



Annual Quality Assurance Report to the Secretary

2016



2016 Annual Quality Assurance Report to the Secretary

**Division of Environmental Assessment and Restoration
Water Quality Standards Program
Florida Department of Environmental Protection
September 20, 2017**

Pictured Front, Otter Lake, Panacea, FL

Acknowledgments

This document was prepared by staff in the Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Water Quality Standards Program, Aquatic Ecology and Quality Assurance Section. The following work units within the Department contributed to this report:

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Hazardous Waste Section

Petroleum Restoration Program

Site Investigation Section

Solid Waste Section

Waste Cleanup Section

DOD Projects Work Unit

Brownfields Projects Work Unit

Division of Water Resources Management

Source and Drinking Water

Aquifer Protection and Underground Injection Control

Water Compliance Assurance

Industrial and Domestic Wastewater

Phosphate Management

Mining and Mitigation

Florida Geological Survey

Central District

Northeast District

Northwest District (includes Panama City and Tallahassee Branch Offices)

South District (includes Marathon Branch Office)

Southeast District

Southwest District

Division of Environmental Assessment and Restoration

Water Quality Standards Program

Watershed Assessment Section

Watershed Monitoring Section

Regional Operating Centers

Watershed Evaluation and Total Maximum Daily Loads Section

Groundwater Protection Section

Water Quality Restoration Program

Office of Watershed Services

Laboratories

Office of Ecosystem Projects

Florida Coastal Office

Rookery Bay NERR

Guana-Tolomato-Mantanzas NERR

Apalachicola NERR

St. Joseph Bay State Buffer Preserve

Rainbow-Oklawaha Aquatic Preserves

Northwest Florida Aquatic Preserves

Central Panhandle Aquatic Preserves

Big Bend Aquatic Preserves

Wekiva-Middle St. Johns-Tomoka Aquatic Preserves

Northeast Florida Aquatic Preserves

Indian River Lagoon Aquatic Preserve

Tampa Bay Aquatic Preserve

Rookery Bay Aquatic Preserve

Estero Bay Aquatic Preserve

Charlotte Harbor Aquatic Preserve

Florida Keys Aquatic Preserves

Biscayne Bay Aquatic Preserves

Florida Keys National Sanctuary

Division of Water Restoration Assistance

Division of Recreation and Parks

Division of State Lands

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List of Acronyms and Abbreviations

ADaPT	Automated Data Processing Tool
AEQAS	Aquatic Ecology and Quality Assurance Section
ANERR	Apalachicola NERR
AP	Aquatic Preserve
ASR	Aquifer Storage and Recovery Database
BBAP	Biscayne Bay Aquatic Preserve
BBSAP	Big Bend Seagrass Aquatic Preserve
BMAP	Basic Management Action Plan
BROWN	Brownfields Section
BTLDS	Board of Trustees Land Document System
CAP	Compliance Assurance Program
CD	Central District
CHAP	Charlotte Harbor Aquatic Preserves
COMET	Compliance Enforcement Tracking
CPAP	Central Panhandle Aquatic Preserves
CRCP	Coral Reef Conservation Program
DEAR	Division of Environmental Assessment and Restoration
DEP/Department	Florida Department of Environmental Protection
DoD	Department of Defense Projects Section
DQO	Data Quality Objective
DRP	Division of Recreation and Parks
DSL	Division of State Lands
DW	Domestic Wastewater
DWM	Division of Waste Management
DWRA	Division of Water Restoration Assistance
DWRM	Division of Water Resource Management
EBAP	Estero Bay Aquatic Preserve
EPA	U.S. Environmental Protection Agency
ERP	Environmental Resource Permitting
ERPce	Resource Permitting Conservation Easement
EzDMR	Ez (easy) Discharge Monitoring Report
FCO	Florida Coastal Office
FGS	Florida Geological Survey
FGS Wells	Florida Geological Survey Wells Database
FIESTA	Florida Integrated Environmental System

FIRST	Florida Inspection Reporting Storage Tanks
FKAP	Florida Keys Aquatic Preserves
FKNMS	Florida Keys National Marine Sanctuary
FL-SOLARIS	Florida State Owned Lands and Records Information System
GIS	Geographical Information Systems
GTM NERR	Guana-Tolomato-Mantanzas NERR
GW	Groundwater Program
GWIS	Generalized Water Information System
HW	Hazardous Waste Program
IW	Industrial Wastewater
ICIS	Integrated Compliance Information System (U.S. EPA)
ILMS	Integrated Land Management System
IRLAP	Indian River Lagoon Aquatic Preserves
I&DWW	Industrial and Domestic Wastewater
LIMS	Laboratory Information and Management System
MMP	Mining and Mitigation Program
NEAP	Northeast Florida Aquatic Preserves
NELAC	National Environmental Laboratory Accreditation Conference
NED	Northeast District
NERR	National Estuarine Research Reserve
NWAP	Northwest Florida Aquatic Preserves
NWD	Northwest District
OCULUS	DEP Consolidated Electronic Document Management System
OEP	Office of Ecosystem Projects
OEP ACCESS	Office of Ecosystem Projects Access database on common drive
OER	Office of Emergency Response
OHMIT	Oil & Hazardous Materials Incident Tracking
OWS	Office of Watershed Services
PCS	Permit Compliance System
PM	Phosphate Management Program
PRP	Petroleum Restoration Program
PWS	Public Water System
QA	Quality Assurance
QAO	Quality Assurance Officer
QC	Quality Control
QMP	Quality Management Plan
QP	Quality Plan

RBAP	Rookery Bay Aquatic Preserves
RBNERR	Rookery Bay NERR
ROCs	Regional Operations Centers
RS-OR	Rainbow-Oklawaha Aquatic Preserves
SBIO	Statewide Biological Database
SCI	Stream Condition Index
SD	South District
SDWP	Source and Drinking Water Program
SED	Southeast District
SJBSBP	St. Joseph Bay State Buffer Preserve
SIM	STORET Import Module
SIS	Site Investigation Section
SLERC	Submerged Lands & Environmental Resource Coordination
SOPS	Standard Operating Procedure
STORET	Storage and Retrieval (Database)
SUPRs	Submerged and Uplands Public Revenue System
SW	Solid Waste Program
SWIFT	Solid Waste Informational Tracking System
SWD	Southwest District
TBAP	Tampa Bay Aquatic Preserves
TMDL	Total Maximum Daily Loads
TREEO	Training, Research and Education for Environmental Occupations
UIC	Underground Injection Control
USGS NWIS	United States Geological Survey National Water Information System
WACS	Water Assurance Compliance Systems
WAFR	Wastewater Facility Regulation (database)
WAS	Watershed Assessment Section
WCAP	Water Compliance Assurance Program
WMS	Watershed Monitoring Section
WTAP	Wekiva-Middle St. Johns-Tomoka Aquatic Preserve
WQAP	Water Quality Assessment Program
WQSP	Water Quality Standards Program
WSC	Waste Site Clean-up

Executive Summary

The Annual Quality Assurance (QA) Report to the Secretary of the Florida Department of Environmental Protection (department or DEP) summarizes quality assurance activities of department programs and evaluates the effectiveness of DEP's QA Directive (DEP 972) for each calendar year. Approved in 2009, the QA Directive provides internal department QA policy and outlines the areas of staff responsibility for ensuring the quality of data used by the department. The QA Directive describes how the department will implement the requirements in the QA Rules (Chapter 62-160, Florida Administrative Code) through a distributed approach in which department work units develop and maintain a quality system with clear QA objectives for data they generate or use. This report details the QA efforts and accomplishments made by staff throughout the department in 2016, and identifies focus areas for future QA initiatives.

For the 2016 Annual QA Report, QA staff in the Aquatic Ecology and Quality Assurance Section (AEQAS) in the Division of Environmental Assessment and Restoration (DEAR) collected information from programs via surveys and personal communication with staff to assess the status of the quality system for each program or work unit. Department programs submitted information about data quality objectives and other QA expectations, and provided an accounting of tasks completed in 2016 in five QA categories that address one or more department policies and areas of responsibility outlined in the Directive. These categories are: 1) quality systems; 2) training; 3) data quality objectives; 4) audits; and 5) data repositories. The metrics used for each category were selected by AEQAS to be comparable across all applicable programs in the divisions, districts, and offices. Through this process, AEQAS identified areas where improvement is needed to meet quality assurance management responsibilities outlined in the QA Directive and the EPA-approved Quality Management Plan. AEQAS received information from 50 self-defined work units.

Ninety-eight percent of department programs and districts reported on their QA activities, and all reporting programs have designated a QA Officer (QAO) to oversee QA activities within the program. Eighty-three percent of these programs have written a quality plan that describes the policies and activities that are developed by the program to help ensure that the quality of data generated or used by the program are defensible. However, 28% of all quality plans needed updating to reflect changes in the organizational structure, policies and activities of the programs covered by the plans. This is an improvement from the 2015 Annual Report when 57% of quality plans needed updating. Staff turnover may have in part affected both the revision status of quality plans and the level of QAO training. The majority (92%) of department employees that are involved with the process of data generation, data receipt, data assessment, data archival storage, and data interpretation received training in 2016 to execute their assigned functions, as reported by their program. Department staff provided training on data collection and data handling to over 2,700 individuals from external stakeholder organizations in approximately 125 training sessions.

Data Quality Objectives (DQOs) are targets that describe the level of expected data quality. DQOs are important for data generated and used by the department to ensure validity and defensibility of department decisions. Forty-one percent of reporting programs or districts are data generators and users. Thirty-one percent of programs are data users but not generators. The data used by these programs may come from other units within the department or entities external to the agency. Twenty-two percent of programs or districts reported data generation only. Most programs that generate data or use data indicate that they have data quality objectives to evaluate the quality of the data generated or used.

Eighteen programs reported conducting 1,510 external audits in 2016 to ensure that the data generated and used by the department are of acceptable quality. Sixty-three percent of programs did not conduct

any audits. For reporting purposes, three categories of external audits were defined by AEQAS: field sampling (81%); lab and facility (15%); and program audits (4%). Further refinement in annual QA surveys as well as communication with QAOs and program staff are needed to improve understanding of the relevance of reported audits to QA goals. Twenty-four (51%) programs reported being audited; nine programs (18%) reported being audited by an entity outside of their program or district, and sixteen programs (31%) reported auditing their own program or district.

The refinements to annual QA surveys and continued QA communication will improve consistency in reporting audits among department program activities that are shared across districts. Most programs conducting audits (15 of 18 programs) use checklists or procedures to ensure consistency and completeness in audits. Twelve programs reported tracking timeframes of an audit from beginning to finalization, and eleven of those programs reported following up after the audit.

Various department staff are data stewards on a small or large scale, and the department's data repository records are verified and checked for data quality by most programs for most databases. Programs and districts throughout the agency identified more than 40 different data repositories, both internal and external to the agency, where data are stored and retrieved for program use. More than half of the programs (63% of programs) that enter data into a repository reported manual checks for the data that are entered. Fifteen programs identified ten data repositories for which the program does not perform manual or automated checking procedures. Of all data repositories, fifteen are used by more than one program in the department and the data entry checking procedures are inconsistent. While some of the inconsistencies may reflect the differences in specific program activities or reporting differences, rather than a program deficiency, the differences in checks suggest that programs need to better coordinate QA procedures for shared database management.

Overall, QA activities conducted throughout DEP support scientifically and legally defensible decisions by the agency. Communications between AEQAS and program QAOs during the development of this report have improved awareness of the QA Directive and the critical role of QAOs and quality plans in building quality systems within department programs. However, further improvement in communication between AEQAS and the program QAOs is needed. AEQAS will continue to reach out to QAOs and department management to identify those program areas not currently reporting QA activities and to provide training and other support to QAOs and program staff to improve efforts and outcomes in the specific areas identified in this report. Further identification and refinement of metrics for annual QA reporting is needed, and these efforts will progressively improve the efficiency of implementing QA responsibilities and continue to positively impact the department data quality system. AEQAS is planning a QAO training event for Winter 2017-2018 that will facilitate needed improvements for this report and the overall quality system of the department. AEQAS will coordinate with the QAOs and appropriate management to develop the training agenda.

1. Introduction

1.1 Overview

The Florida Department of Environmental Protection's (department or DEP) Quality Assurance (QA) Directive (DEP 972) establishes internal policy to implement and assess the department's quality system for scientific data used by the department. The department's QA policy encompasses all activities involved with the collection, analysis, and interpretation of chemical, physical, biological, microbiological, and toxicological data. The QA Directive outlines procedures and staff responsibilities to ensure that data of sufficient quality are used to support department decisions. This directive is applicable to all department regulatory, ecosystem restoration, and land and recreation programs, except the Division of Air Resources Management, which manages its own quality assurance program.

This Annual QA Report for the 2016 calendar year was prepared by QA staff in the Aquatic Ecology and Quality Assurance Section (AEQAS) of the Division of Environmental Assessment and Restoration (DEAR), in accordance with Section 5 of the QA Directive. The report is designed to assess implementation of the QA Directive and the department's continuous improvement in managing QA goals and tasks. The findings presented in this document describe the status of how well the department implemented the policies outlined in the QA Directive in 2016. As part of the evaluation, AEQAS surveyed programs throughout the department to see if they were meeting core requirements of the QA Directive and developed program-specific metrics for their QA activities. The collaborative process used to prepare this report continues to enhance awareness and application of the QA Directive, and will progressively improve the efficiency of implementing QA responsibilities that directly impact data quality (Figure 1.1).

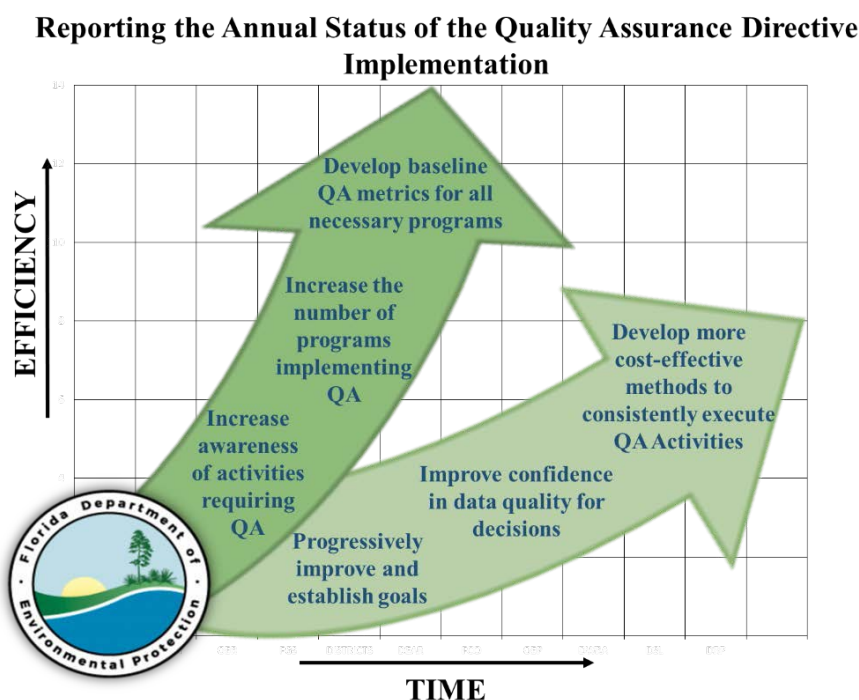


Figure 1.1. The overall effects of annual reporting of QA activities on department efficiency over time. The left arrow represents immediate outcomes from the Annual QA Report, and the right arrow represents benefits to the department over the longer time frame.

Where comparable data were available, this report also makes comparisons between survey results from 2016 to the results from the 2015 report. However, due to changes in the number of individual work units reporting and the changes in survey content, the results in some sections were not comparable to the results in the 2015 report.

AEQAS divided the QA activities reported for 2016 into the same five reporting categories used in the 2015 report: quality systems, training, data quality objectives, audits, and data repositories. Each category addresses one or more department policies within the directive, as further described in each section of this report. The types of metrics contained in each category were selected by AEQAS to be comparable across all applicable programs in the divisions, districts, and offices, and were modified from 2015 metrics to improve the clarity and specificity of information reported by the programs. The metrics derive from a self-reporting process by which department programs identified program-specific activities and measures for the implementation of QA procedures and requirements, and then summarized to what extent the program achieved these activities.

1.2 Report Participation

To prepare the 2016 annual report, AEQAS staff sent an Excel workbook with five worksheets to Quality Assurance Officers (QAOs) in the Regulatory, Land & Recreation, and Ecosystem Restoration programs to gather information on the QA activities reported in sections three through six of this report. AEQAS staff followed up with QAOs in verbal and email communications, as needed, to clarify responses or to collect additional details. AEQAS received information from 38 QAOs who represented 50 work units; however, there were still some gaps in the responses, and the appropriate QAOs were asked to provide any additional comments for the final report.

Although AEQAS did not get information from everyone, there was increased participation when compared to the 2015 report and AEQAS will continue to assist the QAOs in summarizing QA activities. The Division of Recreation and Parks (DRP) and the Florida Coastal Office (FCO), which includes forty-one Aquatic Preserves (AP) managed within fourteen offices, three National Estuarine Research Reserves (NERR), the Coral Reef Conservation Program (CRCP), and the Florida Keys National Marine Sanctuary (FKNMS), reported activities for 2016. Participation by DRP and expanded representation by FCO met goals that AEQAS established in the 2015 report when those offices were not sufficiently represented.

There was inconsistency in QA report participation and reporting content among the district offices (**Tables 1.1 and 1.2**). This inconsistency will be addressed before next year's report. The Regulatory Assistant Directors and Deputy Directors will provide the Deputy Secretary with a solution in the coming months. The self-reported information for a given work unit may not reflect all program QA practices in effect.

2016 Annual Quality Assurance Report

District or Division Office	Source and Drinking Water	Aquifer Protection	Industrial Waste	Domestic Waste	Phosphate Management	ERP
Division Office	✓	✓	✓	✓	✓	
NWD	✓	✓	✓	✓	N/A	
NED	✓		✓	✓	N/A	
CD	✓		✓	✓	N/A	
SWD	✓	✓	✓	✓		✓
SED	✓				N/A	
SD	✓	✓	✓	✓	N/A	✓

Table 1.1. Programs within the Division of Water Resource Management that provided QA activity information for sections 3-6 of the 2016 annual report, listed for each district and the corresponding division offices in Tallahassee. Blank spaces indicate where QA activity information was not provided. N/A indicates that the Phosphate Management program is not applicable to the indicated district office.

District or Division Office	Hazardous Waste	Petroleum Restoration	Site Investigation	Solid Waste	DOD and Brownfields	Waste Site Cleanup	Office of Emergency Response
Division Office	✓	✓	✓	✓	✓	✓	
NWD	✓	✓		✓	✓	✓	
NED					✓	✓	
CD	✓			✓			✓
SWD	✓			✓		✓	✓
SED	✓			✓	✓	✓	
SD	✓	✓	✓	✓	✓	✓	

Table 1.2. Programs within the Division of Waste Management and the Office of Emergency Response that provided QA activity information for sections 3-6 of the 2016 annual report, listed for each district and the corresponding division office in Tallahassee. Blank spaces indicate where QA activity information was not provided.

2. Quality Systems

It is the department's policy to...have each district and program implement a Quality System...[and] adaptively manage the Quality Systems...to be consistent with provisions of the... [Quality Assurance] Directive (QA Directive, 2009).

2.1 Overview

A quality system comprises policies, procedures and criteria utilized to monitor, evaluate, and improve an organization's QA processes. With the adoption of the QA Directive, the department developed a structured management approach that distributes the functions necessary to implement a quality system and monitor QA requirements established throughout the system.

A quality system requires planning, implementation and assessment, all of which involves two key factors: the use of planning documents sufficient for all QA activities, and designated QAOs to assist management and technical staff with the implementation and evaluation of QA activities throughout all levels of the department (**Figure 2.1**). DEP's overall quality system is documented in the department's Quality Management Plan (QMP) approved by the U.S. Environmental Protection Agency (EPA), which incorporates many other DEP QA documents, such as the QA Rules (Chapter 62-160, Florida Administrative Code) and quality plans developed by the department's various programs.



Figure 2.1. Two key elements of DEP's quality system are Quality Plans and Quality Assurance Officers. A well-operated quality system includes various QA documents and requires the participation of all department technical staff and applicable external organizations.

2.2 Quality Plans

Department programs and work units document their quality system and describe the overall planning process in quality plans (QPs). These QPs describe the organization of the program, designate one or more QAOs, and delineate the staff QA responsibilities that will ensure that data used by the department are appropriate and reliable. Quality system details can vary among divisions, districts, and offices. It is the responsibility of each program and section administrator to ensure that their quality system is fully operational and documented in a QP.

AEQAS creates and publishes helpful tools and resources for creating QPs. The document, "Guidance for Writing a Quality Plan," published by AEQAS, is available on the [QA Officers' webpage](#). AEQAS receives and publishes all current QPs on its [QP webpage](#). These QPs are "living documents" and require revisions as program organization, duties and criteria evolve, and updated QPs are routinely solicited by AEQAS. A QP can include information for more than one work unit. For the 2016 calendar year, AEQAS identified 28 department programs that should have a QP, of which 83% have provided a copy to AEQAS. Of these QPs, 28% were out of date (≥ 4 years old) and require revisions (**Figure 2.2**). This is an improvement from 2015 when 82% of programs had provided a copy and 57% of QPs were out of date. The decrease in out of date QPs can be attributed to the submission of missing QPs by the Groundwater Protection Section, Florida Coastal Office, and Office of Ecosystem Projects, and revision of outdated QPs by the Division of State Lands, Division of Waste Management, and Southwest District. Most QPs have been published on the QP webpage, but some have not been posted due to accessibility compliance issues (ADA section 508). AEQAS staff created an online webinar tutorial to assist with ADA file conversions.

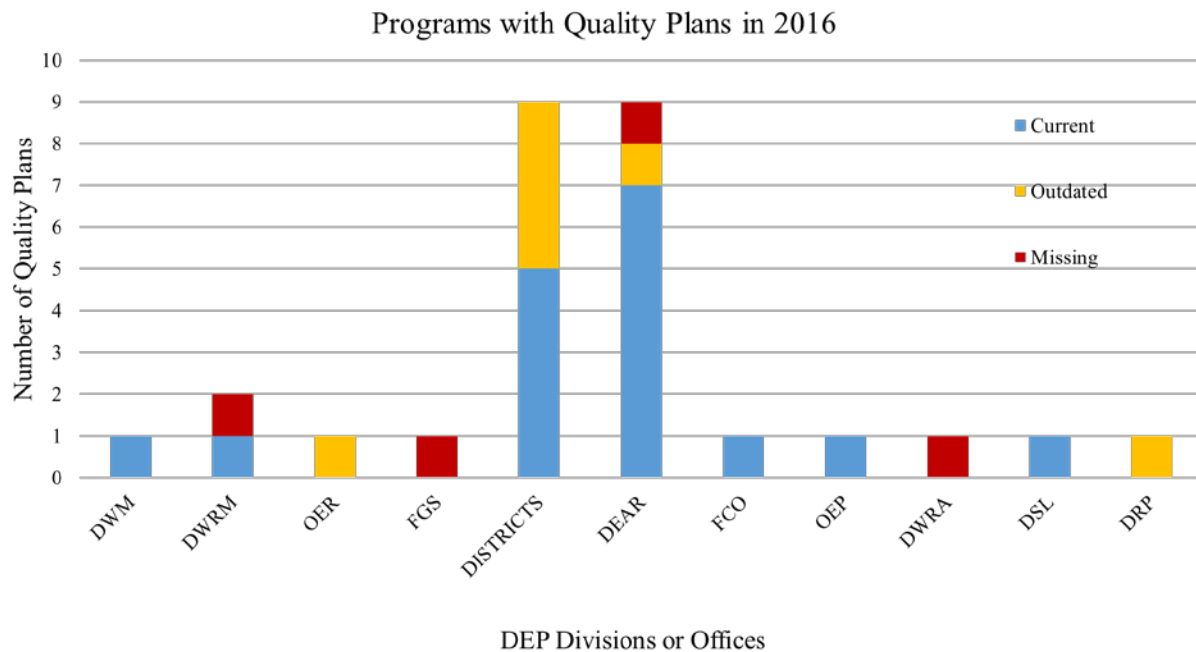


Figure 2.2. The Quality Plans that are current, out of date, or not available for programs in the department divisions, districts or offices. The number of plans required by each division, district or office is dependent on the program groupings included in each plan.

2.3 Quality Assurance Officers

The implementation of the internal policies outlined in the QA Directive requires active participation throughout all levels of the department. The department implements its QA system with the execution of each program's QP as well as through the coordination and direction of QA activities for the program by designated QAOs. For 2016, 100% of programs that required a QAO (as identified by Program and Section Administrators) had one or more designated QAOs.

100% of programs that required a QAO had one or more designated QAOs, and 98% of QAOs coordinated with AEQAS for this report.

The duties of QAOs' can be found in the QA Directive. These duties include, but are not limited to; the familiarity and maintenance of quality documents, coordination and performance of internal and external audits, implementation of corrective actions after incidents of non-conformance, communication with AEQAS, and tracking of staff training. AEQAS hosts quarterly teleconferences during which QA information is disseminated and discussed with the QAOs who participate on the phone call. Topics for the calls are based in part on the results of last year's QAO survey, which included a request for topics and training opportunities to highlight in quarterly phone meetings. AEQAS also made efforts to improve QAO awareness by providing a QAO Quick Guide that includes links to relevant resources, and by providing short training segments on relevant topics during the teleconferences. While participation in the quarterly QAO teleconferences has varied, 71% of QAOs surveyed in 2015 planned to be available for all quarterly meetings. Attendance taken at the June, September, and December 2016 teleconferences showed an average of 50% of programs were represented.

3. Training

It is the department's policy to...ensure that each individual who is involved with the process of data generation, data receipt, data assessment, data archival storage, and data interpretation is properly trained to execute their assigned functions (QA Directive, 2009).

3.1 Employee Training

Quality Assurance Officers (QAOs) reported the number of department employees in their programs that required and received training in 2016. Training sessions included one-on-one interactions, self-guided checklists, and classroom settings. Overall, 92% of DEP employees received training for all QA Tasks as required and reported by their programs (**Figure 3.1**). Of the 50 programs surveyed, 62% of programs trained all staff that required training in 2016 (**Figures 3.2 and 3.3**). Ten percent of programs were unable to train all staff that required training in 2016, and staff that were not trained in these programs represent 8% of the total number of employees that the reporting programs identified as needing training in 2016. Twenty-six percent of programs did not identify any staff that required training; it is not clear if staff in those programs were fully trained or if the programs did not think QA-related training was required for their duties. The overall training rate for 2016 (92%) was very similar to the 93% rate for 2015.

Employees Trained for QA in 2016
98% of Programs Reporting



Figure 3.1. Of the total number of employees that the reporting programs identified as needing training in 2016, 92% of staff received all necessary QA training.

QA Training By Division or Office for 2016

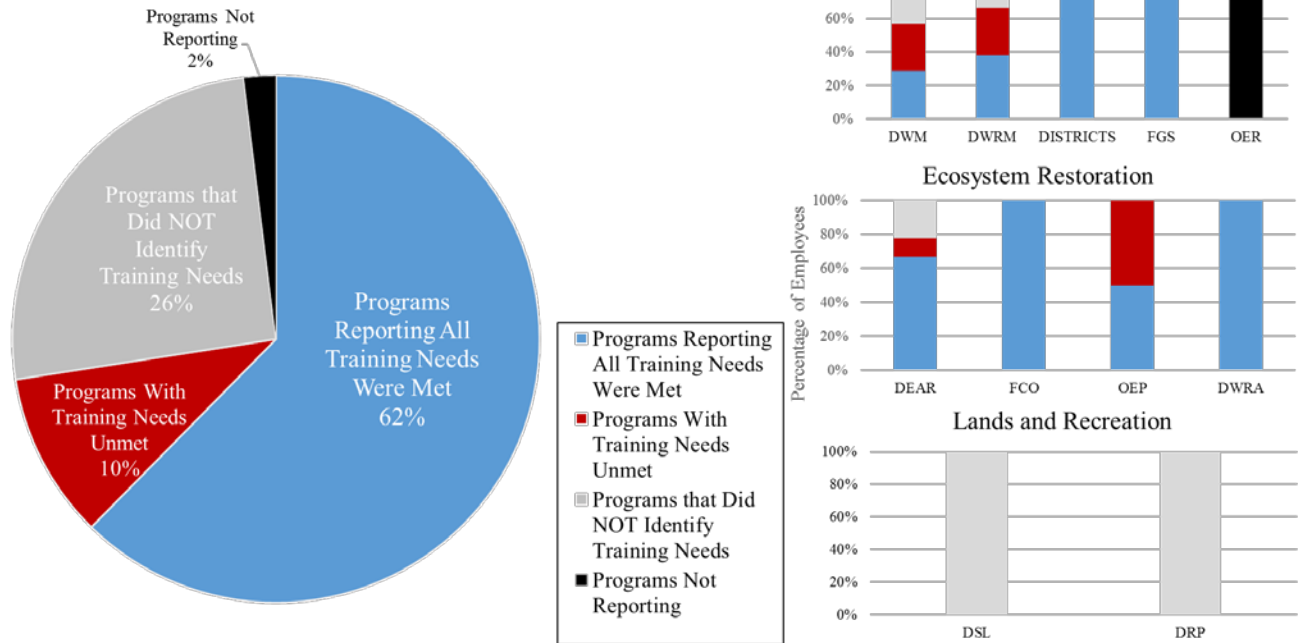


Figure 3.2. Left: Percentage of department programs reporting that all program employees received adequate QA training in 2016. Right: Percentage of employees from the divisions and offices within the Regulatory, Ecosystem Restoration, and Lands and Recreation portions of the department that were adequately trained in 2016.

Fifty-two percent of all the programs reported that they have established a training frequency. All training numbers reported represent each program's self-determined metric that provides a baseline for its ability to have all staff trained to execute assigned QA functions. AEQAS will follow up with programs that could not identify or could not meet training needs to better understand their reasons for these survey responses. AEQAS will provide guidance as needed regarding what job activities require QA training and how to deliver that training.

QA Training by Program for 2016

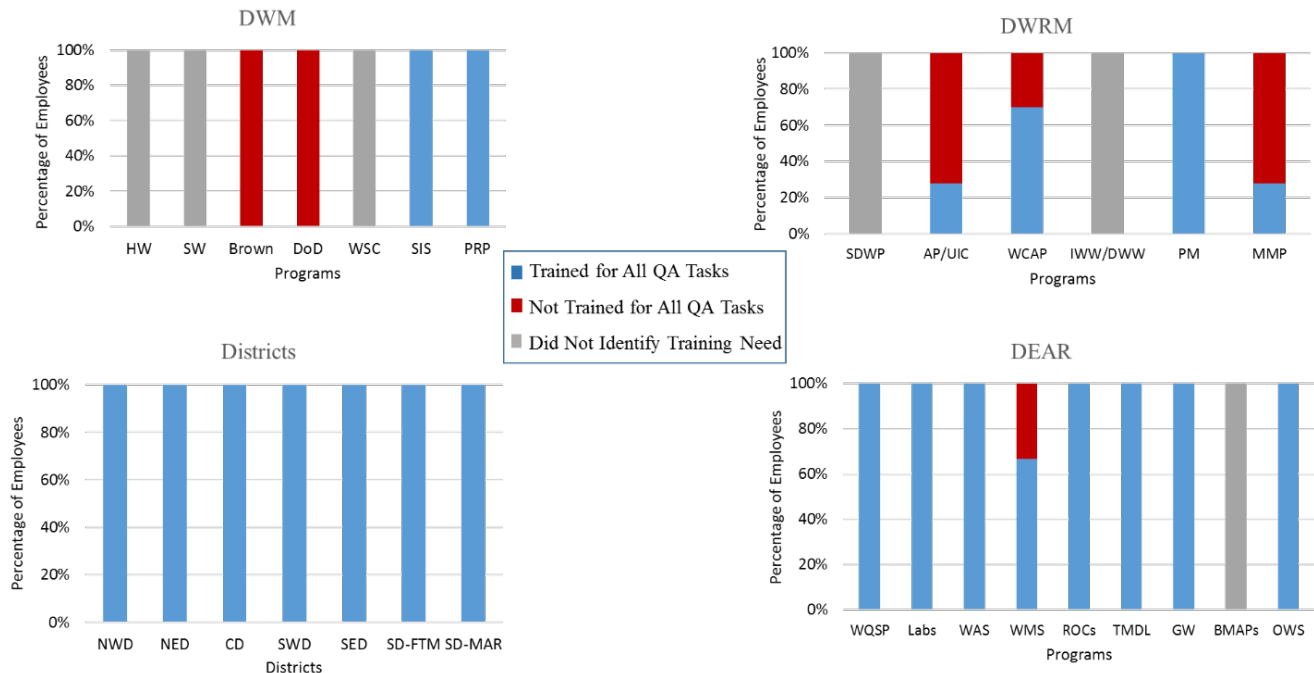


Figure 3.3. Program or district level representation of the percentage of employees that received adequate QA training in 2016 within the DWM, DWRM, DEAR, and the district offices.

3.2 Training Categories

Training activities are required by both data generators as well as data users. In an effort to help establish metrics that would apply to the data quality objectives carried out by each program, AEQAS defined categories for training activities that could be used to report training needs and accomplishments. The 2016 Training Activity Categories were field sampling, data reporting, data assessment, database management, and program specific QA requirements. All trainees in these categories were department staff. Note that some department staff required training in more than one category. Incomplete training (reflected by less than 100% of staff trained for each category) indicates staff that were unable to receive all required training before the end of the calendar year. Data Reporting training reached the highest percentage of employees that required it, while Data Assessment training reached the lowest percentage of employees (**Figure 3.4**). The survey did not request reasons for incomplete training, but communication with some QAOs suggested that program needs for training did not always align with the timing of training opportunities.

QA Training Categories in 2016

98% of Programs Reporting

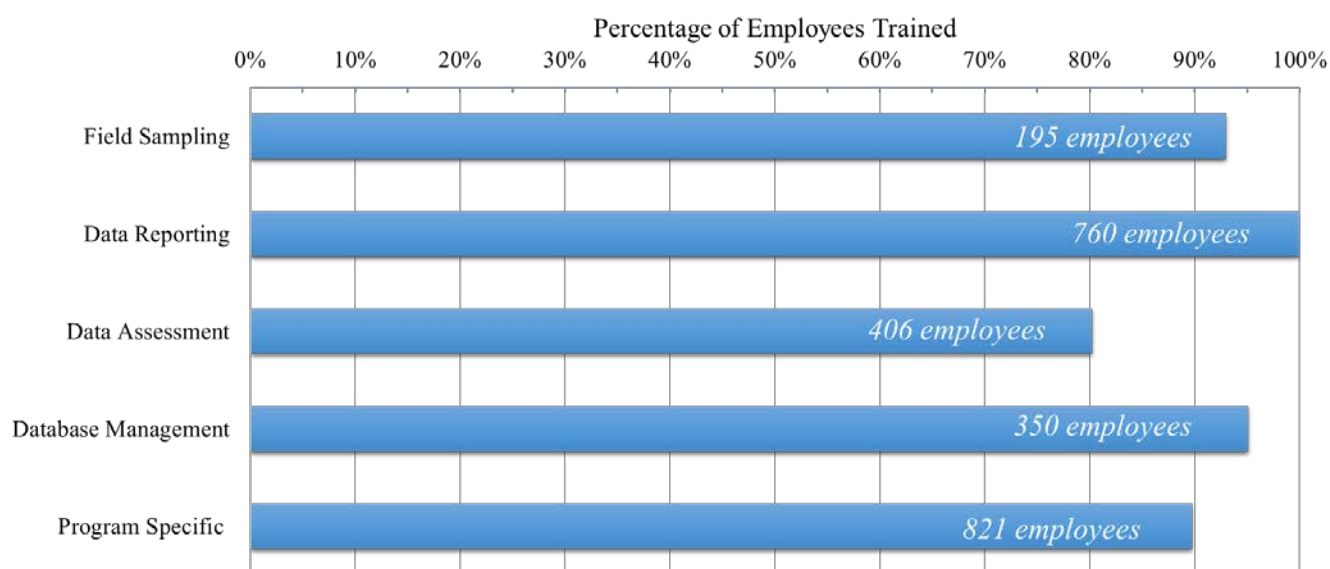


Figure 3.4. The percentage of employees that received required training in 2016 in the specific QA training categories identified by AEQAS, based on training data reported by programs. The number in each bar represents the total number of employees trained in the indicated category for all programs combined.

3.2.1 Field Sampling

Training for field sampling and testing included instruction based on department standard operating procedures (SOPs) for chemical, microbiological, and toxicity testing of aqueous and non-aqueous environmental matrices, and on field-based bioassessment techniques for surface waters. Fifteen department programs and districts reported field sampling training activities, and each quantified the number of employees that required and received the required training. These programs reported that 209 employees required field sampling training in 2016 and that 195 of those employees (93%) received that training.

3.2.2 Data Reporting

Training on data reporting topics was targeted at department staff who report data to the department for regulatory purposes. Eleven department programs and districts quantified the number of trainees both requiring and receiving training. The total number of employees that required training for data reporting was 760 employees. One hundred percent of employees received that training along with another 105 staff members that did not require that training.

3.2.3 Data Assessment

Training for data assessment included activities intended to provide department staff with information and instruction for evaluating the usability of data submitted to department programs. Usability criteria comprise a variety of data requirements ranging from those that are specific to individual programs to more universal QA requirements applicable across many programs. This training subject area is the area where most of the gaps in training can be found. The total number of employees that required training for data assessment in 2016 was 506 and of these 406 (80%) received the necessary training. OEP reported that not all staff were trained due to the time constraints of the calendar year reporting in relation to when the new hire began working.

3.2.4 Database Management

Database management is any training in person or via webinar that covered database topics for Watershed Information Network (WIN), STORET, OCULUS, and many others. The department programs and districts reported a total of 368 employees that required training related to database management for a variety of databases. Of those employees, 350 (95%) staff members received that training.

3.2.5 Program Specific QA Requirements

The program specific QA requirements training category had the highest number of employees that required training in 2016. Program specific QA requirements involve training associated with the application of program rules and requirements for the listed program. Program-specific training is provided to ensure that data representativeness, sufficiency, and quality objectives for a program are achieved. Twenty-two of the 50 department programs and districts reporting quantified the number of trainees that received program-specific QA training. The total number of department employees that needed training for program-specific QA requirements was 896, and of these, 821 (92%) received that training.

3.3 External Training

To ensure that all entities that produce or review data submitted to the department are properly trained, the department offered a variety of trainings for public stakeholders in 2016. Twenty-two programs in the department provided training in 2016 to more than 2,700 individuals from external parties at approximately 125 training events. Attendees included state and local government employees, volunteer groups, private sector employees, and other organizations.

*The department provided training in 2016 to more than
2,700 individuals from external parties at approximately
125 training events.*

AEQAS routinely provides biannual training on DEP SOPs for water sampling and meter testing through the TREEO Center in Gainesville. In addition to these trainings, AEQAS provided 15 trainings on field sampling and data assessment to external parties in 2016. The program that reported holding the most training events in 2016 was the Southwest District, which provided approximately 52 training sessions for an unknown number of attendees.

4. Data Quality Objectives

It is the Department's policy to... develop Data Quality Objectives...for the data generated by each applicable DEP program...[and] implement procedures to evaluate the quality of data used by each program using Data Quality Objectives (QA Directive, 2009).

4.1 Overview

Data Quality Objectives (DQOs) are qualitative and quantitative targets or goals that describe a level of expected data quality. The 2016 information assembled from 50 DEP programs indicated 11 of the programs were data generators, 17 were data users and 21 were both data generators and users (**Figure 4.1**). Utilizing DQOs helps to ensure adherence to the QA Rule. Some programs develop program-specific DQOs, procedures to evaluate the data for DQOs, and specific corrective action procedures based on guidance from a variety of sources, including the QA Rules (Chapter 62-160, F.A.C.), program rules, NELAC laboratory certification standards, the DEP SOPs or other testing methods. These DQOs should be specified or cited in a program's QP. Example DQOs derived from these sources include using approved laboratory methods, monitoring and reporting precision and accuracy for laboratory analysis, developing a detailed sampling plan that controls for confounding variables, meeting specified method detection limits and practical quantitation limits for permit compliance, following DEP SOPs for sample collection and field-testing, using environmental laboratories certified by the Florida Department of Health, and maintaining laboratory quality control for taxonomic identification. This report summarizes the status of the use of DQOs, as developed and reported by each applicable department program for the data generated by a program, as well as for data that have been submitted by another entity and used by a program, as further discussed below.

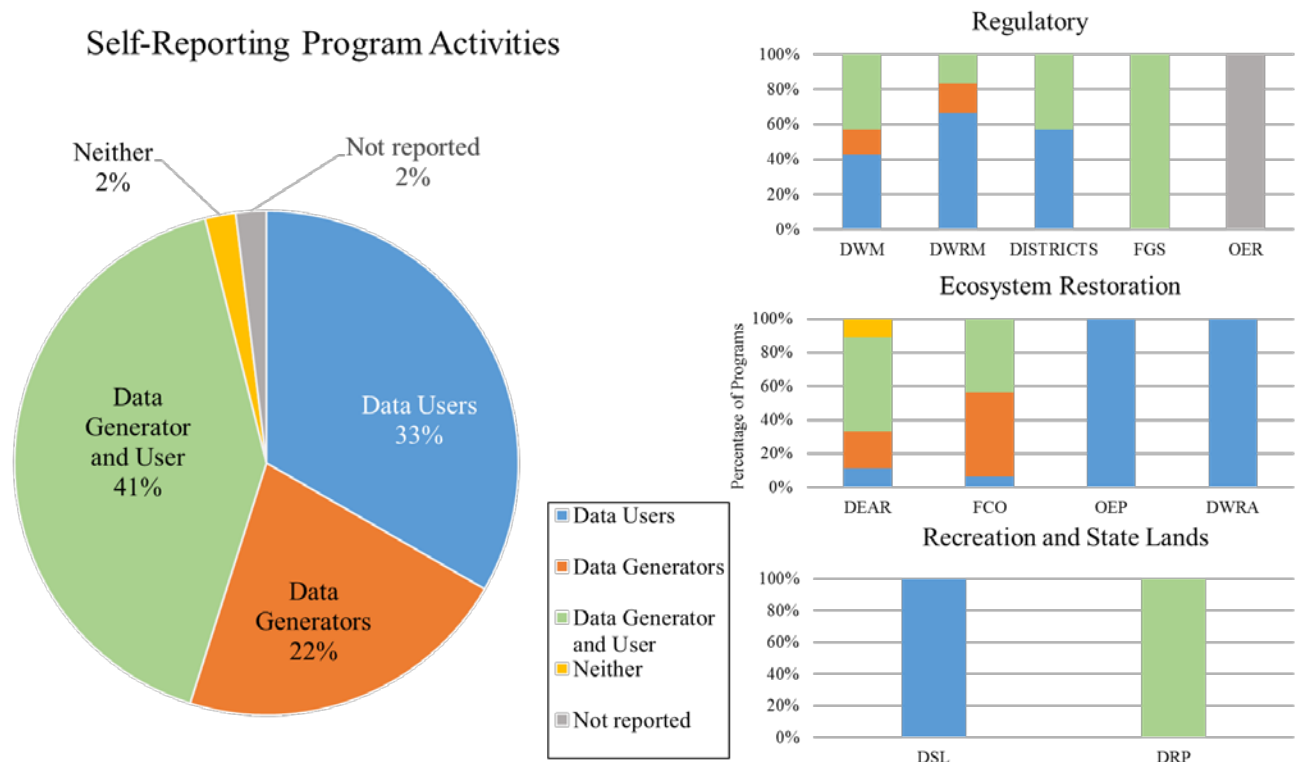


Figure 4.1. Left: Percentage of programs self-reporting as data generators or data users. Right: Percentage of programs from the divisions and offices within the Regulatory, Ecosystem Restoration, and Lands and Recreation portions of the department reporting with their designation.

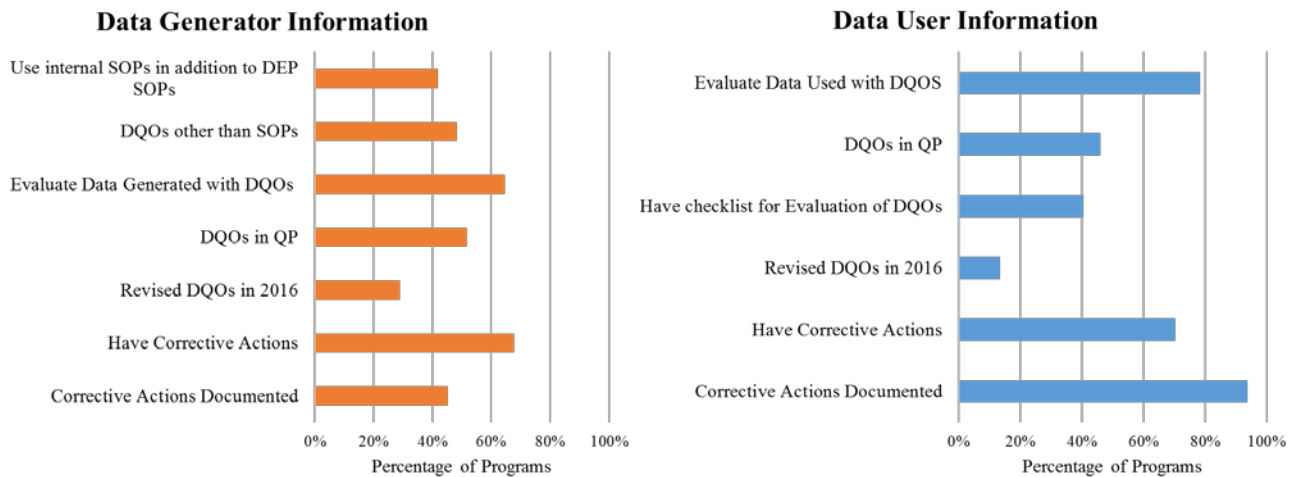


Figure 4.2. Left: Information regarding DQO use and documentation for 32 programs that generate data. Right: Information regarding DQO use and documentation for 37 of 38 programs that use data.

4.2 Data Generators

Data generators are involved with sample collection and/or analysis. Data are generated by programs within the department, as well as by external organizations on behalf of the department. DQOs for data generators typically clarify the purpose of the study, define the most appropriate type of information to collect, determine the most appropriate conditions from which to collect that information, and specify tolerable levels of potential decision errors. Adherence to DQOs and the documentation of DQOs leads to greater confidence in the quality of data generated.

Of the 50 programs and districts reporting, 32 programs indicated that their program activities involve the generation of data, either through sample collection or analysis. Of those programs that generate data, 16 programs indicated that they have DQOs for data generation other than the SOPs (**Figure 4.2**). Sixteen programs indicated that their DQOs are documented in their QPs. Twenty-one programs reported having corrective actions, and 14 programs have procedures to document the corrective actions. It is important for data generators to document data quality requirements in their QP and to document any corrective actions taken as a result of audits or other activities to ensure consistency and transparency for data generation. Programs that have not described their DQOs are encouraged to include DQOs in their QP during the next revision. AEQAS will emphasize the importance of DQOs and their documentation as a goal for continued improvement.

4.3 Data Users

Many department programs use data submitted from other sources to assist with program decisions. Those data must be validated for technical usability with respect to the measurement method and any associated requirements. Also, correct, consistent, and complete data collection must be verified in compliance with rule, project or contract specifications. Examples of procedures that evaluate or review data for DQOs include:

- use of automated data management software that systematically checks data against program, project or method specific DQOs;
- review of reports or data submitted to the department for compliance with permit-specified methods or compliance limits;
- review of laboratory QC sample results;
- review of deliverables submitted for a project against a contract-specified QA Plan; and
- verification of the use of DEP SOPs or the use of a certified lab for a project.

Of the 50 programs and districts reporting, 38 programs indicated that they use data generated by their program or other programs for program activities. Of those 38 programs that use data for program activities, 37 provided further details. Twenty-nine programs indicated that they evaluate data against DQOs (**Figure 4.2**). Twenty-six of the programs that reported evaluating data for DQOs also indicated that their program has established routine corrective actions for data that do not meet the DQOs, and 15 programs document corrective actions. The evaluation of data through a defined process and established DQOs ensures that the products generated by the department are reliable and representative. More than three-quarters of the programs that use data have a process to evaluate the data used; AEQAS will assist the 8 programs that did not report data evaluation via DQOs in the identification of expectations for data.

4.4 Neither Data User or Generator

The Office of Watershed Services (OWS) was the only work unit that does not generate or use data because it is a data manager and servicer. Nearly all data that are submitted to DEP are routed through OWS for assessment of quality, attainment of the program's DQOs, and usability by the department. When data do not meet the DQOs, OWS implements corrective actions. The DQOs and corrective actions can be viewed in the OWS quality plan. OWS also makes data available to end users (internal and to the public) via a web based data retrieval tool and through direct extraction from the STORET database upon request.

5. Audits

It is the Department's policy to... develop procedures to audit the performance and record-keeping practices of data generators within and outside the Department (QA Directive, 2009).

5.1 Overview

Audits ensure that data used by the department are of the appropriate quality by systematically reviewing all components of data generation and documentation. Department programs conduct audits of external entities and audits of themselves, and external entities conduct audits of department programs. These audits vary across the agency in formality, depth of review, and purpose. To determine the level of auditing throughout the department, AEQAS surveyed QAOs for information regarding the quantity and types of audits initiated in 2016, tools used in the audits, and any audit requirements specific to the program that are set either internally or by another agency. The survey used for this report refined the definition of an audit and specifically targeted audits mentioned in the Directive. Certain types of audits reported in previous years may not have fit within the audit descriptions for the 2016 survey. Of the 50 department programs reporting, 18 (35%) conducted at least one audit on an external entity in 2016 (**Figure 5.1**). For the thirty-two programs that did not conduct an external audit in 2016, it was not determined whether they were required to initiate such audits.

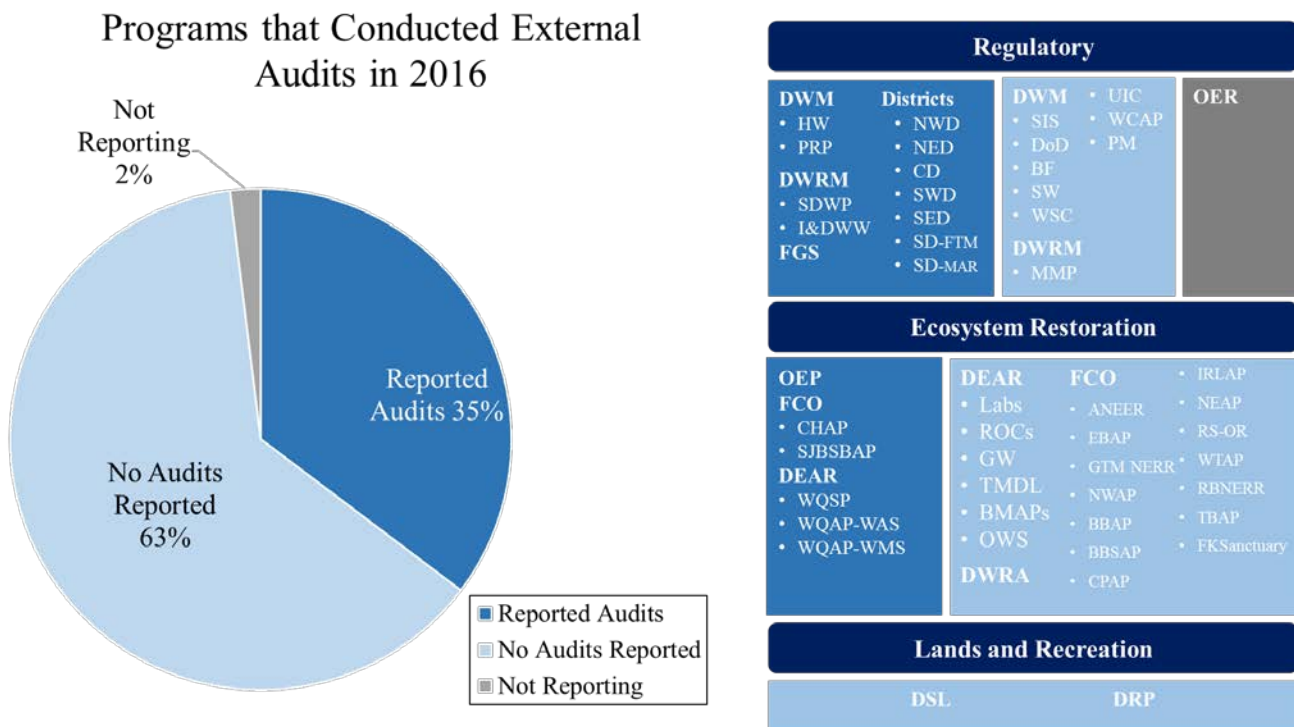


Figure 5.1. Left: Percentage of department programs and districts that conducted at least one audit on a program external to its work unit in 2016, as reported by 50 of the 51 programs surveyed. Right: Status of audit initiation in 2016 for programs and districts within the three portions of the department. For the programs that did not conduct audits in 2016, it was not determined whether audits were warranted.

5.2 Types of Audits Conducted by Programs throughout the Agency

Eighteen programs reported a total of 1,510 audits that were conducted of external entities in 2016. AEQAS staff asked the reporting programs to separate their audits into three categories that best identified the performance and record-keeping practice audited: field sampling, lab and facility, and program (**Figure 5.2**). Future distinction may be needed between audits that focus more on equipment, management, and facility operations, and audits that focus on review of environmental data records and QA procedures, primarily for distinction in district offices. Also, additional efforts are needed at the program level to define and categorize audits for the purposes of this report.

Audits by Type Initiated in 2016

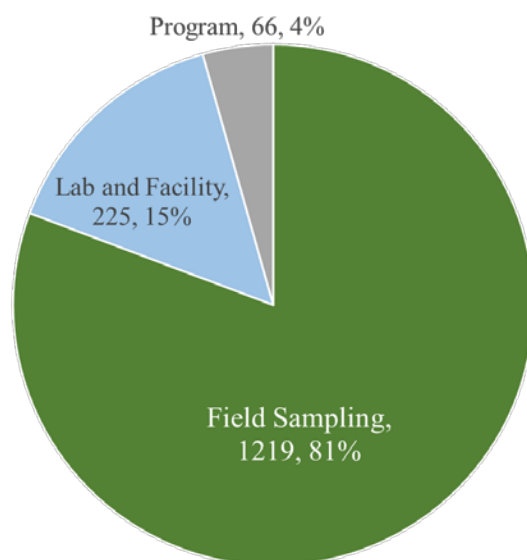


Figure 5.2. Numbers of audits and percentage of the total audits initiated in various AEQAS-defined categories in 2016.

5.2.1 Field Sampling Performance Audits

Field sampling performance audits were defined as on-site assessments that required individual field samplers or teams to demonstrate proficiency in sampling aqueous or non-aqueous matrices, including the use of bioassessment methods. Auditors assessed sampling techniques, field planning and decision-making skills, documentation practices associated with sample collection, and adherence to the department's Standard Operating Procedures (SOPs). Of the 1,510 audits conducted throughout the department, 1,219 (81%) were field sampling performance audits. Audits in this category represent the largest number of audits initiated in 2016, and were reported by 10 programs. The majority of the field sampling performance audits were conducted by regulatory programs, specifically the Petroleum Restoration Program, and by programs in the District Offices.

5.2.2 Lab and Facility Systems Audits

Lab and facility systems audits were defined as on-site assessments of a laboratory's or facility's analytical procedures, documentation procedures, equipment, or management to determine compliance with department-specific requirements. These audit activities entail comprehensive evaluations of field and laboratory data records to assess data usability for specified purposes. These audits involve one or more of the following; (1) directly observing performance of sample analysis; (2) an in-depth review of

data generation; (3) verification and validation of data records; and (4) overall assessing data outside of routine procedures. This category could include reviewing records to reconstruct data. Seven programs reported that they initiated lab and facility system audits, which comprised 225 (15%) of all the audits initiated in 2016. The District Offices conducted nearly all the lab and facilities audits, most of which were facility inspections that included audits of lab or field sampling records. AEQAS conducted three lab audits in response to requests by other programs within the agency.

5.2.3 Program Audits

Program audits include audits of procedures carried out by an organizational unit in comparison with a quality plan or other criteria, and audits of the overall quality system for an external program. A total of 66 program audits were initiated during 2016, as reported by 7 programs (4% of all audits initiated). The Office of Ecosystem Projects (OEP) is responsible for over half of the program audits reported throughout the agency.

5.3 Audits Conducted on Programs

Throughout the agency, programs are audited by parties outside their program or district; QAOs may also internally audit his or her program. Nine programs (18% of programs) in the agency reported being audited by an external party in 2016. The NED reported an audit by the EPA that resulted in no significant findings or corrective actions. The Central Laboratory reported a NELAC audit with findings that required minor revisions of lab SOPs. The division office of WCAP in DWRM reported that program audits are required by EPA every 4 years and that the 2016 audit did not result in any significant findings, but program staff followed through with corrective actions. Sixteen of the 50 reporting programs (31%) indicated that at least one internal audit was conducted. Most internal audits were program audits and field sampling audits. Reporting programs varied in their frequency for internal audits.

5.4 Audits Conducted by Districts

Program tasks and auditing requirements vary across the department, which does not easily allow for direct comparisons of auditing metrics. However, many regulatory programs operate uniformly in all district offices. Therefore, district reporting of metrics associated with these regulatory programs is expected to be consistent. Of the six district offices (figures reflect separate reporting by the two South District offices) that operate regulatory programs, the Northwest District reported the most audits, and one office (CD) reported only one audit initiated in 2016. The remaining district offices reported different numbers of audits and indicated different established auditing frequency (**Figure 5.3**).

AEQAS has the continuous goal of assisting district staff in establishing more comparable audit goals and metrics for future reports as well as improving consistency of program implementation.

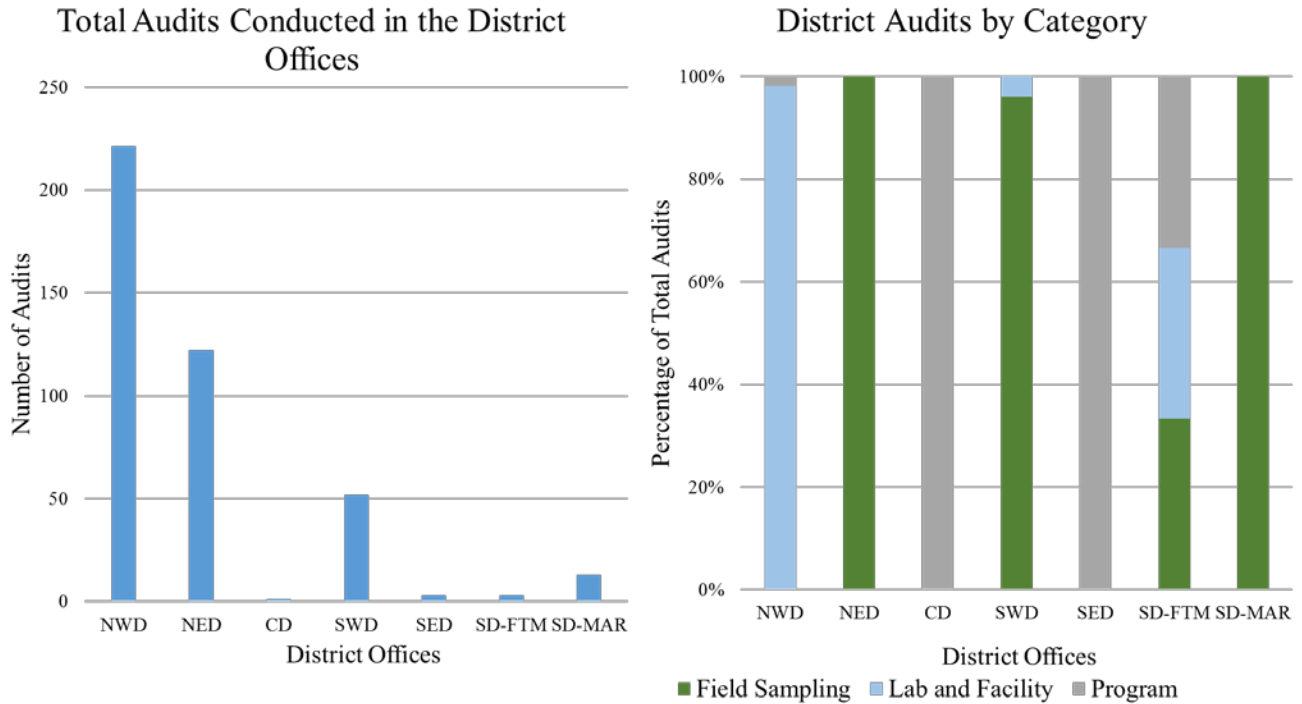


Figure 5.3. Left: The number of audits reported by each district office. Right: Percentage of audits in each audit category reported by each district office.

5.5 Procedures and Follow-up for Audits

The QA Directive does not establish specific auditing requirements or frequencies; as previously mentioned, goals are program/district specific. However, Directive policy includes the development of auditing procedures to ensure that data generators within and outside the department are systematically reviewed and evaluated. Eighteen programs and district offices (approximately 35% of the 50 programs) initiated audits in 2016. Fifteen of these 18 programs reported the use of forms, templates, or checklists to ensure that audits were consistent among auditees and auditors (**Figure 5.4**). Checklists or templates, though not required for auditing, are effective and efficient tools for auditor training and the implementation of auditing procedures.

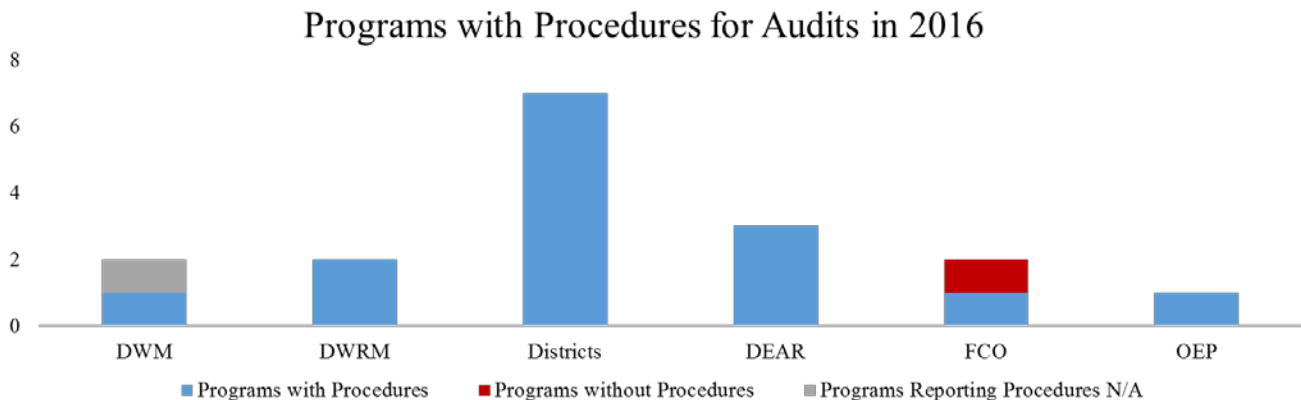


Figure 5.4. The number of programs that use templates (including forms or checklists) for audits, out of the 18 programs that reported audits for 2016.

AEQAS has compiled various auditing checklists that are available for use on the QA Officer Resources Website. Of the programs and districts that reported using templates or checklists, four programs identified using some of these online audit checklists for field proficiency audits. Uniform awareness and dissemination of these resources for program auditing activities will both improve department auditing procedures and ensure an equivalent auditing process throughout all applicable programs.

The QAOs were asked to report whether their program or district tracked time frames of the audits they conducted, and whether they followed up on any corrective actions for the audits. Sixty-seven percent of the programs that conducted audits tracked audits and followed up on the corrective actions. Requirements for the time of audits initiation to its finalization are outlined in the QA Rule. Some programs have more stringent time constraints than those described in the rule. Of the 18 programs that conducted audits, 11 completed their audits within the designated time frame to which they must adhere. AEQAS will work with program management to determine if establishing consistency in these types of metrics throughout the department will improve the overall coverage and efficiency of auditing activities.

6. Data Repositories

It is the department's policy to...implement quality assurance procedures for the management of the department's data repositories (QA Directive, 2009).

6.1 Overview

Each program identified the data repositories or applications that they actively manage, are responsible for, or use to store their data (**Figure 6.1**), and any manual or automated checking procedures they perform for data stored in specific databases. Database management involves procedures that ensure data entered in a database are verified to be accurate and meet the program-specific data quality objectives (DQOs). Data can be reviewed by built-in database software or other automated applications, or through manual records audits conducted by the programs. AEQAS provided all programs with survey questions about data entry quality control (manual and automated), and information about records audits. Programs and districts throughout the agency identified more than 40 different data repositories, both internal and external to the agency, where data are stored and are obtained for program use.

Regulatory Programs				Ecosystem Restoration Programs				Recreation and State Lands	
FGS	DWM	DWRM	DISTRICTS	DEAR	FCO	OEP	DWRA	DSL	DRP
ASR	WACS				Program Folder	DB Hydro	Program Folder	FL-SOLARIS	NRTS
Litho database	OCULUS				WaterAtlas	OCULUS		APIS	Program Folder
	ERIC	STORET				Program Folder	GRTS	STORET	
	SITs	PWS				Shorebird DB	SRF database	PWS	
		PCS						PCS	
		S-BIO						S-BIO	
		WAFR						SUPRS	
		LIMS						LIMS	
		ICIS	Plant Database					ILMS	
		EzDMR	Program Folders					BTLDs	
		ERPce	GIS						
	PA	OHMIT	USGS NWIS						
	GWIS	FIESTA	GWIS						
		FIRST	FWC						
		BCMS							
		CHAZ							
		SWIFT							

Figure 6.1. The data repositories managed or used by the three portions of the department as identified by the programs that reported QA activities for 2016. Programs are not included if they did not provide database information. Gray databases indicate usage in multiple programs.

6.2 Data Entry Verification

Database entry checks occur before the data are submitted to or exported into the database. Fifteen programs identified ten data repositories into which they enter data but do not use manual review procedures. Two of those data repositories have an automated review system. Inconsistencies with database checking on shared databases, as indicated in **Figure 6.2**, are further discussed below.

6.2.1 Manual Data Entry Checking

Thirty-eight programs enter data into a data repository, and 24 of those programs reported use of manual checks of the data entered. These procedures include the verification of complete and accurate data entry through a review conducted for each entry by a second staff member. Of the 24 programs that reported using these procedures, 13 programs indicated that the manual verification procedures are outlined in the program's quality plan.

6.2.2 Automated Data Checking

Automated data checking involves using computer software to check data quality per department specified requirements. The Automated Data Processing Tool (ADaPT) software was used by programs within the Division of Waste Management to evaluate groundwater data. ADaPT software ensures data records are complete and of acceptable quality prior to database upload. The STORET repository, managed by the Office of Watershed Services STORET Section, has a STORET Import Module (SIM) application that performs data quality checks on new data that are submitted to the department before loading into the STORET database. Fourteen programs reported an automated review software that scans for completion and correctness of data submitted for at least one data repository utilized, though more programs may be utilizing automated data checkers unknowingly.

6.2.3 Data Checking Consistency

Data managed by the department are stored in data repositories that are often used by multiple programs. Programs that share data repositories are highlighted in gray in **Figure 6.1**. These programs reported their data verification procedures for these shared databases (**Figure 6.2**). The verification procedures varied for shared data repositories across the agency, which may reflect the specific program activities, rather than a program deficiency. For example, data users may be relying on the programs that entered the data to conduct the checks.

A.																	Ecosystem Restoration Programs				Recreation and State Lands	
Regulatory Programs																						
DWM					DWRM					DISTRICTS								DEAR		OEP	DWRA	SL
HW	PRP	SIS	SW	WSC	SDWP	AP/UIC	WCAP	PM	MMP	NWD	NED	CD	SWD	SED	SD-FTM	SD-MAR	WAS	TMDL				
OCULUS				OCULUS			EzDMR			EzDMR			EzDMR			EzDMR						
					PWS**		PWS			PWS			PWS	PWS	PWS	PWS	PWS		OCULUS			
							PCS						PCS				PCS				PWS	
WACs*				WACs*			WACs	WACs		WACs			WACs				WACs				PCS	
							WAFR			WAFR			WAFR				WAFR				WACs	
							ICIS			ICIS						ICIS						
					PA	PA			PA													
										COMET					COMET	COMET						

B.				Ecosystem Restoration Programs										Recreation and State Lands	
Regulatory Programs															
DWRM		DISTRICTS		DEAR								FCO		SL	
PM	NWD	SWD	SD-FTM	WQSP	WAS	WMS	ROC	TMDL	GW	BMAPs	OWS				
GWIS						GWIS**			GWIS						
LIMS	LIMS	LIMS		LIMS	LIMS		LIMS			LIMS				LIMS	
SBIO		SBIO		SBIO											
STORET		STORET		STORET	STORET	STORET	STORET**	STORET	STORET**	STORET	STORET			STORET	

Figure 6.2. Data repositories used by more than one reporting program, and status of database entry checks. Data repositories shown in “A” are predominantly used in Regulatory Programs, and those in “B” are predominantly used in Ecosystem Restoration Programs. Red database labels indicate programs that do not use manual or automated systems to verify data entry. Black database labels indicate programs that have manual systems only to verify data entry. An asterisk (*) indicates databases for which the program uses an automated system to verify data entry. Double asterisks (**) indicate the database is both manually and automatically checked.

6.3 Data Quality Checks

While data entry checks screen for completeness and correctness in entering data before data are stored in the database, quality checks are also conducted on data that are already housed in a data repository. These quality checks evaluate data based on quality control factors and other data quality objectives, and result in findings that may warrant further investigation or action.

Programs were asked if there were procedures to manually audit or review data stored in the database. Of the programs that reported data repository use, 23 programs or districts indicated that they did have such procedures. Of the 23 programs, 15 had established a frequency for which this type of data quality check should be conducted. For example, the Central District indicated that they conducted a manual data check of WAFR at every instance a permit was reviewed.

Programs that conduct data quality reviews should record this procedure in the QP to keep record of the program's QA activities as well as to act as an information guide for new and existing staff. Twelve programs reported that data quality check procedures are documented in the quality plan.

7. Summary of All Findings and Corrective Actions

7.1 Annual Report Participation

Through preparation of this report, AEQAS identified areas of the department's Quality System that do not meet quality assurance management responsibilities outlined in the QA Directive or the Quality Management Plan. These findings are not inclusive of all applicable programs, as some programs did not report all QA activities. For the 2016 report, the QAOs throughout the department that were surveyed by AEQAS provided information in a cooperative and timely manner. A few programs reported activities in previous years, but did not provide QA information to AEQAS for the 2016 report. Others have activities that are not currently under the oversight of a QA Officer (QAO), and further outreach by AEQAS is needed. To improve accuracy for future annual QA reports, AEQAS will continue to work with QAOs and program management to better determine those program activities that are within the scope of the QA Rule and QA Directive, and help programs establish a system for tracking these QA activities for reporting purposes.

7.2 Quality Systems

The two metrics that AEQAS defined for reporting adherence to the policies outlined in the QA Directive for a quality system were the designation of QAOs and the existence of quality plans (QP). AEQAS identified department programs that are either missing a QP or have an outdated QP, and found that a more than a quarter of QPs (28%) were out of date. Several programs currently have plans and timelines for creating or updating their QPs for the next year (see Appendix A). This is an improvement from the 2015 Annual Report when 57% of quality plans needed updating.

Although all programs that participated in the 2016 annual report have a designated QAO, the reporting process highlighted that some department areas are not reporting on QA activities and/or have not designated a QAO. In addition, some QAOs were not sufficiently aware of or involved with all QA-related activities specific to their respective programs. AEQAS will continue to work with department leadership to ensure that QAOs have been assigned to all programs covered under the QA Directive and the QAOs know their necessary roles per the directive. Assistance will also be provided to QAOs who are coordinating the revision of outdated QPs. Collaboration between QAOs and program staff will help to ensure that all data generated or used by the department are defensibly supported by a strong quality system.

7.3 Trainings

Most department employees (92%) that are involved with the process of data generation, data receipt, data assessment, data archival storage, and data interpretation were properly trained in 2016 to execute their assigned functions, as reported by survey respondents. Only 10% of the reporting programs identified areas where training needs were not met. Twenty-six percent of programs did not identify any QA training needs. Programs that fall into the latter categories will be further assessed by AEQAS to determine any applicable QA activities that may require training or reporting of training events.

7.4 Data Quality Objectives

For the 2016 calendar year, AEQAS surveyed the department programs that provided information on QA activities to determine if all programs generating and using data have identified and implemented data quality objectives (DQO), as required by the QA Directive. Fifteen out of the 32 programs (48%) that indicated they generate data also reported that they have established DQOs other than SOPs, and sixteen programs (52%) that generate data reported that their DQOs are documented in their QP. Seventy-four percent (28 of 38) of programs that indicated they use data for program activities reported they have set DQOs for data use; seventeen programs reported that data usability requirements were documented in the program's QP. AEQAS will work with both data users and generators that did not

report established DQOs to identify expectations of data quality for the program or unit's use and provide instruction on where the information should be documented for dissemination amongst staff.

7.5 Audits

Eighteen programs reported initiating 1,510 audits in 2016 to ensure that the data generated and used by the department are of acceptable quality. A total of 1,219 of these audits (81%) were of field sampling performance, 225 (15%) were lab and facility audits, and 66 (4%) were program audits. Of the 18 programs that reported initiating audits in 2016, 16 (88%) use checklists, forms and templates to conduct audits. Thirteen (72%) reported having followed audit progress, and 12 programs (67%) reported follow-up of audit findings.

AEQAS also determined that, while many programs reported various audits and audit requirements, the definitions and distinctions for audit types were not clearly understood or represented by the programs, as evidenced by the survey information received for this report. The definition for audits counted in this report has evolved over time. Surveys will continue to be redesigned to capture the most representative information for programs that conduct audits.

7.6 Data Repositories

Management of the department's data repositories involves procedures that ensure data entered in a database are verified and checked for quality. The reporting programs identified over 40 data repositories or applications that they either manage or use for data entry or storage. Fifteen programs identified 10 data repositories for which the program does not perform manual or automated checking procedures.

This 2016 report systematically catalogued the use of manual and automatic data entry and database checks that ensure the quality of data used by the department. This report serves to highlight the differences in database checks, but does not assess the adequacy of those checks. These findings should prompt programs to work together to determine any needed process changes for database management.

7.7 Overall Conclusions and Continuous Efforts

The metrics employed to evaluate the department-wide implementation of the QA Directive in 2016 provided immediate feedback to program QAOs and other program staff that were tasked with categorizing and counting program QA activities, and these metrics can be used to better evaluate and improve the department's overall data quality system. QA activity reporting has increased program awareness of QA activities, and further cooperation between programs and AEQAS will lead to refined metrics and annual reporting templates that are specific and appropriate for individual work units. Communication about QA Program requirements continues to be a challenge. Staff turnover and competing priorities for QAOs are obstacles in the pursuit of effective, continued communication between the programs and AEQAS, which affects QAO engagement level and upkeep of program QPs.

AEQAS has requested approval to coordinate a two-day training event for QAOs and interested managers. This event will allow AEQAS to work with programs directly to identify QA goals and metrics specific to the program and allow programs that have shared activities to discuss and establish consistency in reporting for improved comparability for this report. This training would also include workshops for quality plan development, including the content and utility of quality documents. As described in the 2015 report, AEQAS has initiated Quality of Science Reviews that target a program's QA activities, including the contents of the QP, to ensure continued improvements in the implementation of the QA Directive. AEQAS will also work with program QAOs to assist with the internal review of program activities and achievement of program QA goals to ensure implementation of the distributed QA responsibilities.

For the next annual QA report, AEQAS is considering a change to the timeframe of activities reported to align with the state fiscal year (2017-2018) rather than the 2017 calendar year. This modified reporting timeframe would better align with employee and department performance and business plan reporting, and may improve efficiency of reporting for department staff. AEQAS will solicit feedback from department QAOs on this potential change.

Appendix A: QA Officer and Quality Plans by Program as of May 31, 2017.**DIVISION OF WASTE MANAGEMENT**

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
David Grabka	TLH	Waste Cleanup/Brownfields	Division of Waste QP	Apr-16
John Winters	TLH	Waste Cleanup/DOD	Division of Waste QP	Apr-16
Kelly Crain	TLH	Waste Cleanup/Site Investigation	Division of Waste QP	Apr-16
John Sykes	TLH	Waste Cleanup/Waste Site Cleanup	Division of Waste QP	Apr-16
Camille Stein	TLH	Hazardous Waste	Division of Waste QP	Apr-16
Chad Fetrow	TLH	Solid Waste	Division of Waste QP	Apr-16
Tamara Blyden	TLH	Petroleum Restoration Program	Division of Waste QP	Apr-16
Elena Compton	TLH	Petroleum Restoration Program	Division of Waste QP	Apr-16
Brian Dougherty	TLH	District and Business Support	Division of Waste QP	Apr-16
Clark Moore	TLH	Operational and Program Performance	Division of Waste QP	Apr-16

DIVISION OF WATER RESOURCE MANAGEMENT

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Andy Tintle	TLH	Waste Water and Storm Water Management/Domestic Wastewater	NO QP	NO QP
Kevin Ledbetter	TLH	Waste Water and Storm Water Management/Industrial Wastewater	NO QP	NO QP
Edgar GuerronOrejuela	SWD	Phosphate Management	Southwest District Phosphate Management QP	Jan-15
Mike Tanski	TLH	Water Compliance Assurance Program	NO QP	NO QP
Leo Garcia	TLH	Water Compliance Program	NO QP	NO QP
Virginia Harmon	TLH	Drinking Water	NO QP	NO QP
Cathy McCarty	TLH	Aquifer Protection/UIC	NO QP	NO QP
Howard Hayes	TLH	Mining & Mitigation Program	NO QP	NO QP

FLORIDA GEOLOGICAL SURVEY

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Cindy Fischler	TLH	Applied Geoscience Services	NO QP	NO QP

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Austin Hofmeister	TLH	Office of Emergency Response	Bureau of Emergency Response QP Draft 9 2008	Apr-17

DISTRICIT OFFICES

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP Date
Dawn Templin	NWD - PEN	Cleanup (Permitting program)	Northwest District QP	Sep-10
Katie Ates	NWD - PEN	Compliance Assurance	Northwest District QP	Sep-10
Ryan Godwin	NWD - PEN	Compliance Assurance	Northwest District QP	Sep-10
Jeanne Williams	NWD - PEN	Compliance Assurance	Northwest District QP	Sep-10
Chad Nowling	NWD - PEN	Compliance Assurance	Northwest District QP	Sep-10
Jennifer Waltrip	NWD - PEN	Compliance Assurance	Northwest District QP	Sep-10
Darrin McKeehen	NED	Waste Cleanup (Permitting)	NED Domestic and Industrial Wastewater	Dec-14
Bipin Adhyaru	NED	Permitting (Water)	NED Drinking Water Program QP	Nov-10
Ben Piltz	NED	Drinking Water (CAPS)	NED Water Resource Management QP	Feb-09
Nathan Hess	CD	Compliance Assurance Program	CD Drinking Water Program QP	Dec-10
Jenny Farrell	CD	Compliance Assurance Program	CD Domestic and Industrial Wastewater	Jan-11
Wanda Parker-Gavin	CD	Compliance Assurance Program	CD Groundwater Program QP	Mar-11
David Smicherko	CD	Program Support Services	CD Sampling and Biology Lab QP	Jul-09
Kathleen Castor (Black)	SWD	Compliance Assurance Program	SWD Domestic and Industrial Wastewater	May-16
Ramandeep Kaur	SWD	Compliance Assurance Program	SWD Drinking Water QP	May-16
Lisa Self	SED - WPB	Air/Waste/WF-CA/E program	Southeast District QP	Apr-15
Paul Wierzbicki	SED - WPB	Air/Waste/WF-CA/E program	Southeast District QP	Apr-15
Michele Owens	SED - WPB	Compliance Assurance Program	Southeast District QP	Apr-15
Charles Masella	SD - FTM	Waste Management	South District QP	Jul-11
Jennifer Carpenter	SD - FTM	Compliance Assurance Program	South District QP	Jul-11
Gus Rios	SD - Marathon	Marathon Branch Office	South District QP	Jul-11
Gary Hardie	SD - Marathon	Wastewater and water sampling/ Marathon Branch	South District QP	Jul-11

Gary Maier	SD-FTM	Program and Citizen Support Services	South District QP	Jul-11
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DIVISION OF ENVIRONMENTAL ASSESSMENT AND RESTORATION

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Jennifer Claypool	TLH	WQSP/Aquatic Ecology and Quality Assurance	Water Quality Standards Program	Apr-15
Chandra Chandrasekhar	TLH	Bureau of Labs, Scientific Services Support Program	Bureau of Lab QP	Jan-16
Jessica Mostyn	TLH	WQAP/Watershed Assessment	Watershed Assessment Section QP	Feb-11
Stephanie Sunderman-Barnes	TLH	WQAP/Watershed Monitoring	Watershed Monitoring Section QP	Jun-16
Kalina Warren	CD	WQAP/ Regional Operations Center	Division of Environmental Assessment and Restoration, Regional Operation Centers	Mar-16
Gary Maddox	TLH	WQE& TMDL/ GWM	Groundwater Management Section	Oct-15
Doug Gilbert/James Albright	TLH	WQE&TMDL/ Watershed Evaluation &TMDL	Watershed Evaluation and TMDL Section QP	Apr-15
Anita Nash	TLH	WQRP/Watershed Planning and Coordination	NO QP	NO QP
Lisa Schwenning	TLH	Office of Watershed Services	Watershed Data Services Section QP	Mar-16

FLORIDA COASTAL OFFICE

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Kathryn Petrinec	Eastpoint	FCO: Stationed at Marineland and part of GTM NERR	Varies by location; some offices have QA documents, but have not been submitted to AEQAS.	Various

OFFICE OF ECOSYSTEM PROJECTS

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Rhapsodie Osborne	TLH	Office of Ecosystem Projects	Office of Ecosystem Projects	Mar-15

DIVISION OF WATER RESTORATION ASSISTANCE

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Kate Merchant	TLH	Nonpoint Sources Management	NO QP	NO QP

DIVISION OF STATE LANDS

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Elaine Mann	TLH	State Lands	State Lands	Jul-16

DIVISION OF RECREATION AND PARKS

QA CONTACT	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Wes Howell	TLH	Florida Park Services	Florida Park Services	Dec-12