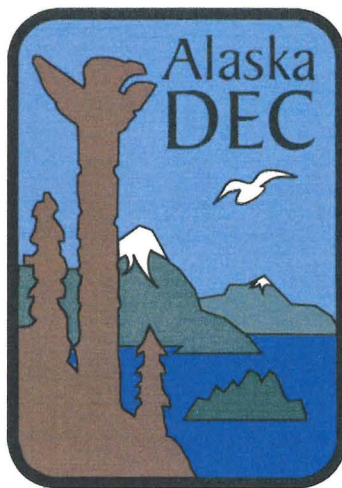


Water Programs Quality Management Plan



Alaska Department of Environmental Conservation
Division of Water
410 Willoughby Avenue
PO Box 111800
Juneau, Alaska 99801-1800


Revision 8
February 26th, 2018

Quality Management Identification and Approval Form**Approval for Implementation:**

Title: Water Programs Quality Management Plan, State of Alaska, Department of Environmental Conservation, Division Water, Water Programs.

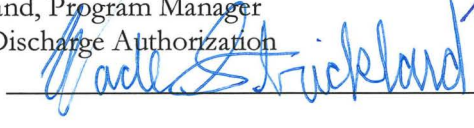
This Water Programs Quality Management Plan (WPQMP) is hereby recommended for approval and commits the Water Programs to follow the elements described within.

Andrew Sayers-Fay, Director
Water Division

Signature: Date: 2/14/19

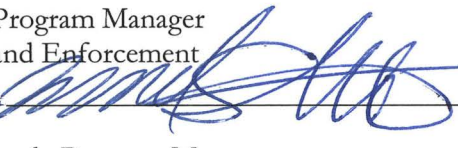
Phone: (907) 465-5135

Wade Strickland, Program Manager
Wastewater Discharge Authorization

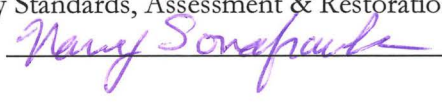
Signature: Date: 3/27/17

Phone: (907) 269-7580

Mike Solter, Program Manager
Compliance and Enforcement

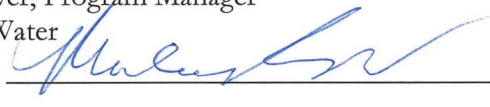
Signature: Date: 3/23/18Phone: (907) ~~269-4632~~ ¹⁸ 334-2281

Nancy Sonafrank, Program Manager
Water Quality Standards, Assessment & Restoration

Signature: Date: 2/14/19

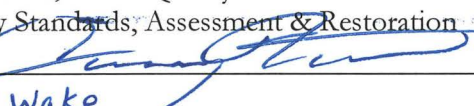
Phone: (907) 451-2726

Marlena Brewer, Program Manager
Village Safe Water

Signature: Date: 3/23/18


Phone: (907) 269-7613

Douglas Kolwaite, Water Quality Assurance Officer
Water Quality Standards, Assessment & Restoration

Signature: Date: 02/28/2018


Phone: (907) 465-5305

~~Neverley Wake~~
Vacant, Alaska Project Officer
USEPA Anchorage

Signature: Date: 5/8/2019

Phone: (907) 586-7658

Donald Brown, Regional Quality Assurance Manager
USEPA Region 10

Signature: Date: 3/7/2019

Phone: (206) 553-0717

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Introduction

This Water Programs Quality Management Plan (WPQMP) contains an outline of the systematic approach to quality assurance adopted in the Water Programs, Division of Water, Alaska Department of Environmental Conservation (ADEC). The Water Programs Quality System is a structured and documented management system, which describes the policies, objectives, principles, organization authority, responsibilities, accountability, and implementation plan for ensuring quality in its work processes, products (items) and services. This WPQMP was developed to document how Water Programs staff will plan, implement, and assess the effectiveness of quality assurance and quality control operations. It describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing and assessing all activities conducted. Due to its broad scope, the resource and scheduling implications of the WPQMP are significant.

The purpose of this WPQMP is to establish Division-wide consistency in the application of quality assurance and quality control practices. This Quality System approach is based on guidance provided by the U.S. Environmental Protection Agency (EPA) in *EPA Requirements for Quality Management Plans, EPA QA/R-2*, September 2016, http://www.epa.gov/quality1/qa_docs.html. All organizations conducting environmental programs funded by EPA are required to establish, implement, and document a Quality System [EPA Order 5360.1 A2 (May 2002), EPA 5360 Manual A1 (May 2000) and 40 CFR §30.54]. This WPQMP is implemented statewide and ensures that all data collection and measurement activities are conducted in accordance with EPA's data collection and quality assurance requirements. This includes projects funded directly by the EPA and projects that involve compliance monitoring.

1.0 Management and Organization

1.1 Quality Assurance Policy

The Director of the Division of Water is committed to ensure that all environmental data generated by or on behalf of the Division are suitable for their intended use. The systems and practices presented in this WPQMP provide a framework for ensuring that the quality of all environmental data generated and processed are appropriate for their intended use, scientifically valid, of known precision and accuracy, of acceptable completeness, representativeness, comparability and where appropriate, legally defensible. Implementation of this WPQMP will allow Water Program Managers to make decisions based on verifiable environmental data.

ADEC is committed to robust and comprehensive quality assurance (QA) and quality control (QC) practices. This commitment complements the EPA emphasis given to a comprehensive and coordinated QA Program. The ADEC Water Programs are developing and integrating QA practices into data collection and measurement activities within its purview. The QA/QC practices are designed to generate and process data of known and appropriate quality in a cost-effective manner.

The means by which the Water Programs strive to implement the QA Program includes the following:

- All Water Programs will follow the requirements outlined in this WPQMP to generate, use or require the collection of environmental data.
- Management and staff will establish the intended use(s) for environmental data and the level of data quality necessary to support decisions prior to initiation of data collection efforts.
- All new environmental data generated by ADEC will be of known and documented quality using a systematic planning process. This quality and associated level of effort will meet the needs of the intended use of the data as stated in the individual QAPP. This WPQMP is the “umbrella” document under which project-specific QAPPs will be developed.
- Acceptable and effective QAPPs and when appropriate SOPs will be developed and implemented. The Water Programs adopt the EPA requirements for project-specific QAPPs. See *EPA Requirements for Quality Assurance Project Plans*, EPA QA/R5, March 2001 http://www.epa.gov/quality1/qa_docs.html and its companion document, *EPA Guidance for Quality Assurance Project Plans*, EPA QA/G-5, December 2002 http://www.epa.gov/quality1/qa_docs.html.
- Project-specific QAPP documents will be submitted to the Water Quality Assurance Officer (WQAO) or designee prior to any new environmental data collection activity. The WQAO is the technical and administrative authority for all QA/QC matters. The WQAO is the focal point for interaction between EPA’s Regional QA/QC Program and the ADEC Water Programs.
- Data quality information will be documented and available.
- Regular technical assessment audits will be conducted of program sections and projects involving environmental data collection to ensure they comply with QA/QC requirements. Deficiencies highlighted in these assessments will be addressed in a timely manner.
- Management will define personnel and training requirements. Adequate resources to support the Water Programs Quality System efforts will be provided to accomplish objectives for all environmental data collection programs, projects, and tasks. As ADEC’s partner in Water Quality, EPA supplies some of the resources to support the Water Programs Quality System through the Cooperative Agreement process.
- Management will provide and support QA training. Training may be achieved through internal training and/or external sources to staff at all levels to ensure that QA/QC requirements and responsibilities are understood and implemented at all stages of projects. The EPA will provide some of the training needed to support the Water Programs Quality System.

1.2 Water Programs

The Division of Water consists of four Water Programs that are involved in data collection and/or management: Wastewater Discharge Authorization; Compliance and Enforcement; Water Quality

Standards, Assessment and Restoration (WQSAR); and Village Safe Water (Appendix 12.1.1: Organization Chart). The Division of Water adopts the *EPA Requirements for Quality Assurance Project Plans, EPA QA/R5* as the guidance document for QAPPs. Projects undertaken or administered in these programs that generate, use, or require the collection of environmental data must have a QAPP that meets the requirements in the EPA QA/R5

Water quality monitoring projects in the Wastewater Discharge Authorization Program that require a QAPP include all wastewater discharge permit self-monitoring projects and projects developed, implemented, and/or administered by ADEC Water Program Managers and their staff. Types of monitoring include direct measurements or data generation; environmental modeling; compilation of data from literature or electronic media; and collection of data to support the design, construction, and operation of environmental technology.

Projects in the Compliance and Enforcement Program include all staff inspection activities which may include sampling conducted in response to a complaint, sampling conducted to determine compliance with permit requirements and sampling conducted in response to illegal discharge.

Projects that require QAPPs in the WQSAR Program include routine and special water monitoring projects led by WQSAR staff or its subcontractors. An example are monitoring projects conducted by the Alaska Monitoring and Assessment Program (AKMAP). Monitoring projects in the WQSAR nonpoint source section include nonpoint source grant projects funded by EPA under Section 319 of the Clean Water Act and Total Maximum Daily Load (TMDL), forestry, storm water, and wetlands projects. ADEC staff may participate in, lead, manage, or review the results of these types of monitoring projects.

The role of the WQAO is to provide technical assistance in implementing the quality system and work the Water Programs Managers and their staff to ensure that a QAPP is in place before data is collected for a project.

1.3 Authorities for Quality Assurance

ADEC Water Division Directors

Andrew Sayers-Fay, Director
Water Division

Phone: (907) 465-5135

Responsibilities: The Director provides overall water policy definition, leadership, and oversight for the Division's Water Programs Quality System and is the overall authority for directing activities in accordance with Division of Water policies and regulations, particularly 18 AAC 70 Alaska Water Quality Standards (as amended through April 8, 2012); 18 AAC 72 Wastewater Disposal (as amended through December 23, 2009); and 18 AAC 83 Alaska Pollutant Discharge Elimination System (APDES) (as amended through April 8, 2012).

ADEC Water Quality Programs Managers

Wade Strickland, Program Manager
Wastewater Discharge Authorization

Phone: (907) 269-7580

Michael Solter, Program Manager
Compliance and Enforcement

Phone: ~~(907) 269-6281~~
(907) 334-2281

Nancy Sonafrank, Program Manager
Water Quality Standards, Assessment & Restoration

Phone: (907) 451-2726

Marlena Brewer, Program Manager
Village Safe Water

Phone: (907) 269-7613

Responsibilities: The Programs Managers are responsible for facilitating the development of project-specific QAPPs and conducting data review, inspections, and audits of monitoring projects within their respective programs.

During the planning of grant, permit, or other monitoring projects, Program Managers establish and implement project objectives and data quality indicators appropriate for the project purpose and consistent with applicable regulations. Throughout the implementation and assessment of monitoring projects, Program Managers are responsible for ensuring that the quality of the information generated meets the requirements in the approved QAPPs. Specifically, Program Managers are responsible for their respective program's performance in the following areas:

- Facilitate the development, renewal, and implementation of QAPPs according to EPA QA/R-5 guidance documents by providing technical assistance and training to permittees, grant recipients, consultants, federal, state and local government representatives, tribes, and ADEC water monitoring staff.
- Review, approve, and sign QAPPs.
- Review data as it is generated to ensure compliance with the QAPP.
- Work with Technical Services staff to assure that relevant data become part of the ADEC statewide Ambient Water Quality Monitoring System (AWQMS).
- Enter data into the state permitting and compliance system, Discharge Results and Online Permit System (DROPS), and/or the EPA-hosted Integrated Compliance Information System – National Pollutant Discharge Elimination System (ICIS/NPDES).

ADEC Water Quality Assurance Officer (WQAO)

Douglas Kolwaite, Water Quality Assurance Officer
Water Quality Standards, Assessment & Restoration

Phone: (907) 465-5305

Responsibilities: The WQAO provides Division-wide focus on quality management. The WQAO ensures that management and staff recognize their respective QA responsibilities, reporting mechanisms, and methods of dispute resolution. The WQAO ensures staff are aware, informed, and knowledgeable of QA/QC issues by providing training and guidance on current QA/QC policy, requirements, and guidance documents. The WQAO serves as quality program liaison between the

Water Programs and the EPA regional office and maintains a resource file of quality-related documents. As required by the Performance Partnership Agreement (PPA), the WQAO provides EPA with mid-year and end-of-year QA review. The WQAO is responsible for approving project-specific QAPPs, reviewing and validating /verifying data, and auditing projects to ensure compliance with approved QAPPs. The WQAO performs system assessments of the Water Programs and reports the findings to the Water Programs Managers. The WQAO is responsible for coordinating the review and update of the WPQMP.

2.0 Quality System Description and Implementation

The Water Programs Quality System provides a framework for planning, implementing, documenting, and assessing work conducted within the Water Programs. The purpose of this system is to enable the Water Programs to generate the type and quality of information required to fulfill their environmental mission.

The foundation of this Quality System is management's commitment to quality as described in this WPQMP. The WPQMP reflects management's philosophy and stands as a guiding principle for all environmental data collection activities. All personnel in the Division of Water have a responsibility for quality and will continually strive to build quality into work processes, products, and services. Management provides policy definition, leadership, and oversight for its quality system. Management is responsible for allocating resources so that the WPQMP can be implemented.

2.1 Quality Assurance Project Plans (QAPPs)

Water Programs Managers and their staffs are responsible for facilitating implementation of project-specific QAPPs in the field and in the laboratory.

Project Managers are the lead staff in the development and implementation of monitoring projects, in the development and administration of grants, and in the development and maintenance of wastewater discharge permits. As such, the Project Managers are the lead staff ensuring that each project-specific QAPP follows ADEC Division of Water QA Guidance documents.

The WQAO is available to provide training and technical assistance to Project Managers, other Water Programs staff, grant and permit recipients, and consultants during all phases of the QAPP process, from development through implementation and validation. The WQAO can provide technical assistance in development of project objectives and data quality indicators, appropriate sampling and analytical methods, and other aspects of the QAPP. A final draft QAPP will be reviewed by the WQAO and the Project Manager. If the document is acceptable, both sign the approval page, along with the grantee or permittee project manager and project quality assurance officer. By signing, all parties agree that the QAPP will be followed for the collection of data for the project.

Project Managers for ADEC water monitoring projects, grants, or permits are the first points of contact as data are submitted to the Water Programs. If problems occur with monitoring protocols or elements of the approved QAPP, Project Managers discuss and resolve these problems in coordination with the WQAO. A major modification of an approved QAPP requires that all signers

approve/sign the modification. A minor modification of an approved QAPP only requires that ADEC and the Project Manager agree to the modification and notify all members listed in the QAPP Distribution List.

The goal of the Water Programs is to make data verification and validation a major component of each QAPP. Initial data review, verification, and validation will be the responsibility of the permittees, grant recipients, consultants, and contractors. Water Programs Project Managers and the WQAO will conduct reviews, validate data and may audit projects with QAPPs. The reviews are conducted to ensure that projects are following the requirements of the respective QAPP. ADEC Project Managers will provide the WQAO with copies of project data and/or summary reports as requested. The WQAO will strive to audit 5% of Water Programs projects with QAPPs. The WQAO will generally prioritize the need for QAPP review/approvals of monitoring plans above program audits. The WQAO and the Water Project Manager, if possible, will accompany the grantee and/or permittee project managers and/or their QA officers during monitoring events and/or lab analyses. Conducting audits will ensure that the monitoring is carried out in accordance with the QAPP. Audits may include but are not limited to the verification/validation of data, observation of sample collection procedures, analytical laboratory procedures, and review of field notes. Any deviations from the approved QAPP must be addressed in a timely manner and any amendments documented by ADEC staff and the grantee or permittee.

2.2 Types of Environmental Data Generated

Quality management controls are required wherever data generation or data collection occur. To ensure data quality, the Division of Water requires a QAPP for its own water monitoring projects and of grant and permit monitoring projects. A QAPP may either be project-specific or generic. A project-specific QAPP is developed by the grantee, permittee, contractor, and the Water Programs Project Manager or Water Programs staff with technical assistance from the WQAO.

Types of environmental data include:

- Monitoring data collected by Citizens' Environmental Monitoring Groups under CWA Section 319 and other grants.
- Research data collected by non-profit environmental groups and universities under CWA Section 319 and other grants.
- Baseline data collected by prospective permittees and monitoring data collected by permittees as required by wastewater discharge permits under CWA Sections 402 and 404..
- Data collected by Water Programs staff or its contractors as baseline data or for inspection, compliance, or complaint response to answer environmental questions and to assist ADEC to make sound policy decisions.

Generic guidance has been developed to assist in the writing of QAPPs. QAPP guidance has been developed to cover three categories of water/wastewater monitoring projects: Tier 1, Tier 2 and Tier 3. The respective tiers relate to the level of data quality required to support the monitoring project. Tier 1 monitoring data is appropriate for screening assessment work and is not intended for comparison to state and federal water quality standards. Tier 2 monitoring data is intended for comparison to federal and state water quality standards. Tier 2 data require significant more QA/QC data to support data validity determinations. Most monitoring data collected for projects completed under the Water Programs fall under Tier 2 monitoring data quality. Tier 3 monitoring data are reserved for probable legal enforcement cases where data must withstand rigorous legal challenge to data validity. Few monitoring projects are expected to fall within the Tier 3 category.

A Generic Tier 2 QAPP (draft) was developed for water and wastewater monitoring to guide staff, grantees, and permittees through the process of writing a project specific QAPP that is consistent with the EPA's guidance documents. The Generic Tier 2 QAPP provides types of specific monitoring criteria (EPA water/wastewater approved methods of analysis, detection limits, accuracy, precision, data completeness and sample representativeness, sample preservation, and holding times) that are integral components of Quality Assurance. The guidance documents can be found on the ADEC webpage at http://dec.alaska.gov/water/wqapp/wqapp_index.htm.

2.3 Technical Functions

Environmental Monitoring, Sampling, and Measurements

Activities conducted by ADEC staff, grantees, permittees, subcontractors, and others who perform baseline, inspection, compliance, and complaint-response monitoring may include sampling, testing, shipping/transporting, and the validation and verification of data. To ensure a Quality System, appropriately qualified and trained personnel must perform all sampling and monitoring activities. The specifics of how each technical function is performed is provided in the QAPP.

The Water Programs developed generic QAPPs to cover routine monitoring activities such as domestic wastewater discharges, inspections of permitted facilities, and monitoring, compliance or complaint response. Generic or project specific QAPPs may include the following elements:

Sampling Equipment – Field kits and lab equipment. Equipment will be calibrated and in working order. Kits will be fully stocked and reagents will be up-to-date. Expired reagents will be disposed of properly.

Custody Documents - Includes chain-of-custody forms, receipt for sample forms, and sample tags. Chain-of-custody or transmission forms are usually provided by contracted laboratories.

Field Log Books and Field Notes- Log Books are bound, page-numbered books. Log books and data sheets contain a detailed record of what, when, where (including site maps), why, how, and who took each sample. The results of associated field measurements, field calibration results, and background readings are recorded. Other factors that might affect sample quality or interpretation of results, such as ambient temperature and climatic conditions, may also be recorded in the logbook or on the field notes. In addition, a photographic log may be maintained.

Field Photographs - A visual record of site conditions, processes, samples, and sample source will be taken by appropriate personnel.

Standard Operating Procedures (SOPs) for sampling, field and analytical measurements – These are procedures used for routine activities. SOPs may be incorporated into or referenced in the QAPP. ADEC Project Managers are responsible for ensuring that procedures are understood and followed in the field and laboratory and that deviations from these procedures are documented.

Laboratory Standard Operating Procedures – These are the standard procedures used by laboratories to accomplish laboratory operations. All monitoring projects implemented by ADEC staff, ADEC grantees, permittees, and contractors follow methods approved in Alaska Water Quality Standards, 18 AAC 70, unless noted in the QAPP or project-specific QAPP checklist. Contracted laboratories are required to have SOP documents for the methods performed. When a contracted laboratory is used for analyses, the laboratory's Quality Management Plan (QMP) will be referenced in the project-specific QAPP.

The ADEC Project Managers and the WQAO ensure that data quality indicators are clearly stated in the QAPP regarding the method detection levels required to meet the project-specific objectives. The WQAO ensures that the most current analytical procedures are available for use and identified in the QAPP and that outdated and/or revised procedures are removed from use and not referenced in the QAPP.

Laboratories will submit data QC sheets to the ADEC Project Manager in addition to analytical data results. APDES permittees will maintain QC data sheets used to validate all permit required reported monitoring data and have available to DEC upon request for a minimum of five years. When data quality objectives are not met, laboratories will provide ADEC and the permittee with information about these anomalies, as well as a discussion regarding the appropriate QA/QC corrective actions taken.

Data Quality Requirements – The type, quality, and number of data measurements required to support the project purpose must be defined for monitoring, sampling, and analyses. The type and number of samples collected must be appropriate to achieve the level of precision, accuracy, and data completeness required by the QAPP. The selection of field and laboratory analytical test methods and appropriate detection and reporting levels are the responsibility of the Water Programs Project Managers, with assistance when necessary from the WQAO. The analytical methods selected must be approved in the Alaska Water Quality Standards regulations, 18 AAC 70, unless otherwise pre-approved by the ADEC Project Manager and WQAO and noted in the QAPP or QAPP project-specific Checklist, and must be based on the purpose for collecting the sample(s) as stated in the QAPP. Other parameter requirements can be found in CFR §136.3.

Data Quality Indicators – Data quality indicators can include but are not limited to the following: blanks, standard reference materials, QC check samples, replicates, spikes, and matrix spike duplicates. The QAPP will define each measurement parameter/method including minimum data acceptance criteria: precision, accuracy, detectability, and data completeness.

Analytical Results – The ADEC Project Managers, with assistance from the WQAO, are responsible for ensuring that analytical results are consistent with each other, and that they meet the project objectives as specified in the QAPP. The Project Manager communicates data requirements to those collecting the data and are responsible for ensuring that data results are received in a manner consistent with QAPP specification.

Laboratory Records – As analyses are completed, it is the responsibility of the contracted laboratory personnel to review, verify, and validate these data. The laboratory supervisor must review and approve the data results file before it is sent to ADEC Project Managers and to ADEC grant/permit recipients or consultants. The laboratory will submit QC data sheets, along with analytical results, and will provide information to ADEC regarding deviations from data quality objectives. Completed chain-of-custody or transmission forms will also be provided to ADEC. ADEC may require that the laboratory provide the following information: observations and interpretations made during analyses by the analyst, records of when and how analyses were performed, and permanent records of raw analytical results produced by various instruments.

3.0 Dispute Resolution

For those situations in which technical issues regarding QA are in dispute (such as the applicability of the Quality System requirements or the application of QA/QC procedures, assessments, and corrective action), resolution should be sought at the lowest management level practicable. All parties should make every effort to resolve disputes through discussion and negotiation. If unsuccessful, negotiation will proceed to upper management.

4.0 Technical Support

Support for technical functions is provided by administrative staff and includes management, health and safety training, document and record management and information retrieval, and computer hardware and software administration.

5.0 Operational Policies, Procedures, Guidance, and Tools

The Water Program Quality System for environmental monitoring, sampling, and measurement activities include:

- Water Programs Quality Management Plan (WPQMP).
- ADEC & Water Programs Regulations, specifically 18 AAC 70 Alaska Water Quality Standards, 18 AAC 72, Wastewater Disposal, 18 AAC 83, APDES, and EPA Methods 44 CFR §136.3.
- Water Programs internal guidance documents.
- ADEC Water Programs web pages for each Water Program.
- EPA and ADEC Quality Assurance Guidance Documents.
- Water Program Quality System Planning Processes.

- Water Programs Quality System Implementation Processes.
- Water Programs Technical Assessment Reviews.
- Management System Reviews.
- Mid-year and end-of-year QA reports to EPA per the PPA.
- Generic and project-specific QAPPs.

6.0 Water Program Quality Assurance Guidance Documents

The ADEC Water Programs began its formal Quality Assurance Program in July 1999. Since that date, the designated WQAO has worked with Water Programs staff and grantees, permittees, and others to develop project-specific and generic QAPPs that follow the requirements of the EPA QA/R-5. The WQAO has developed several QA guidance documents and generic QAPPs for ADEC staff, its consultants, grantees and permittees. These documents are:

- *Elements of a Tier 1 Water Quality Monitoring Quality Assurance Project Plan*, February 23, 2009
- *Tier 1 Quality Assurance Project Plan (QAPP) Review Checklist*, February 23, 2009
- *Elements of a Tier 2 Water Quality Monitoring Quality Assurance Project Plan*, January 15, 2016
- *Tier 2 Quality Assurance Project Plan (QAPP) Review Checklist*, January 15, 2016
- *Generic Tier 2 Water Quality Monitoring QAPP Rev 3*, January 14, 2016
- *Any Town, Inc. Wastewater Treatment Facility Quality Assurance Project Plan*, December, 2016
- *Water Quality Monitoring Quality Assurance Project Plan for IGAP Grant Program*, December 2014
- *Generic Quality Assurance/Quality Control Plan for Sampling and Analysis of Treated Sewage and Graywater from Commercial Passenger Vessels*, January 15, 2015.

ADEC webpages contain the WPQMP, guidance documents for developing QAPPs, and generic QAPPs. New documents are added as developed, and these principal tools are reviewed and updated to address changes in the Quality System by the WQAO, in coordination with the Water Programs Managers.

7.0 Personnel Qualifications and Training

All Water Programs personnel involved in data generation, use, and compilation will have adequate education, training, and experience both in the area of their technical expertise and in QA/QC procedures to meet their designated responsibilities. All others who collect data, such as contractors, grantees, and permittees, will possess adequate experience and knowledge to perform satisfactorily all assigned duties.

7.1 Training Policy

The Water Programs policy is to provide training for management and staff that ensures that the statutory, regulatory, and professional requirements of each staff position are adequately fulfilled. Each position within the Water Programs is evaluated to determine what level of education, experience, and training is necessary to carry out the duties of the position in an effective manner.

Education level, training, work experience, oral presentations, publications, and membership in professional organizations are documented and maintained in personnel files. QA/QC training for Water Programs Managers and staff will be developed by the WQAO in coordination with the Water Programs Managers.

7.2 Training Processes and Documentation

Trained professionals perform environmental monitoring tasks such as sampling, field and laboratory measurements, instrument calibration, and data review, verification and validation.

Training courses offered to Water Programs staff include, but are not limited to, Quality Assurance/Quality Control, Development of Water Quality Monitoring Programs, Statistics, Water Quality Standards and Monitoring, Permit Writing, Grant Writing, Nonpoint Source Pollution Control, Enforcement, Computer Technology, Safety, and Supervision. Water Programs staff attend EPA's Water Quality Standards Academy, NPDES Permit Writers Course, and Whole Effluent Toxicity (WET) training.

The mechanism to identify Water Programs training needs, provide training opportunities, and documenting the training received is as follows. Each fiscal year, all Water Program staff prepare individual work plans which include travel and training plans, along with estimated budgets. Water Program Managers build the Water Program annual budget using information from staff. Each employee receives periodic performance evaluations in which employee qualifications and training needs are discussed. Employee personnel files include records of employee qualifications and training received.

The WQAO receives annual training in QA/QC processes. The WQAO is responsible for setting up a QA/QC training program for Water Program staff. In addition to formal training conferences and workshops, the WQAO continually works with Water Program staff to ensure that all data generated and/or utilized by ADEC Water Program staff meet the requirements of this WPQMP.

8.0 Procurement of Items and Services

8.1 Non-Professional Items and Services – Review and Approval

Procurement ranges from procuring general supplies to computer hardware and software. Stock request forms are available to all staff. These forms have fields, such as financial coding areas, which delineate requirements. Stock requests must have the signatures of the individuals granted spending approval authority.

ADEC's Division of Administrative Services provides hardware and software computer services to ADEC Divisions. The Division Water, Water Quality Programs, receive desktop and server support

from DAS Network Services group and software development and database integration support from DAS Integrated Databases group. Purchase of computer hardware and software must have the signed approval of DAS.

8.2 Professional Services, Contracts and Grants

The Water Programs may use private contractors to conduct sampling at state-owned and state-administered sites. Professional services are procured according to the requirements in the ADEC *Procurement and Building Services, Purchasing Document, Request for Proposal*. The contract must comply with Alaska Statute 36.30, *State Procurement Code*. In July 2017 a commercial analytical laboratory was contracted by the Division of Water to provide analytical testing and support.

The Environmental Health Lab (EHL) in Anchorage is a resource that can provide specialized analytical services for the Department. For example, the AKMAP project has submitted fish tissue samples for metals analysis to the EHL. The WQAO also works closely with the Environmental Health Drinking Water laboratory certification officer to provide technical assistance regarding QA assessments of microbiological labs within Alaska. Due to holding time requirements for microbiological methods, only laboratories within Alaska are used to analyze microbiological samples.

The Nonpoint Source Water Protection and Restoration Section, which administers Section 319 of the Clean Water Act pass-through grants from EPA, has responsibility for grant professional services and contracts. Although these grants are exempt from the state procurement processes, the annual EPA Performance Partnership Grant to ADEC requires that anyone receiving federal EPA funds must comply with all federal laws, regulations, and guidelines related to these funds. The Nonpoint Source Water Protection and Restoration Section staff administer this grant program in Alaska. The ACWA grant process is described in the ADEC Division of Water ACWA webpage: <http://dec.alaska.gov/water/acwa/onlineACWAapp.htm>

The Nonpoint Source Water Protection and Restoration Section also develops and administers contracts that often involve collection of data. Contractors are required to prepare QA plans in accordance with the Water Programs' QAPP preparation guidance and require approval from the WQAO and ADEC project manager prior to beginning data acquisition.

In addition, projects that generate measurement data and are funded by the EPA are required to show competency under *Policy to Assure the Competency of Organizations Generating Environmental Measurement Data under Agency-funded Assistance Agreements* FEM-2012-02, Revision 1; Approved: December 21, 2016. The document establishes the EPA's policy requiring organizations generating or using environmental data under certain Agency-funded assistance agreements to submit documentation of their competency prior to award of the agreement or if that is not practicable prior to beginning any work involving the generation or use of environmental data under the agreement.

9.0 Documentation and Records Management

Hard copy files (paper files) of *AKMAP* projects, *Nonpoint Source Water Protection and Restoration* grant and contracted projects, and *Wastewater Discharge Permit* projects, and other projects are filed with the Project Manager. Grant files contain the complete record of the grant administration. NPDES permit files include final permit documents, inspection reports, and enforcement information.

The Division Water uses permanent computer database files for water quality monitoring, grant, and permit data results. The Wastewater Discharge Authorization Program uses the Discharge Results & Online Permitting system (DROPS) to track permitted facilities, discharge monitoring report (DMR) data and other required reports as well as compliance and enforcement data.

Originally, all ambient (not permitted discharge data) water quality data generated or collected was to be entered into the Alaska STORET (STORAge and RETrieval) database. ADEC replaced STORET with the Ambient Water Quality Monitoring System (AWQMS). This system was developed by a consortium of states and EPA in Region 8 and was provided to Alaska. AWQMS was implemented in Alaska in 2009 with its first use in production occurring early in 2010. ADEC staff and grantees are trained in the quality requirements for AWQMS data uploads and in the upload processes with the commitment by ADEC that ADEC-generated and grantee-generated data is being entered in AWQMS.

The approved project QAPP lists the specific project-related minimum data requirements, including QA/QC collection and analysis information required of AWQMS for a project.

10.0 Computer Hardware and Software

10.1 General

ADEC maintains an information technology staff within the DAS. Staff install and maintain computers with updated Microsoft Office and other standard software. Staff are also responsible for the development and maintenance of the Exchange Network that provides a standard mechanism and “node” for transferring data between ADEC, EPA, and other partner systems.

The Water Division maintains an additional Water Information Management section responsible for developing and maintaining the custom database management systems. These include permit and water quality data systems, financial tracking systems, web-based systems for permit application and permit search, and other smaller software applications.

10.2 Quality Assurance/Quality Control - Data Management

Ambient Water Quality Monitoring Data

Quality Assurance/Quality Control (QA/QC) of data management begins with the raw data and ends with a defensible report, preferably through the computerized transmission of raw data. Water Programs Project Managers require grantees, contractors and permittees to use error-checking data entry templates that incorporate AWQMS compatible formats and protocols. To ensure that water quality data are made available to ADEC in AWQMS-compatible formats, Project Managers provide technical assistance to their permittees, grantees, contractors, and consultants.

Data can be uploaded to AWQMS without a full QA/QC review in order to facilitate use and capture of the data. Such data will not be given a status in AWQMS of QA “accepted” until it has been through a full ADEC QA review. Similarly, data in National STORET can be flagged with a “rejected” QA status if the QA does not pass ADEC requirements. The data is reviewed by the Project Managers and if necessary the WQAO.

APDES-permit required data.

Under the APDES program, ADEC is required to enter facility, permit, compliance, and DMR data into ICIS-NPDES. The data are entered directly into the ICIS-NPDES per the Program Description for the APDES program (October 2008), Section 10.3.5 and ICIS Guidance (2006). The APDES programs have also implemented phase one of the EPA E-Reporting rule. NetDMR is available for all major and minor individual permits, and Major General Permit Authorizations. NetDMR will be available for all General Permit Authorizations, December 2017. Information on E-reporting can be found at <http://dec.alaska.gov/water/compliance/EReportingRule.htm>

10.3 Mixing Zone Modeling Software

Mixing zone models are used in the Wastewater Discharge Authorization Program; examples include *Visual Plumes* for marine discharges and *CORMIX* for river discharges. A permit applicant requesting a mixing zone must provide the Department with all available evidence reasonably necessary to make a mixing zone decision (18 AAC 70.260). When a mixing zone model is submitted, *Wastewater* Discharge Authorization staff review the model assumptions and the validity of the data used to build the model.

11.0 Planning and Implementation of Work Processes

11.1 Water Program Planning

Annual planning for the Water Programs occurs prior to the end of the fiscal year when managers and staff submit their annual work plans and projected budgets. Water Programs Managers meet annually to discuss goals, objectives, and work strategies. WQSAR Senior Water Programs staff also participate in statewide monthly teleconferences and the Nonpoint Source Section and the Wastewater Discharge Authorization Program each have semi-monthly teleconferences.

11.2 Specific Project Planning - QAPP Processes

Within each of the Water Programs, intensive, systematic planning occurs at the development phase of each project-specific QAPP. All projects that generate, use, or compile monitoring data require an approved QAPP. Project Managers for environmental monitoring projects, grant projects, and wastewater projects develop QAPPs using the guidance documents and generic QAPPs available on the web. QAPP review checklist may be used to ensure that all appropriate elements are included in the project-specific QAPP.

A good QAPP addresses the *who, what, why, when, where* and *how* of a project, with emphasis on the *why* and *how*. To achieve the ultimate goal of producing a defensible data set, the objectives of the project must be very clear, and the sample design must attempt to answer the questions posed in the

project objectives. The sampling and analytical protocols must be correct, and data management must include accuracy and security. Elements of an approvable QAPP, as specified in EPA QA/R-5, must include the following:

- title and signatory pages;
- distribution list;
- project description;
- project objectives;
- data quality indicators;
- list of the recipients of data and/or reports;
- the experimental design;
- sampling methods requirements;
- analytical methods, detection, and reporting limits required;
- the quality control requirements in the field and laboratory;
- instrument testing, inspection, maintenance, and calibration requirements;
- data management, validation, and verification requirements;
- list of the number, frequency and types of assessments, such as peer review; and
- management system reviews, technical systems reviews, technical systems audits performance evaluations, and audits of data quality.

A QAPP must fully describe the project's QA/QC assessments and how QA/QC problems will be addressed. QAPP documents must provide the protocol that the ADEC staff, grantee, permittee, or contractor must follow should QA/QC problems arise. The QAPP specifies the required notification procedures for quality problems that arise.

12.0 Assessment and Corrective Response

12.1 External Quality System Review

The Water Programs will undergo periodic external audits to ensure achievement of the QA objectives expressed in the WPQMP. EPA is mandated to audit state agency Quality Systems once every three years. External audits will determine the adequacy of, and adherence to, the WPQMP policies within all the Water Programs and their project-specific QAPPs.

Following an external audit, the Water Programs Manager and the WQAO will review the recommendations provided by the outside auditor and evaluate these recommendations. Audit results, recommendations, and QA improvements will be reported to EPA. The Water Programs

Managers decide which recommendations are to be included in an updated WPQMP, and the schedule for implementation.

12.2 Internal Assessment

All Water Programs staff involved in data generation, use, and compilation are responsible for overseeing the quality assurance activities within their purview. This includes identifying and responding to quality assurance problems and needs. It is important that appropriate corrective action is taken promptly to resolve program and project-specific problems. Programs Managers and the WQAO must be kept informed of all Water Programs and project-specific problems, needs, and corrective actions.

The WQAO provides a level of independent management oversight by periodically conducting Water Programs management systems reviews. These reviews provide an independent qualitative assessment to determine whether the WPQMP Quality System, policies, procedures, and practices adequately address generating the type and quality of data required. Management supports the WQAO in the efforts to assess situations, identify the problems/issues, and recommend appropriate solutions.

To ensure that the policies of the WPQMP are implemented, the WQAO, along with the Project Manager, is responsible for the review and approval of project-specific QAPPs. The QAPPs will be reviewed for adequacy and modified as necessary. The WQAO will strive to meet a 30 working day turnaround time in the review of draft QAPPs.

The WQAO and Project Manager will assess specific projects in two ways: site inspections and data review. The WQAO will accompany the ADEC Project Manager and/or the grantee or permittee project manager or quality assurance officer on routine monitoring events. Although the contracted laboratory and/or grantee or permittee is responsible for the verification and validation of all field and laboratory data under their purview, the Project Manager will spot check all data for projects within the realm of responsibility.

Overall Project Assessments are based on the following:

- Quality Assurance Project Plan - Before the project begins, the WQAO and the Project Manager use the QAPP to evaluate the adequacy of facilities, equipment, supplies, personnel, and existing procedures to meet project objectives and identify the data quality indicators. Findings of deficiencies or inadequacies are discussed with the ADEC staff, grantee, contractor, management, and technical experts, as necessary. Decisions are made as to how to proceed based on the findings.
- Quality Control Indicators - Project staff use quality control indicators to identify problems with sampling and/or analytical procedures and to highlight results outside the required Data Quality Objectives. Quality control indicators can include blanks, standard reference materials, QC check samples, replicates, spikes, and alternative methods. QAPPs will describe the precision, accuracy, completeness, comparability, and representativeness

required. Problems identified are documented in the project file. Corrective action is subject to the same technical assessment as the original procedures.

- Project Review/Assessment - As each project is concluded, the Project Manager evaluates it for completeness, accuracy, and appropriateness to meet the project objectives. The procedures used and the documents generated are evaluated for adherence to the approved QAPP and EPA and ADEC policies and procedures.
- Reports - The preparation of the interim and final project reports and assembly of the project file and database are important milestones in the assessment process. These documents and database files provide the information necessary to make environmental management decisions based on sound science. Project Report preparation is the responsibility of the Project Manager and/or the grantee, or contractor. The project report summarizes the project and contains observations, monitoring and measurement results. The Project Manager is responsible for ensuring that observations and data are internally consistent, and meet QAPP project objectives.
- Project File - The project file is the repository of documents related to the project, including both field and laboratory records. The Project Manager is responsible to ensure that relevant documents are in the file, the file is secure, and in accordance with Department policies and procedures.

13.0 13.0 Quality Improvement

Quality improvement can occur if each Water Programs staff member becomes aware of quality problems and discusses these problems and their resolution with appropriate management staff. Action then is necessary from management to commit to quality improvement. The WQAO will be consulted or informed of action taken to improve data quality.

The process of constant assessment and review at the project-specific QAPP level begins with the quality improvement process. At the project level, the ADEC Project Manager coordinates with ADEC staff, grantees, permittees, and contractors to ensure that the QAPP has all the required elements. The document sets the standard that the project must meet. During project implementation, ADEC Project Managers interact with ADEC staff, grantees, permittees, and contractors to ensure that QA/QC problems are identified and solved. This happens as data are reviewed, validated/verified as well as during field and laboratory inspections and audits.

The WQAO reports on QA/QC progress in the mid-year and end-of-year PPA reports. The reports include a review of the projects completed during the previous fiscal year, the QA progress made, and recommends improvements in the Water Program Quality System.

EPA recommends that the WPQMP be reviewed and updated at least every three years. ADEC will update the WPQMP at least that often. The WQAO will annually review and assess the Water Programs in implementing the WQMP and make recommendations for improvements. If acceptable, these recommendations will be incorporated into the subsequent WPQMP. Outside

audits of the Water Programs will also allow ADEC to determine how well the WQMP quality assurance policies are being implemented.

14.0 14.0 References

Alaska Wastewater Disposal, 18 AAC 72, October 22, 2016.

Alaska Pollutant Discharge Elimination System Program, 18 AAC 83, October 22, 2016.

Alaska Water Quality Standards, 18 AAC 70, February 15, 2017

ANSI/ASQC E4, Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, 2014

EPA Requirements for Quality Management Plans, EPA QA/R-2, September 2016

EPA Best Practices Guide for Performance Partnership Grants with States, EPA 140-B-14-001, June 2014

EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, December 2002

EPA Order 5360.1 A2, EPA 5360 Manual A1 and 40 CFR 30.54

EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5, March, 2001

15.0 15.0 Definition of Terms

Data Quality Indicators – sampling and/or analytical procedures used to highlight anomalous results. They can include blanks, standard reference materials, QC check samples, replicates, spikes, and alternative methods.

Environmental Data – Any measurements or information that describes environmental processes or conditions or the performance of engineered environmental systems

Project Managers – The ADEC Project Managers are the lead staff in the development and implementation of Water Programs monitoring projects, in the development and administration of grants, and in the development and maintenance of wastewater discharge permits. As such, Project Managers are the lead staff ensuring that each project quality assurance project plan follows the EPA QA/R-5 requirements adopted by the Water Programs.

Project Objectives – The overall objectives (reasons) for which the environmental monitoring samples are collected and analyzed.

Quality Assurance - addresses the planning of environmental projects, implementation of work activities, assessment of the process, and the results and feedback to the process.

Quality Control - includes the scientific observations made and experimental results generated during the project.

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

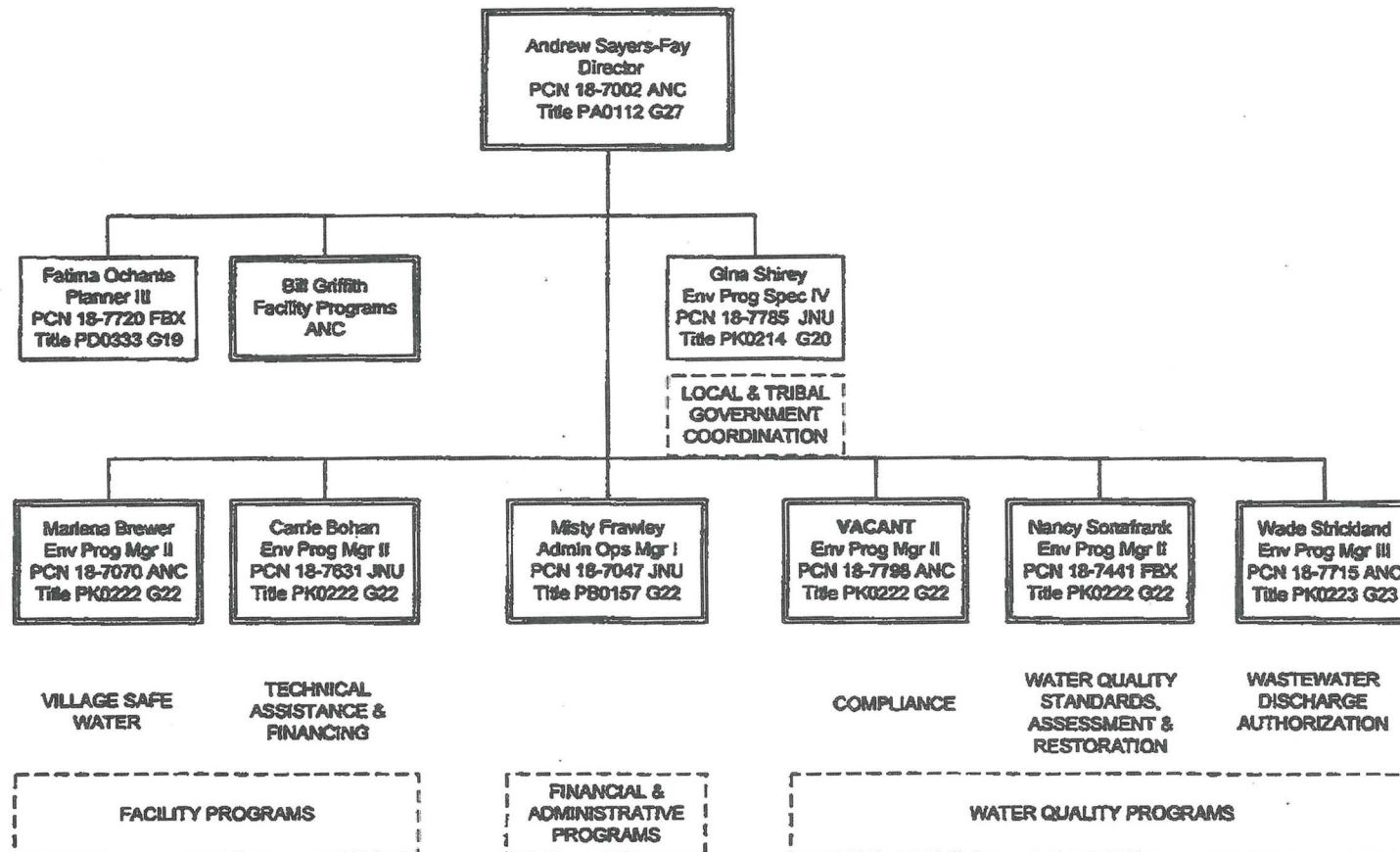
Quality System – a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items) and services. It provides a framework for planning, implementing, documenting, and assessing work conducted by the organization and for carrying out required QA/QC activities.

STORET (STOrage and RETrieval) - is a repository for water quality, biological, and physical data and was developed by EPA for use by states and the public.

16.0 16.0 Organization Chart

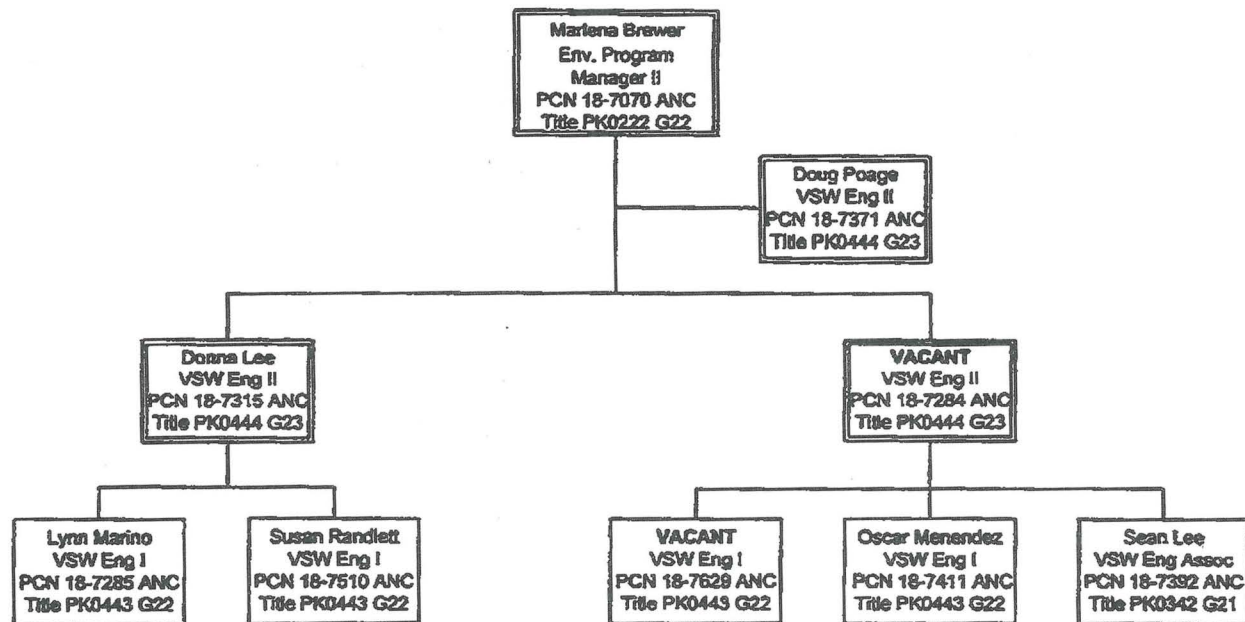
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ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

Submitted By: *Andrew Sayers-Fay*
Andrew Sayers-Fay, Director
Effective January 2018



STATE OF ALASKA
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VILLAGE SAFE WATER

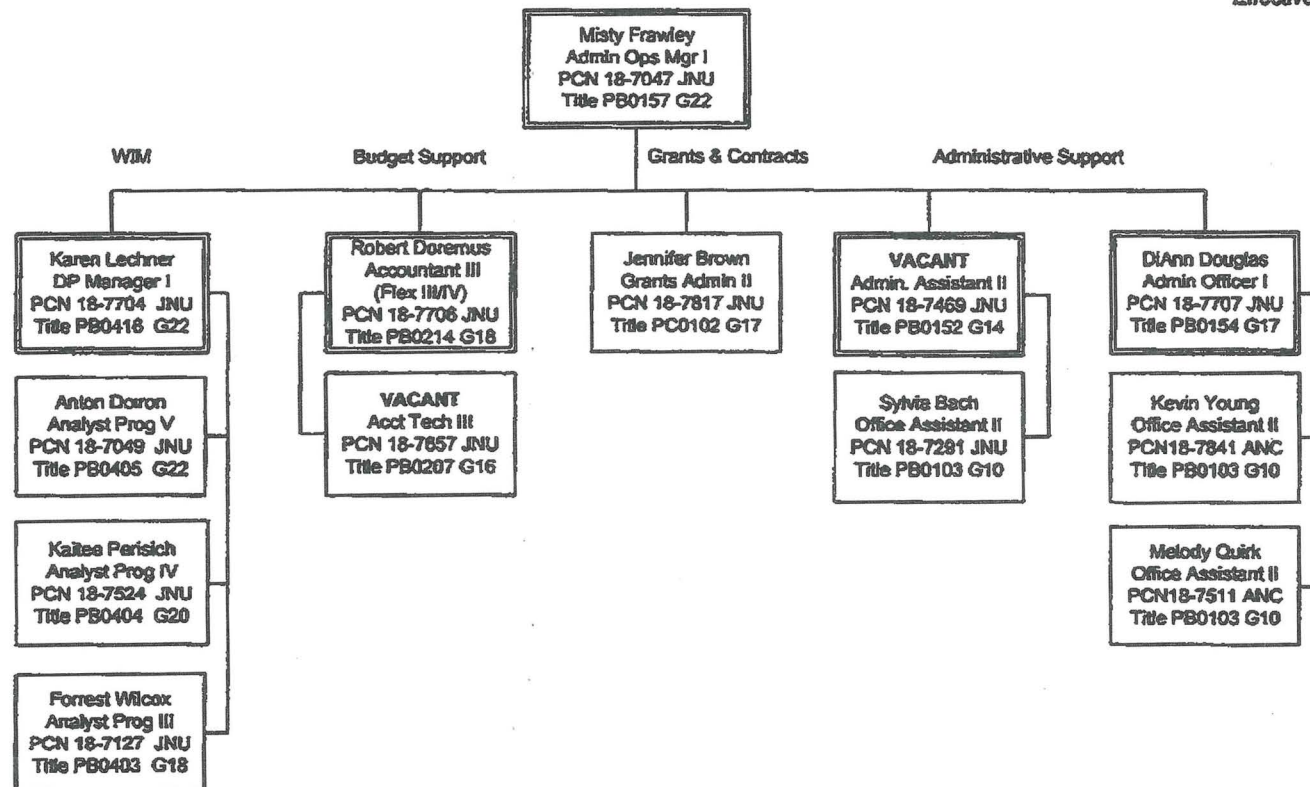
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Legend:
Oval Dashed = College Interns

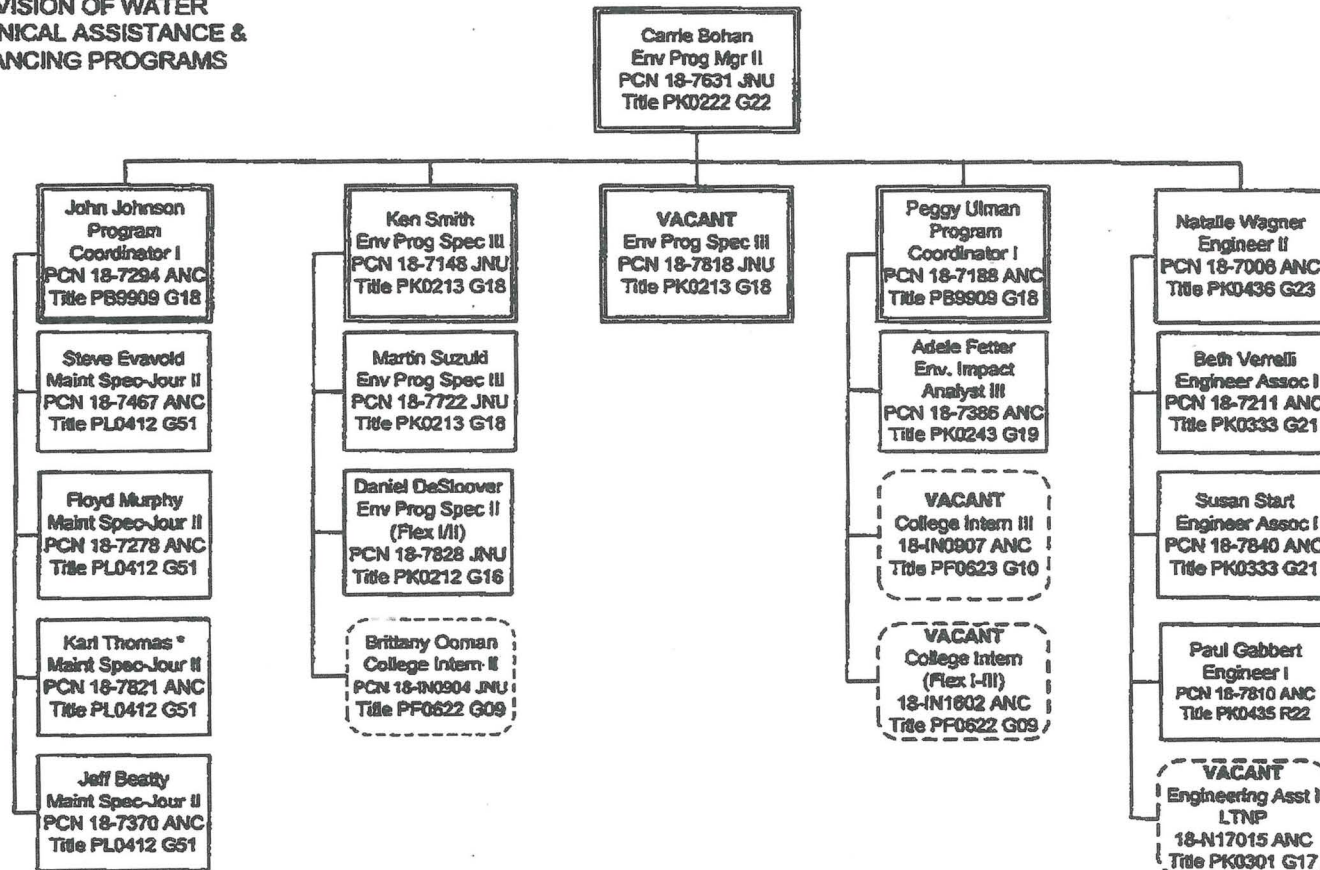
STATE OF ALASKA
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FINANCIAL and ADMINISTRATIVE MANAGEMENT PROGRAMS

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Andrew Sayers-Fey, Director
Effective January 2018



STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
TECHNICAL ASSISTANCE &
FINANCING PROGRAMS

Submitted By: *Andrew Sayers-Fark*
Andrew Sayers-Fark, Director
Effective January 2018



Legend:
Dashed oval = non-perm positions
* PCN 18-7821 Fill date is 1/16/18

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Maintenance
Worker

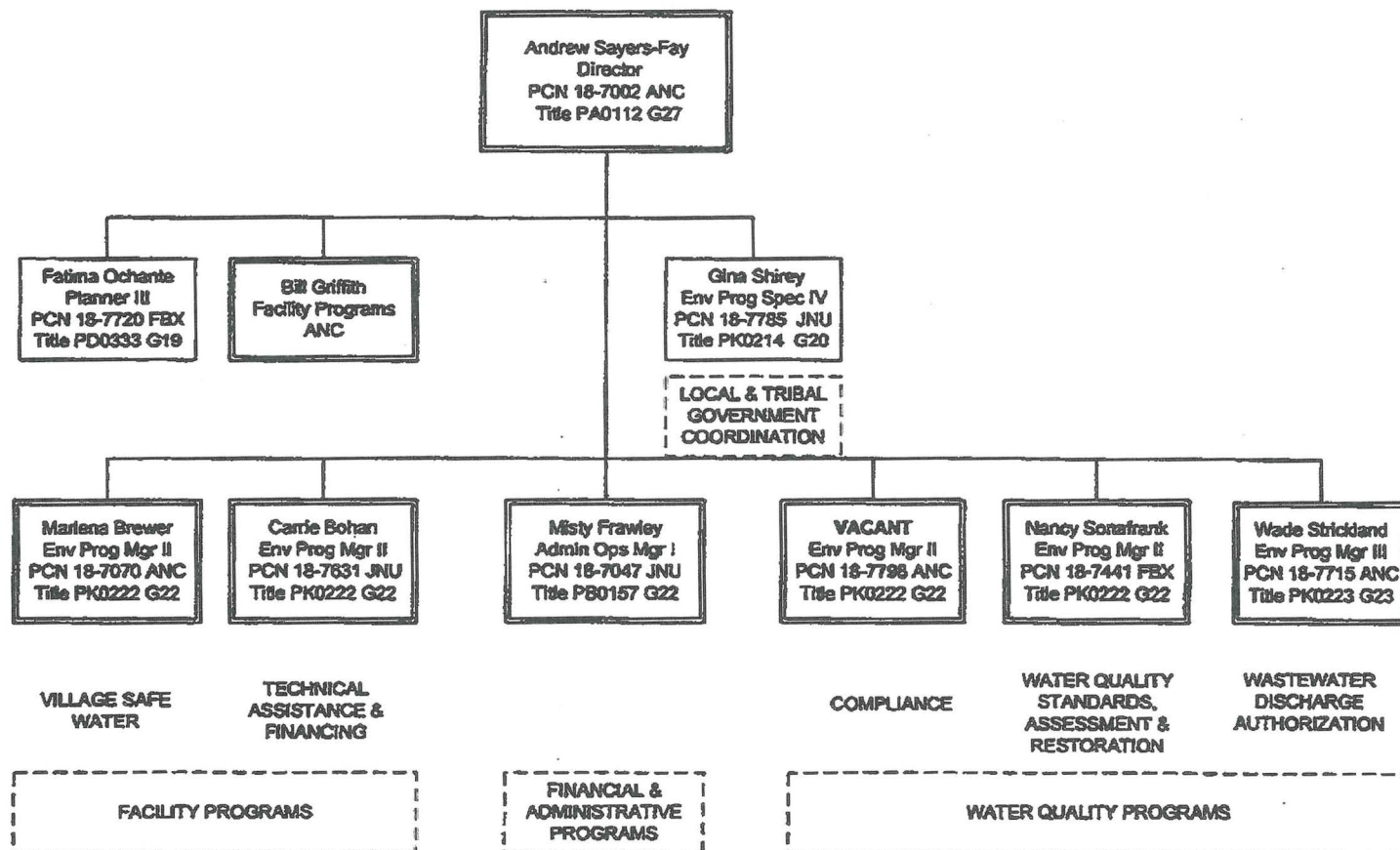
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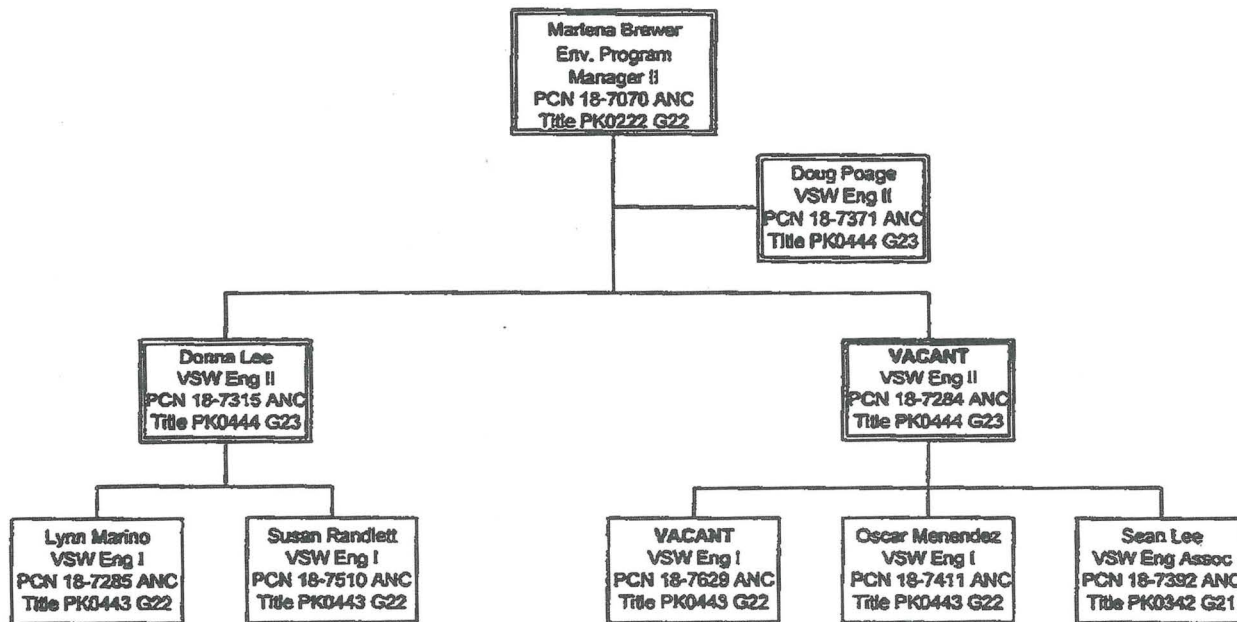
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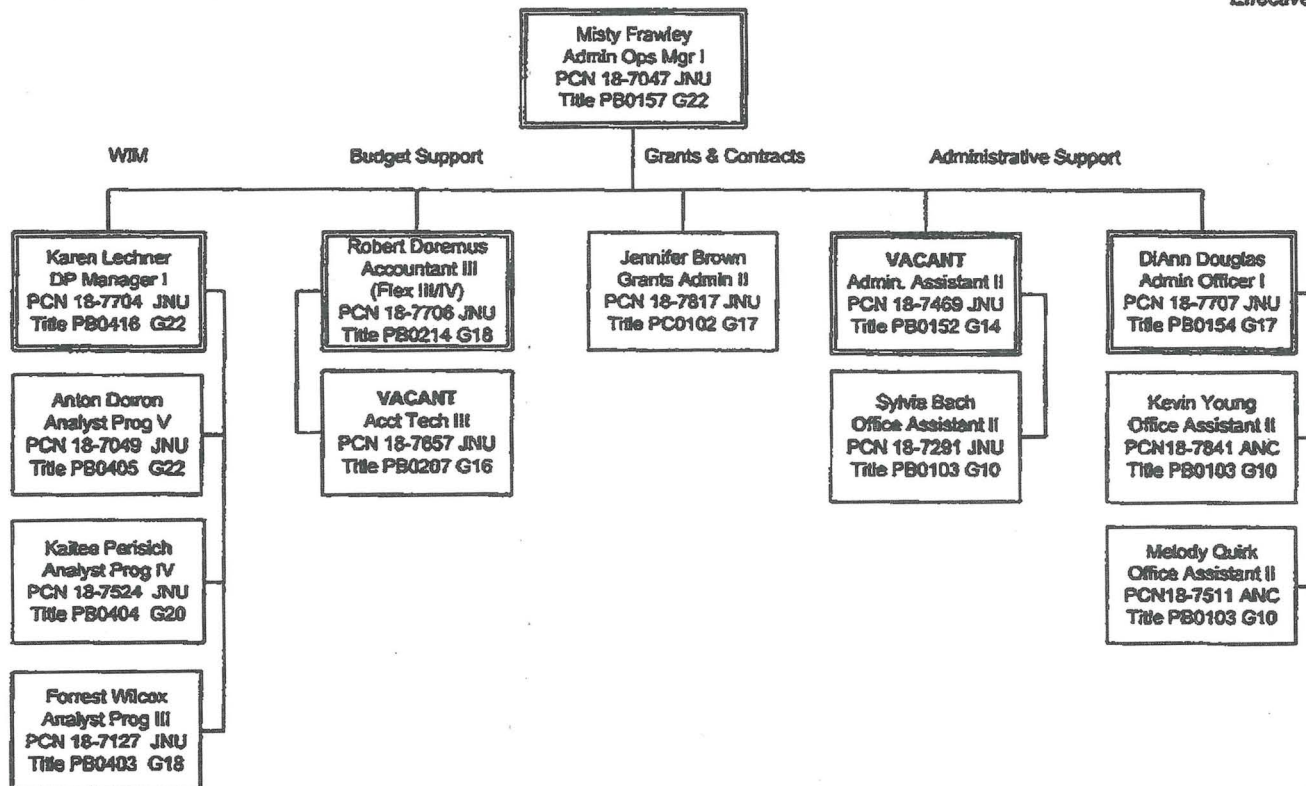
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Andrew Sayers-Fay, Director
Effective January 2018



Legend:
Oval Dashed = College Interns

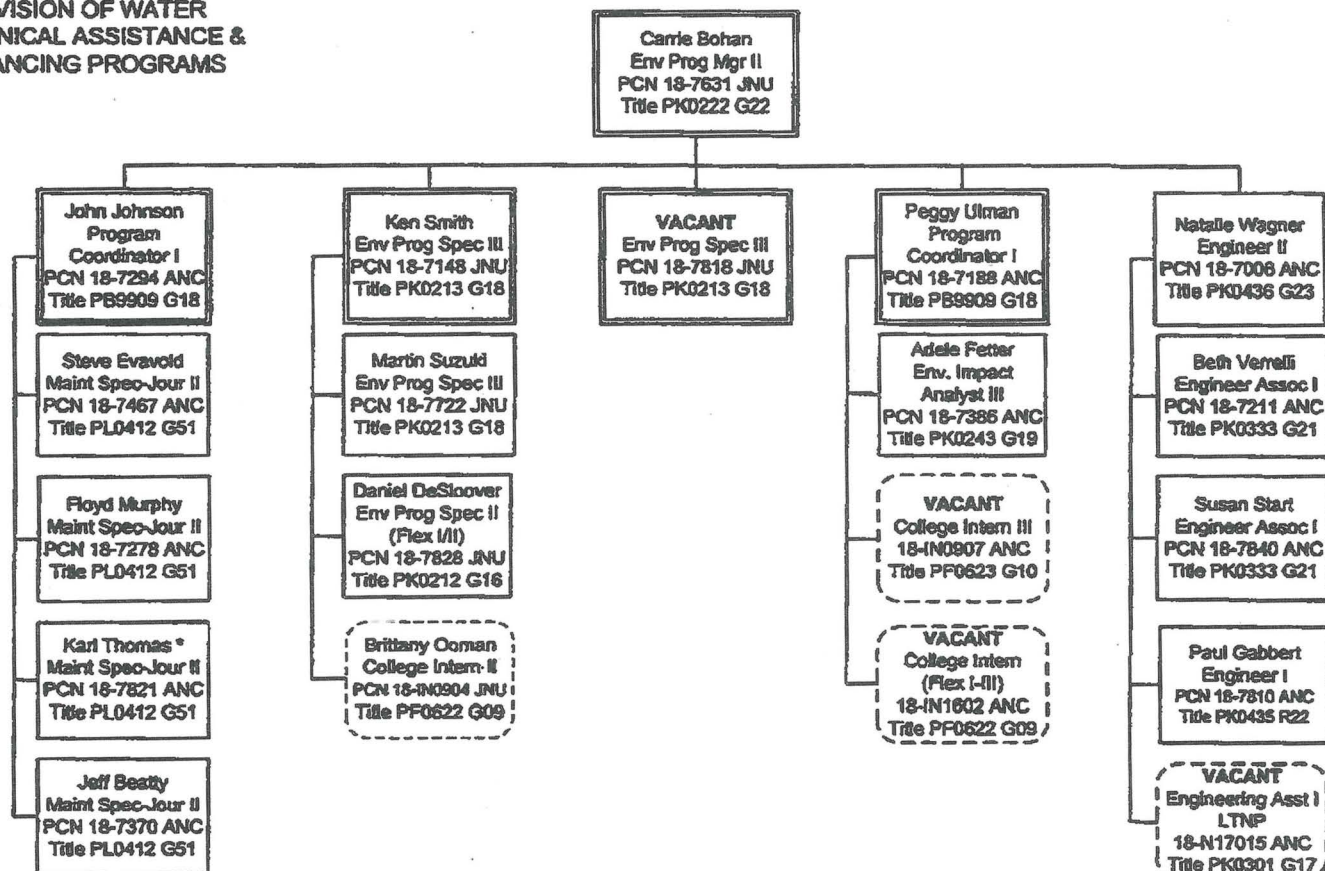
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FINANCIAL and ADMINISTRATIVE MANAGEMENT PROGRAMS

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Andrew Sayers-Fay, Director
Effective January 2018



STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
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TECHNICAL ASSISTANCE &
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Andrew Sayers-Fay, Director
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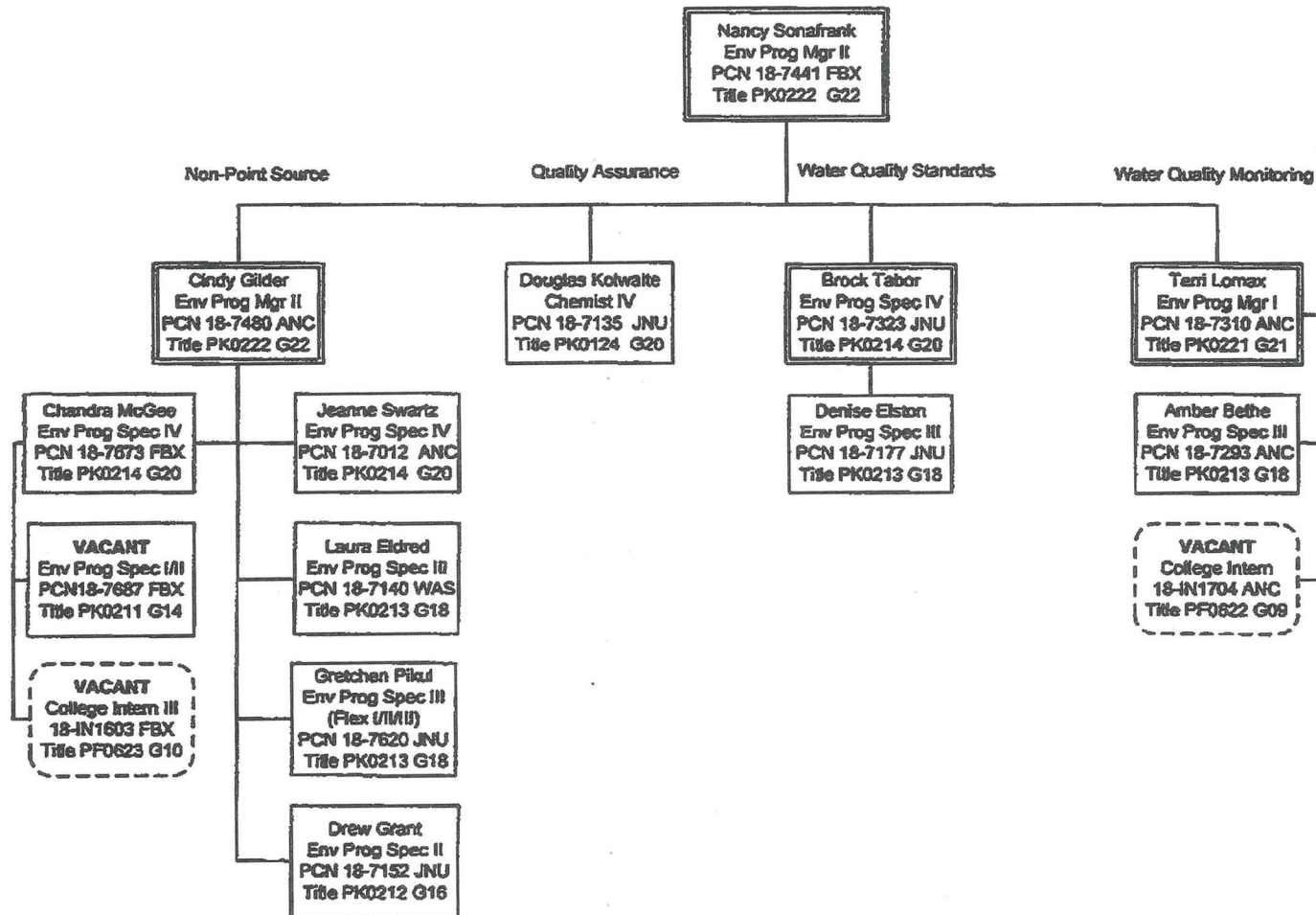


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STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WATER QUALITY STANDARDS, ASSESSMENT AND
RESTORATION PROGRAMS

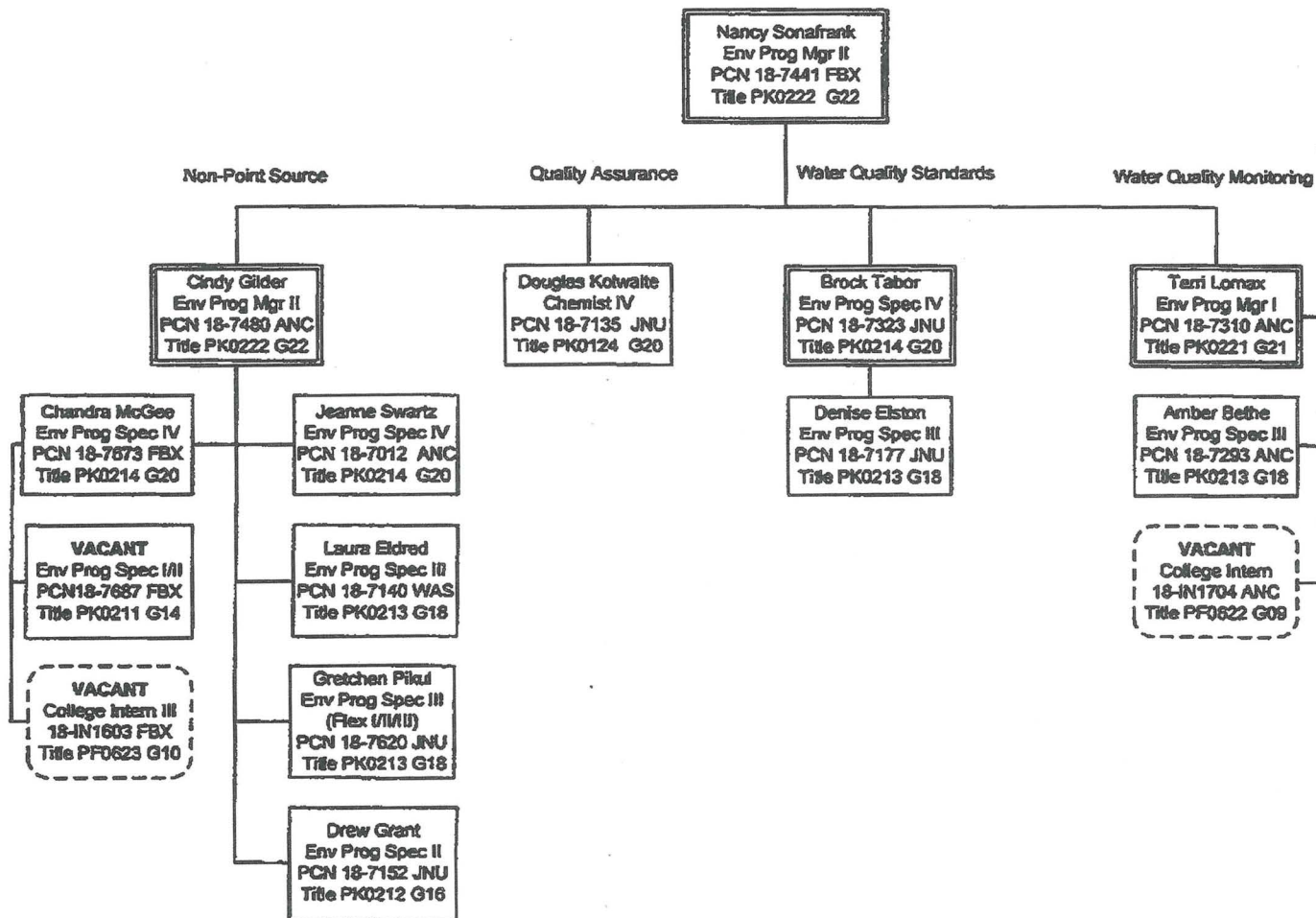
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Andrew Sayers-Fay, Director
Effective January 2018



Legend:
Oval Dashed = College Interns/Short Term Non Perm

STATE OF ALASKA
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DIVISION OF WATER
WATER QUALITY STANDARDS, ASSESSMENT AND
RESTORATION PROGRAMS

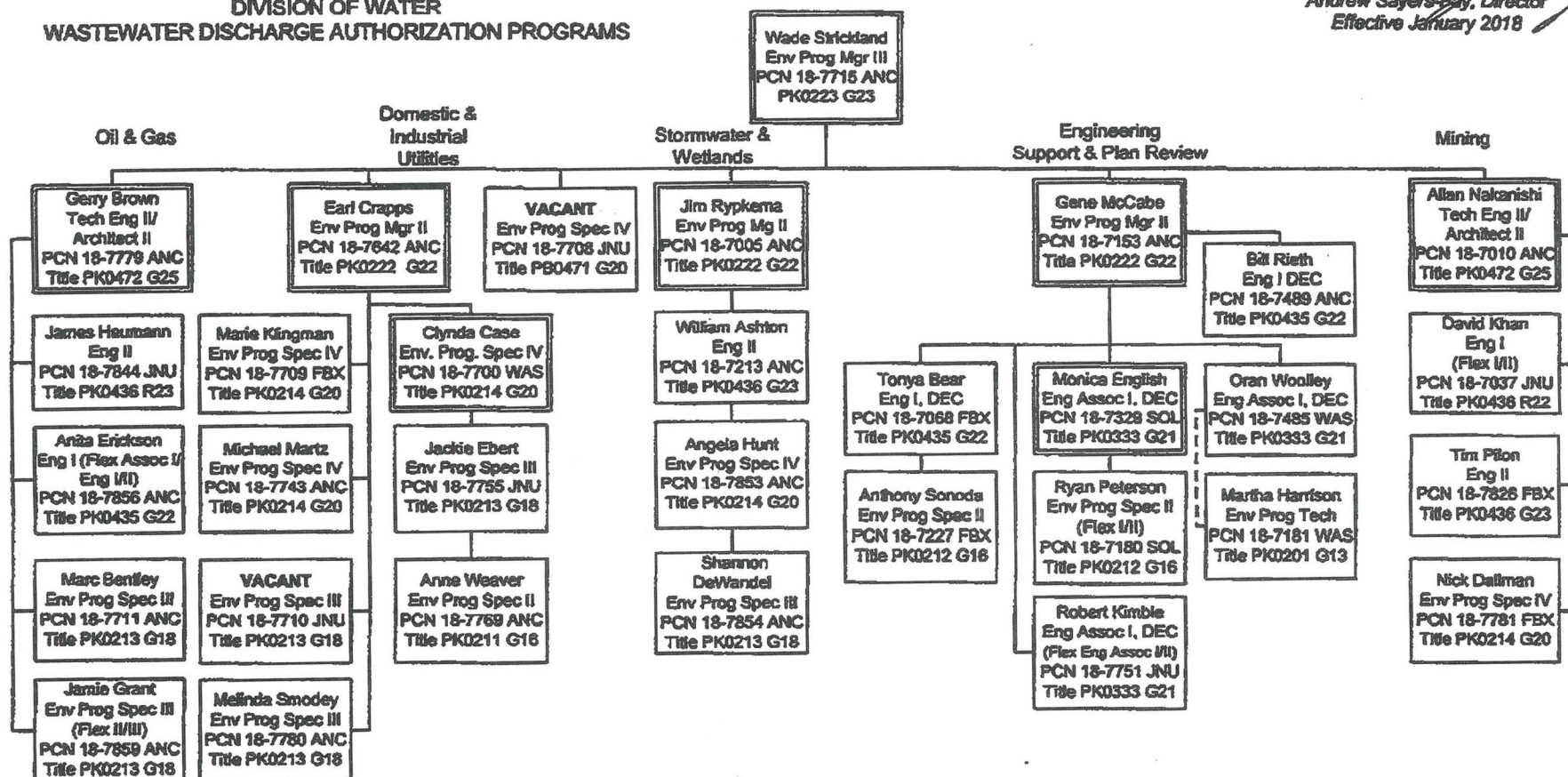
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Effective January 2018



Legend:
Oval Dashed = College Interns/Short Term Non Perm

STATE OF ALASKA
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DIVISION OF WATER
WASTEWATER DISCHARGE AUTHORIZATION PROGRAMS

Submitted By *Andrew Sayers-Fay*
Andrew Sayers-Fay, Director
Effective January 2018



Legend:

Dash Dot Dash = Split funded positions with EH/WATER

STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
COMPLIANCE PROGRAM

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Andrew Sayers-Fay, Director
Effective January 2018

