as coordinating associated training needs.

- Document all program QA activities, including training, audits and corrective actions and provide this information to the QAC who will provide the information to the DEP Environmental Assessment Section for the annual Quality Assurance Report to the Secretary.

3.5.4. Program Staff

Program staff will support the Division's QA Officers by providing technical assistance in their area of expertise. This procedure will enhance the QA capability in the Waste Program. The specific duties which will be assigned to program staff are as follows:

- Routinely carry out duties involving data collection, data usability evaluation, data interpretation, and the generation of DEP work products in a manner that ensures scientific defensibility and adherence to DEP rules and policies.

- Evaluate program data using program Data Quality Objectives and Data Quality Indicators.

- Implement corrective actions as directed by the QA Officers.

- Provide feedback to the program QA Officers for improving the program quality system.

## 4. Data Quality System Components

Generally data is reviewed by evaluating the completeness, correctness, conformance and compliance of specific data sets against the Waste Program's established Data Quality

Objectives (DQOs), and by incorporating the concepts and criteria found in DEP's "Process for Assessing Data Usability", DEP-EA-001/07.

## 4.1. Data Quality Objectives

The Data Quality Objectives (DQO) process is the Waste Program's systematic planning process which uses a step-wise system of developing the technical, programmatic and quality assurance requirements specific to a particular project. Staff evaluate program data using program DQOs and implement corrective actions as necessary to remedy deficiencies. The following program DQOs are designed to ensure that submitted data meets or exceeds the threshold for scientific defensibility and adherence to DEP rules and policies for our program:

- Department approved SOPs, and any approved variances are followed for all field sampling and laboratory analyses.
- Laboratory analyses are performed by facilities certified by the Department of Health and accredited under NELAP (NELAP-Certified Organizations)
- Data are processed, verified and validated using the ADaPT software. If data is not processed using ADaPT software, staff manually checks the quality of the data.
- Corrective action is taken as necessary to ensure data meets quality criteria.
- Data are archived in an electronic depository (e.g., OCULUS™ or the Water Assurance and Compliance System database).
- Data are generated using appropriate methods with appropriate sensitivity to meet the needs of the program.

## 4.2. Critical Documents

Generally the Waste Program relies on critical documents to define the project-specific QA requirements. The programs may refer to the critical documents using different terms such as Groundwater Monitoring Plan, Sampling and Analysis Plan, General Study Plan, or a permit may stipulate QA criteria for a particular project or site. However named, the critical document will contain the necessary elements to meet the threshold of compliance with the data review procedures described in this Quality Plan. The content and implementation of the critical documents is overseen by the data user or project manager.

In other cases Departmental rules or standard operating procedures lay out the framework and requirements for meeting the threshold of compliance. For example, on February 15, 2007, the BPSS issued the memorandum "*BPSS Enforcement of Laboratory NELAP Certification Requirements,*" which requires contractors to submit a written statement

prior to performing the work, attesting that they have verified that the laboratories to be used are certified by the DOH ELCP for the matrix / method / analyte combinations that will be performed. On May 14, 2007, the BPSS issued the memorandum "*Quality Assurance and Related Issues*" reminding laboratories of the Chapter 62-160, F.A.C. reporting requirements, and listing some specific reporting requirements for contractors to summarize analytical data on the tables provided by the Bureau.

One aspect of the BSHW program is to ensure that BSHW QA activities are carried out according to commitments made to the Environmental Protection Agency (EPA) as enumerated in the Department's QMP.

Programs which are funded by the EPA must also comply with EPA's Region 4 November 2007 Science and Ecosystem Support Division Field Branches Quality System and Technical Procedures document. Additionally, the CERCLA Site Screening Subsection will adhere to the *Superfund Site Assessment Program Quality Assurance Plan, February 2009.*

## 4.3. Data Processing

Data processing includes collection, validation and archival. Data collection is almost exclusively performed by staff or contractors of the regulated entity. The audit procedures described in Section 6 of this QA Plan are used to ensure data collection errors are kept to a minimum. Data validation and archival is the responsibility of the site managers, technical staff and contractors. Site managers, technical staff and contractors review sampling logs, calibration logs and field notes for conformance with field sampling SOPs (primarily FS 2200, "Groundwater Sampling") referenced in Chapter 62-160, F.A.C., and analytical summary tables and figures for completeness and accuracy. Site managers and technical staff are also responsible for processing electronic deliverables.

### 4.3.1. Automated Data Processing

Much of the data processing steps have been automated using a software tool called the Automated Data Processing Tool (ADaPT). ADaPT is designed to perform quality assurance checks on the correctness and completeness of the data based on a broad range of relevant quality assurance criteria such as method numbers used for laboratory analyses, spike recovery and duplicate precision numerical targets, detection limits, laboratory quality control holding times, laboratory certification and blank contamination rules. ADaPT is also used to check for compliance with numerous other user selectable criteria and standards. Detailed information on the use of ADaPT is available in the DEP's "ADaPT User's Guide." The ADaPT user process is shown schematically in Figure 1.

The ADaPT software has the capability to create customized project libraries set up by the user (i.e., laboratory, project manager, data generator, governing entity, or partnership between any of these groups) to validate the data using their own specific

requirements. The program areas have created a master library based on Rule 62-777, 62-520, 62-550, 62-302 and 62-160, F.A.C. requirements. The ADaPT libraries stipulate analytical methods, target analytes and quality control and data review requirements for any project.

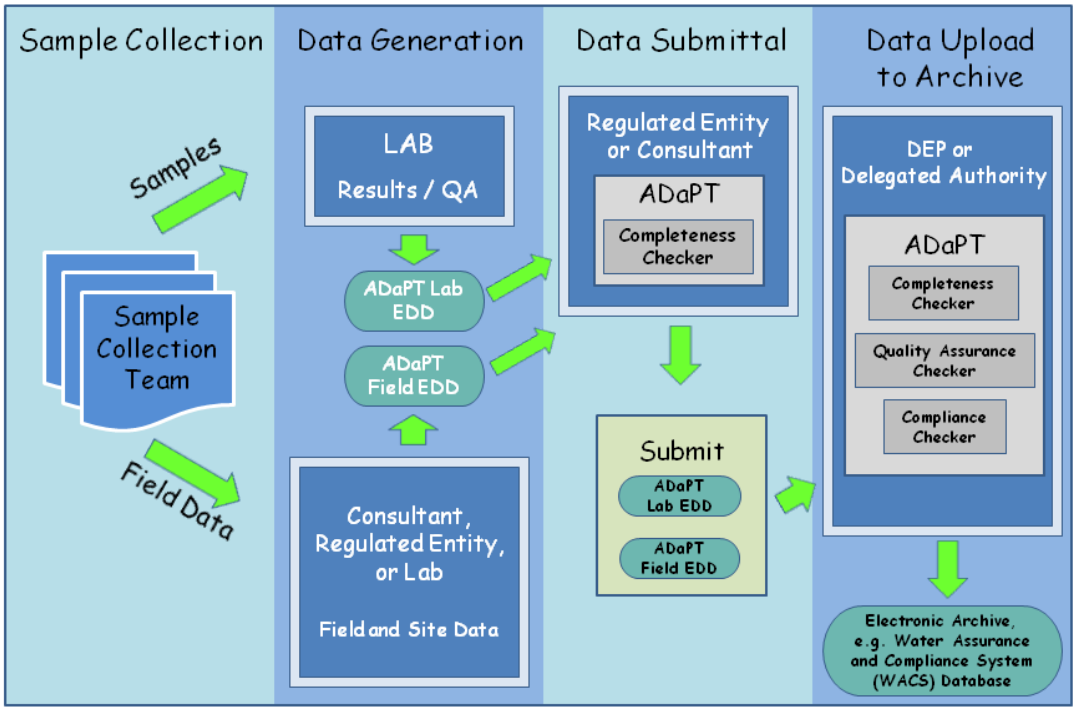


**Figure 1.** Process flow diagram showing the ADaPT user process.

4.3.2. Data Transfer and Reduction

Precautions are taken each time the data are reduced, recorded, calculated, and transcribed to prevent the introduction of errors and the loss of information. Data transfer and reduction steps are kept to a minimum and when such steps are implemented, the data transfer is conducted using an automated and consistent process. These automated procedures ensure the correctness of data reduction processes to include all processes that change either the form of expression or quantity of data items. A typical workflow scheme used to minimize transfer and reduction errors involves the following steps:

- The Division and appropriate District Office will receive the electronic data deliverable (EDD) submittal in a format conforming to the Cross-Media Electronic Reporting Regulation (CROMERR) standards or on disk, CD, or other magnetic or optical media~~on compact disc or flash drive media~~.

- The technical staff will review the data submittal including any field sampling sheets or logs for potential problems in the sample collection protocol.

- The technical staff will notify the Permittee or consultant for explanations, corrections, or changes as needed.

- The technical staff will process the EDD using ADaPT.

- Finally, the data is uploaded directly from ADaPT to an archival database. A check is made to ensure that no information is lost in the transfer.

4.3.3. Data Archival

The Waste Program will store data processed through ADaPT in a repository chosen by each section. The ADaPT software is designed to upload processed data to an electronic archival database. A final data set will be maintained with the project file in the Division's electronic document management system (OCULUS™). A description of procedures for inserting documents to OCULUS™ are describe in the OCULUS™ user guide available for download at OCULUS User Guide.

Additionally, the Division has developed business processes whereby documents created and received by the Division or District Office are entered into OCULUS™ in the same manner each time, and indexed in accordance with a Standard Indexing Taxonomy using established quality control (QC) steps throughout the defined business process. This ensures that information on documents is captured in a consistent manner. These clearly defined QC steps combine to provide the quality assurance that all information entered into OCULUS™, whether in the Tallahassee office or in any of the District Offices is accurate. The OCULUS™ QA Plan may be found at: DWM Document Management QA Plan.

The BSHW will use ADaPT to upload the quality checked data to the Water Assurance and Compliance System (WACS) database that is available to the general public. To ensure the data upload process is accurate and maintains the quality of the data, WACS runs auditing checks upon upload. The Department also has security checks and requires password access before a file can be uploaded by file transfer protocol to WACS. Once upload is initiated, the upload process matches the WACS ID to a specific sampling location, makes sure the WACS ID is valid, checks the matrix, analyte, reporting units and STORET codes and checks for duplicate records.

4.3.4. Documentation

Since accurate documentation is an important factor for determining the success of QA activities, record-keeping procedures are followed to ensure appropriate documentation is kept. The ADaPT electronic deliverable files, error logs, compliance checking reports and other groundwater monitoring report related documents for each facility will be maintained in OCULUS™. The responsible technical staff will insert the data submittal into OCULUS™ upon receipt. Copies of correspondence for corrective actions and responses will also be archived in OCULUS™.

### 4.4. Corrective Action

Procedures are implemented to assure early and effective corrective action is taken when data quality falls outside established DQOs, data acceptance criteria or quality assurance requirements. Problems are listed in deliverable review letters, or other appropriate correspondence, and delivered to the responsible party. Depending on the severity of the problem, data may be rejected. When requested, the QAC or the appropriate QA Officer provides feedback and suggestions for corrective actions. The corrective action process keeps management informed when corrective actions are necessary. The Corrective Action Plan relates to the overall QA management scheme in terms of who is responsible for taking corrective actions when corrective actions are required, and who follows-up to verify that corrective actions have been taken and that they have produced the desired results. A typical workflow scheme used by the Waste Program to identify the need for and implement corrective action involves the following steps:

- The Division and appropriate District Office technical staff will evaluate whether environmental data samples were collected properly by verifying that samples were collected in accordance with the appropriate SOP, samples were free from tampering or adulteration and samples have a verifiable chain of custody. In certain cases it may be necessary to collect a new sample or reanalyze an existing sample.

- The Division and appropriate District Office technical staff will review EDD submittals for certification, process through ADaPT, and ensure no critical errors exist and non-critical errors are justified. If any non-critical errors exist that need additional explanation, the technical staff, QAC or appropriate QA Officer will communicate directly with the laboratory and copy the other stakeholders.

- The technical staff will follow-up with the laboratory on corrections and explanations, if needed, in order to finalize the EDD. If the laboratory is nonresponsive after two attempts, appropriate enforcement action will be taken.

- When the EDD submittal is finalized and the data archived, the final data file will be inserted into OCULUS™. The technical staff will process the finalized EDD through ADaPT using the appropriate regulatory criteria in order to generate the regulatory comparison report and, if out of compliance precede with the appropriate enforcement actions.

## 5. Training

All staff is properly trained to perform their duties. Supervisors periodically assess that staff performance conforms to the established Waste Program policies and procedures. The training procedures include the following:

- Training for specific QA functions.
- Annual ethics policy course with QAC or appropriate QA Officer.
- Specific training materials for routine functions and designated QA activities.
- Refresher trainings or delivery of updated information.
- Evaluation of effectiveness of training for each QA staff member (see ~~cf.~~ Section 3.5).

# 6. Audits

Audits provide objective feedback concerning the effectiveness of the Waste Program's quality system, and may identify areas in need of improvement. In addition, successful implementation of the QA Program relies on valid data which begins with proper sampling and ends with proper laboratory analysis. Therefore, the Waste Program performs the following audit activities concerning sampling and analysis of environment data:

## 6.1. Hazardous Waste Regulation Section

### 6.1.1. Compliance Sampling Inspection

Occasionally it is necessary to inspect a facility in order to collect samples for laboratory analysis. These sampling inspections are very resource-intensive because they require advanced planning for the sampling scheme and laboratory analysis. A sampling inspection may be conducted in conjunction with any other inspection.

### 6.1.2. Compliance Groundwater Monitoring Evaluation

During the comprehensive groundwater monitoring evaluation (CME), enforcement officials evaluate the adequacy of the design and operation of a facility's groundwater monitoring system. This evaluation should be completed by a hydrogeologist or an engineer with appropriate experience.

The CME includes an audit of the following:

- The owner and operator's characterization of the hydrogeology underlying the hazardous waste management units.
- Monitoring well placement, depth, and spacing.
- Well design and construction.

- Compliance with Department SOPs.

- Compliance with permit and enforcement activities.

CMEs at compliance or assessment monitoring facilities include a detailed examination of the assessment monitoring plan and implementation of the plan.

### 6.1.3. Operation and Maintenance Inspection

The operation and maintenance inspection (OMI) is periodically conducted ~~to evaluate~~to evaluate whether a groundwater monitoring system is continuing to function as designed. The OMI focuses on the condition of the wells and their associated sampling devices.

## 6.2. Solid Waste Management Section

Inspections and groundwater monitoring report reviews are conducted by the District Office. These monitoring network evaluations are conducted in the following two phases with the frequency based on facility type and the level of service.

- During compliance inspections the inspector observes the conditions of the sampling locations and sampling devices.

- During the review of the water (surface and ground) and leachate quality reports, the inspector determines if the network is functioning as designed.

### 6.2.1. Compliance Inspection

Inspections and sampling performance audits (field audits) are conducted by the District solid waste staff. District staff conducts targeted field audits based on the quality of data submitted. If there are questionable practices or protocol identified during review of the data when compared to the Field SOPs, then a field audit may be needed. The QAC or appropriate QA Officer is available to assist in field audits, when reasonable notice is provided.

### 6.2.2. Water Quality and Leachate Monitoring Report Review

Designated personnel in the District Offices review the water quality and leachate data for compliance. The groundwater monitoring review will evaluate the same criteria as the Hazardous Waste Regulation Sections CME (See Section 6.1.2). If any abnormalities are flagged during the monitoring report review, the responsible party is required to submit additional information. If the additional information does not resolve the issue, a field audit may be needed.

## 6.3. Storage Tank Regulation Section

6.3.1. Sampling Inspection

Inspectors from District Offices and county programs on contract to the BPSS inspect facilities during the removal or installation of a storage tank system to make sure that soil and groundwater samples are collected properly for the applicable analytes.

## 6.4. Petroleum Cleanup Sections

6.4.1. Sampling Inspection

The BPSS has implemented an inspection program that is carried out by site managers in Tallahassee and in the contracted local programs, by counties not covered by the contracted local programs, and by full-time inspectors of the environmental companies on contract to the BPSS. Inspectors contact site managers from the field if they observe improper field procedures, and the inspection reports are sent electronically to the site managers shortly thereafter.

6.4.2. Operation and Maintenance Inspection (OMI) and Evaluation

The operation and maintenance inspection occurs periodically to determine whether a groundwater treatment system is continuing to function as designed. In the counties not covered by local programs, the inspections are performed almost exclusively by full-time inspectors of the two contracted companies. In the counties covered by local programs, they are performed by local program inspectors. The OMI focuses on the condition of the different parts and system runtimes. The findings from an OMI will indicate whether the system is operating as designed in order to achieve the desired cleanup progress. Inspection reports are submitted electronically to the site managers and reviewed by the site managers and Remedial Action Specialists. In the case of remedial systems operated as part of the Remedial Action Initiative (RAI), the review includes a determination of whether RAI requirements are being met.

## 6.5. Bureau of Waste Cleanup

The BWC takes a holistic approach to evaluating the various aspects of its programs. Project managers and Department contractors (when appropriate) are responsible for ensuring that all activities are performed following appropriate protocols. Department staff often participates in development of DQOs and conduct reviews of critical documents prior to field work to eliminate potential errors. Staff also periodically observes contractors in the field to identify deficiencies. In some cases formal field audits are conducted by EPA's Science and Ecosystem Support Division (SESD). If deficiencies are identified, the contractor is notified, corrections may be accomplished while the audit is being

performed. The Department may also provide the contractor a written evaluation of the findings.

### 6.6. District Waste Cleanup Program

If the data quality falls outside established DQOs, data acceptance criteria, or quality assurance requirements, the District will require additional sampling and analysis before making a decision whether site assessment and cleanup completion has been achieved. When necessary, site managers will perform field audits to ensure the sampling is done correctly and in appropriate locations.

## 7. Contract Management

The BSHW does not normally manage any contracts or grants that require environmental monitoring. If environmental monitoring is required by a contract or grant, the water quality data will be processed through ADaPT by a contractor prior to submittal to DEP.

The BPSS has contracts with a number of environmental companies that are selected through a review process. Additionally, there are contracts with two consulting companies and 14 county programs as mentioned above. These companies are assigned to perform state-administered cleanups and also to perform verification sampling for discharges rehabilitated under Performance-Based Cleanup Agreements. Other special projects may be assigned where preapproval contractors are not applicable.

The BWC maintains contracts with multiple environmental firms for services ranging from assessment to remediation. All contractors are competitively selected based on statements of qualifications. Each contractor is required to conform to Department quality assurance rules and procedures.

## 8. Report Compilation

To provide the Secretary with information regarding ongoing QA efforts within the Department's Waste Program, the QAC coordinates with the QA Officers to describe and compile the results of all appropriate QA activities and relay them to the Standards and Assessment Section for an annual report.