

Water Programs Quality Management Plan

Alaska Department of Environmental Conservation
Division of Water
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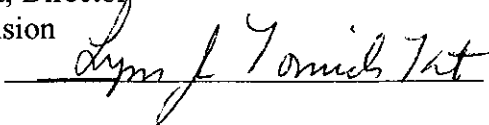
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Quality Management Identification and Approval Form

Approval for Implementation:

Title: Water Programs Quality Management Plan, State of Alaska Department of Environmental Conservation, Division Water, Water Programs.
(This Water Program Quality Management Plan (WPQMP) is hereby recommended for approval and commits the Water Programs to follow the elements described within.)

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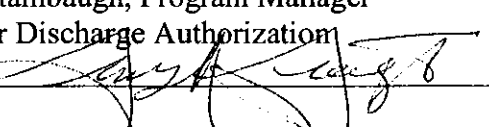
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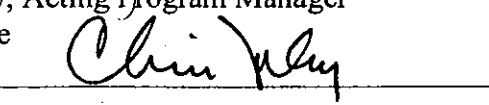
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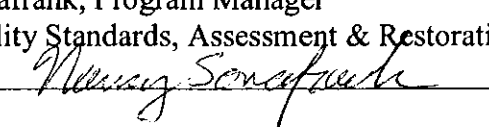
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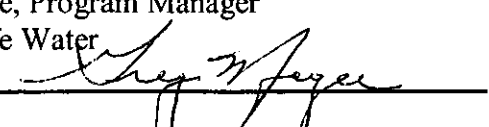
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Introduction

This Water Program Quality Management Plan (WPQMP) contains an outline of the systematic approach to quality assurance adopted in the Water Programs, Water Division, Alaska Department of Environmental Conservation (ADEC). The Water Program 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 Program staff will consistently 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 Water Programs will continue to phase in any requirements outlined in this WPQMP which do not currently exist, such as Water Program Procedures and Guidance documents, generic Quality Assurance Project Plans (QAPP) and Standard Operating Procedures (SOPs).

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, March 2001 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 Water Programs Quality Management Plan (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 by EPA. The purpose of this WPQMP is to establish Division-wide consistency in the application of quality assurance and quality control practices.

1.0 Management and Organization

1.1 Quality Assurance Policy

The Director of the Division Water is committed to ensuring that all environmental data generated by or on behalf of the Water Programs 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, are scientifically valid, are of known precision and accuracy, of acceptable completeness, representativeness, and comparability and where appropriate, legally defensible. Implementation of this WPQMP will allow ADEC Water Program Managers

in the Water Division, to make decisions based on verifiable environmental data with the assurance that environmental technology has successfully performed its intended role.

The Alaska Department of Environmental Conservation (ADEC) is strongly committed to aggressive quality assurance and quality control practices. This commitment compliments the EPA emphasis given to a comprehensive and coordinated Quality Assurance (QA) Program. The ADEC Water Program is developing and integrating Quality Assurance practices into data collection and measurement activities within its purview. These Quality Assurance and Quality Control practices are designed to generate and process data of known and appropriate quality in a cost-effective manner.

The Water Program strives to implement its Quality Assurance Policy, which includes the following:

- All water programs generating, using, or requiring the collection of environmental data will follow the requirements outlined in this Water Program Quality Management Plan (WPQMP).
- 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.
- Acceptable and effective Quality Assurance Project Plans (QAPPs) and when appropriate Standard Operating Procedures (SOPs) will be developed and implemented. The Water Program has adopted 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.
- All environmental data generated will be of known quality. 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.
- Project-specific QAPP documents will be submitted to the designated Water Quality Assurance Officer (WQA Officer) for approval prior to any new environmental data collection activity. Technical and administrative authority for all QA/QC matters is the Water Quality Assurance Officer. The WQA Officer reports to the Water Programs Manager in matters of quality assurance and quality control (Appendix 12.1.1: Organization Chart). The designated WQA Officer will be the focal point for interaction between EPA's Regional QA/QC Program and the ADEC Water Program.
- 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. These audits may be conducted internally or by an outside party.

- Management will define personnel and training requirements. Adequate resources to support the Water Program 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 Program Quality System through the Cooperative Agreement process.
- Management will provide and support QA training. This 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. Some of the training needed to support the Water Program Quality System will come from EPA.

1.2 Organization Chart

The Division of Water has four Water Programs that are involved in data collection or management: *Water Quality Standards, Assessment and Restoration, Cruise Ship, Wastewater Discharge Authorization, and Compliance* (Appendix 12.1.1: Organization Chart). Projects undertaken or administered in these programs, which generate, use or require the collection of environmental data, must have approved Quality Assurance Project Plans (QAPPs). The Water Division has adopted the QAPP requirements in *EPA Requirements for Quality Assurance Project Plans, EPA QA/R5*. These requirements resulted from a national consensus on how to develop and implement Quality Assurance Project Plans, (ANSI/ASQC E4), and are being followed at the federal, state and local level.

Projects that require approved QAPPs in *Water Quality Standards, Assessment and Restoration* include routine and special water monitoring projects led by ADEC staff or its subcontractors. An example is the Environmental Monitoring and Assessment Program (EMAP).

Monitoring projects in *Non-Point Source Water Pollution Control* include any monitoring projects that involve data generation or compilation. Possible projects include non-point source grant projects funded by EPA under Section 319 of the Clean Water Act, and TMDL, forestry, stormwater and wetlands projects. ADEC staff may participate in, lead, manage or access these types of monitoring projects.

Projects in the *Wastewater Discharge Authorization Program* include all wastewater discharge permit self-monitoring projects, and ADEC staff inspection monitoring activities. These projects and others are developed, implemented, and/or administered by ADEC Water Program Managers and their staff. Example types of monitoring include direct measurements or data generation, environmental modeling, compilation of data from literature or electronic media, and data supporting the design, construction, and operation of environmental technology.

The Water Quality Assurance Officer (WQA Officer) works with the Water Program Managers and their staff to ensure that each data collection project has an approved QAPP, and that data are collected per the approved QAPP.

1.3 Responsibilities and Authorities for Quality Assurance

ADEC Water Division Directors

Name: Lynn Kent, Director
Water Division

Phone: (907) 465-5135

Name: Vacant, Deputy Director
Water Division

Phone:

Responsibilities: Provides overall water policy definition, leadership and oversight for the Division's Quality System and serves as the overall authority for directing activities in accordance with Department policies and regulations; particularly 18 AAC 70 Alaska Water Quality Standards (as amended through May 27, 1999); and 18 AAC 72 Wastewater Disposal (as amended through January 17, 2002).

ADEC Water Programs Managers

Name: Vacant, Programs Manager
Water Quality

Phone:

Name: Bill Griffith, Programs Manager
Facilities

Phone: (907) 269-7601

Responsibilities: Provides policy definition, leadership and oversight for the Water Programs Quality System and serves as the overall authority for directing its activities in accordance with Department regulations and policies. Responsibilities, with respect to quality, include serving as the final authority for resolving quality-related issues, ensuring that the proper training is provided and that resources are available to support the quality approach, and ensuring that the Water Programs Quality Management Plan (WPQMP) is in place and functioning.

ADEC Water Quality Program Managers

Name: Sharmon Stambaugh Phone: (907) 269-7565
Program Manager
Wastewater Discharge Authorization

Name: Chris Foley Phone: (907) 465-5257
Acting Program Manager
Compliance

Name: Nancy Sonafrank Phone: (907) 451-2726
Program Manager
Water Quality Standards, Assessment and Restoration

Name: Vacant Phone:
Program Manager
Cruise Ship

Name: Greg Magee Phone: (907) 269-7613
Program Manager
Village Safe Water

Name: Michelle Bonnet Phone: (907) 465-5158
Program Manager
Water Information Management

Responsibilities: These Program Managers have the primary responsibility for facilitating the development of project -specific Quality Assurance Project Plans (QAPPs) and conducting data review, inspections and audits of these monitoring projects, within their respective programs.

These sections are:

- Wastewater Discharge Authorization(Program Development, Domestic Wastewater, Industrial Wastewater)
- Compliance
- Water Quality Standards, Assessment and Restoration (Assessment and Reporting, Water Quality Standards, Monitoring, Non-point source and Quality Assurance)
- Cruise Ships
- Village Safe Water
- Water Information Management

ADEC Water Quality Assurance Officer (WQAO)

Name: James Gendron Phone: (907) 465-5305

Responsibilities: Provides Water Program-wide focus on quality management. Ensures that management and staff members recognize their respective QA responsibilities, reporting mechanisms, and methods of dispute resolution. Ensures that staff is knowledgeable about current quality policy, requirements, and guidance. Establishes quality policy in coordination with management. Serves as quality program liaison between the Water Program and the EPA regional office. Maintains resource file of quality-related documents. Coordinates updating the Water Quality Management Plan. Provides EPA with QA mid-year and end-of-year reports as per the Performance Partnership Agreement (PPA).

The WQA Officer approves project-specific QAPPs, reviews and validates/verifies data and audits at least 5% of projects to ensure compliance with approved QAPPs. The WQAO performs system assessments of the Water Program or parts of the Water Program to determine the progress being made to become a Quality System, and reports these findings to the Water Programs Manager.

Water Quality Programs Project Managers and Staff

Wastewater Discharge Authorization

Compliance

Water Quality Standards, Assessment and Restoration

Cruise Ships

Facilities Programs Project Managers and Staff

Village Safe Water

Water Information Management Project Managers and Staff

Responsibilities: During the planning of grant, permit or other monitoring projects, these individuals are responsible for establishing and implementing project objectives and data quality indicators appropriate for the project purpose and regulations involved. Throughout the implementation and

assessment of monitoring projects, these individuals are responsible for ensuring that the quality of the information generated meets the requirements in the approved QAPPs.

Specifically, these individuals are responsible for the following:

- Primary responsibility for facilitating the development, renewal and implementation of Quality Assurance Project Plans (QAPPs) according to EPA QA/R-5 requirements, 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, if acceptable, final QAPP, along with the ADEC Water Quality Assurance Officer (WQAO).
- Review data as they become available, and provide technical assistance, as necessary, to ensure compliance with approved QAPP,
- Working with the Statewide Database staff, assure that applicable data become part of the ADEC statewide STORET database and it's replacement in an acceptable manner,
- With the assistance and guidance of the WQAO, assesses and audit projects to ensure compliance with approved QAPPs.

2.0 Quality System Description and Implementation

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

The foundation of this Quality System is management's commitment to quality as described in this WPQMP. The ADEC Water Program Quality Policy reflects management's philosophy, and stands as a guiding principle for all environmental data collection activities. It states that all personnel have responsibility for quality, and with management support, 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 Quality Policy can be implemented.

2.1 Quality Assurance Project Plans (QAPPs)

Water Program Managers and their staffs (Project Managers and other Water Program staff) are responsible for facilitating implementation of project-specific QAPPs in the field and in the laboratory.

Project Managers in the four Water Programs are the lead staff in the development and implementation of Water Program monitoring projects, in the development and administration of grants, and in the development and implementation of wastewater discharge permits. As such, these Project Managers are the lead staff ensuring that each site-specific project Quality Assurance Project Plan follows the EPA QA/R-5 requirements adopted by the Water Program.

The Water Quality Assurance Officer is available to provide training and technical assistance to Project Managers, other Water Program staff, grant and permit recipients, consultants, etc., during all phases of the QAPP, 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. Once a final draft QAPP is available, both the WQAO and the Project Manager review the document, and if acceptable, both sign the approval page, along with the grantee or permittee project manager and project quality assurance officer. The WQAO will provide comments within 10 working days of receipt of the draft QAPP, if possible. By signing, all parties agree that the QAPP will be followed during project implementation.

ADEC Water Program Project Managers, whether for ADEC water monitoring projects, grants, or permits, are the first points of contact as data are delivered to the Water Program. Whenever problems occur with monitoring protocols or elements of the approved QAPP, Project Managers discuss and resolve these problems in coordination with the WQAO when needed. Major modification of an approved QAPP requires that all signers approve/sign the modification. 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 Distribution List.

It is the goal of the Water Program to make data verification and validation a major component of each Quality Assurance Project Plan. Data review, verification and validation will be the responsibility of the ADEC permittees, grant recipients, consultants and contractors, etc. Water Program Project Managers and the WQAO will review and validate data, and audit projects with approved QAPPs as needed to ensure that these 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 audit at least 5% of Water Program projects with approved QAPPs. The WQAO and the Water Project Manager, if possible, will accompany the grantee and/or permittee project managers and/or their quality assurance officers during monitoring events and/or lab analyses. These audits will ensure that the monitoring is being carried out in agreement with the QAPP. It is recommended that these audits

include data review, verification and validation. Any deviations from the approved QAPPs must be dealt with in a timely manner, and recorded as appropriate by ADEC staff and the grantee or permittee.

2.2 Dispute Resolution

For those situations in which technical issues regarding Quality Assurance (such as the applicability of the Quality System requirements, the application of quality assurance and quality control procedures, assessments and corrective action) are in dispute, 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, final resolution is made by the Water Programs Manager.

2.3 Types of Environmental Data Generated

Quality management controls are required wherever data generation or data collection occur. To ensure data quality, the Water Program requires oversight of its own water monitoring projects, and of grant and permit monitoring projects. Coordination is required within ADEC between the WQAO and Water Program Project Managers who are responsible for project-specific QAPPs.

Types of environmental monitoring data include:

- Monitoring data collected by Citizens' Environmental Monitoring Groups under Section 319 (CWA) and other grants.
- Research data collected by non-profit environmental groups and universities under Section 319 and other grants.
- Baseline data collected by prospective permittees, and monitoring data collected by permittees as required by Wastewater Discharge Permits.
- Data collected by Water Program staff as baseline data, inspection, compliance or complaint response data.
- Data collected by ADEC or its contractors to answer environmental questions to assist ADEC make sound policy decisions, change regulations, etc.

Water Program staff is trained to perform baseline monitoring activities, make facility inspections and respond to water quality complaints. A generic Quality Assurance Project Plan, called the *Generic Quality Assurance Project Plan for Water Program Staff Sampling and Analysis Activities*, dated May 16, 2003, was developed to cover these monitoring activities. This generic QAPP includes or references Standard Operating Procedures based on the requirements of the Alaska Water Quality Standard regulations; particularly 18 AAC 70.020. The table at the end of the generic QAPP, *Table 1: Generic QAPP Data Quality Objectives Summary*, lists the approved methods for water quality analyses, the Method Detection Limit, the Minimum Reporting Level, the Accuracy, Precision, and Completeness required, the sample preservation, volume and

holding time required for the usual water quality parameters of concern. Other parameter requirements can be found in 40 CFR 136.3. A site-specific QAPP checklist, called the *Water Program QAPP Sampling Plan Checklist*, is attached to the generic QAPP and is used for individual monitoring events covered by the generic QAPP. (This document and other guidance documents and generic QAPPs can be found on the ADEC webpage. Only the most recent documents are posted. The web address is:

<http://www.dec.state.ak.us/water/wqapp/>

2.4 Technical Functions

– Environmental Monitoring, Sampling and Measurements

To ensure a Quality System, appropriately qualified and trained personnel must perform all sampling and monitoring activities. These activities are conducted by ADEC grantees, permittees, subcontractors, and others, or by ADEC staff who perform baseline, inspection, compliance and complaint-response monitoring. Technical functions may include sampling, testing, shipping/transporting, evaluating, validation and verification of data.

Project QAPP implementation can include the following:

Quality Assurance Project Plans (QAPPs) - These may either be project-specific or generic QAPPs. Project-specific QAPPs are developed by the grantee, permittee, contractor, Water Program Project Manager or Water Program staff with technical assistance from the Water Quality Assurance Officer, if necessary. QAPP are signed by the Project Manager, the Project Quality Assurance Officer, the ADEC Project Manager and Water Quality Assurance Officer.

The Water Program develops generic QAPPs to cover routine monitoring activities such as domestic wastewater discharges, inspections of permitted facilities, and monitoring for baseline, compliance or complaint response. Generic QAPPs will have an associated fill-in-the-blank short site-specific QAPP form for each specific monitoring event.

Sampling Equipment -- Field kits and lab equipment (Equipment will be kept 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, field notes can be individual event sheets. Log books and field 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 data sheet. 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 site-specific QAPP checklist. Each contracted laboratory has its specific Standard Operating Procedures (SOPs) documents. When a contracted laboratory is used for analyses, its Quality Management Plan (QMP) will be referenced in the project-specific QAPPs. The WQA Officer keeps these QMPs on file.

The ADEC Project Managers ensure that data quality indicators are clearly stated in the QAPP regarding the method detection levels required to meet the project-specific objectives. The WQA Officer ensures that the most current analytical procedures are available for use, and that outdated and/or revised procedures are removed from use. Laboratories will submit Quality Control sheets to the ADEC Project Manager in addition to analytical data results. When data quality objectives are not met, laboratories will provide ADEC with information about these anomalies, as well as a discussion regarding QA/QC corrective actions taken.

Data Quality Requirements and Sample Analytical Strategies --

The type, quality and number of data measurements which 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 accuracy required by the QAPP. The selection of the laboratory analytical test methods and appropriate detection and reporting levels are the responsibility of the Water Program Project Managers, with assistance when necessary from the WQA Officer. The methods selected must be those approved in the Alaska Water Quality Standard regulations, 18 AAC 70, unless otherwise noted in the QAPP or QAPP site-specific Checklist, and must be based on the purpose for the sample(s) as stated in the QAPP.

Data Quality Indicators --

These can include blanks, standard reference materials, QC check samples, replicates, spikes, and alternative methods. QAPPs will describe the precision, accuracy, completeness, representativeness, and comparability values (ranges) required for each sampling parameter.

Analytical Results –

The Water Program Project Managers, with assistance when necessary from the WQA Officer, are responsible for ensuring that analytical results are consistent with each other, and that they meet the project objectives specified in the QAPP. The Project Manager communicates data requirements to those collecting the data and is responsible for ensuring that data results are received in a manner consistent with the Water Program Statewide Database.

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 information sheets along with data 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 along with data results. 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.

2.5 Technical Support

Technical 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.

2.6. Operational Policies, Procedures, Guidance and Tools

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

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

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

2.7 Water Program Quality Assurance Guidance Documents

The ADEC Water Program began its formal Quality Assurance Program in July 1999. Since that date, the designated WQA Officer has worked with Water Program staff and grantees, permittees, and others to develop project-specific and generic QAPPs which follow EPA requirements QA/R-5. The WQA Officer has developed several QA guidance documents for ADEC staff, its consultants, and grantees and permittees. Two such guidance documents are: *Elements of a Good Quality Assurance Project Plan for ADEC Environmental Monitoring Projects*, September 6, 2000, and the *ADEC Water Program Quality Assurance Project Plan Review Checklist*, February 2000.

ADEC develops generic QAPPs for such projects as municipal wastewater treatment facilities, and for ADEC staff water quality monitoring projects such as environmental baseline monitoring, inspection monitoring, complaint response and compliance monitoring. To date these include:

- *Generic Quality Assurance Project Plan for Water Program Staff Sampling and Analysis Activities*, May 16, 2003
- *Any Town, Inc. Wastewater Treatment Facility Quality Assurance Project Plan*, December, 2002
- *Elements of a Good QAPP*, November, 2001
- *QA Project Plan Review Checklist*, November, 2001.
- *Generic Quality Assurance/Quality Control Plan for Sampling and Analysis of Treated Sewage and Graywater from Commercial Passenger Vessels*, January 15,, 2004.

These Quality Assurance guidance documents for use by ADEC staff are found in the ADEC webpage as described on Page 14 of this document.

The WPQMP, guidance documents for developing QAPPs, and generic QAPPs are kept on this page. New documents are added as developed and these principal tools are reviewed and updated annually to address changes in the Quality System. The WQA Officer, in coordination with the Water Program Managers, is responsible for this annual review.

The ADEC Water Program participates in the development of generic QAPPs and QMPs for citizen environmental groups and grantees. Traditionally, these parties meet annually at the Alaska Forum on the Environment Conference to discuss best sampling and analyses methods for monitoring, and modify existing sampling and analyses procedures, as necessary. The ADEC Water Program's intent is to ensure that appropriate QAPP and QMP controls are in place, and in practice.

The ADEC Water Program provides technical assistance to tribal groups in developing generic and project-specific QAPPs and QMPs. Data from all water quality monitoring projects will become part of the STORET database (See below for STORET discussion).

3.0 Personnel Qualifications and Training

All Water Program 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 quality assurance and quality control 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.

3.1 Training Policy

It is the Water Program policy 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 Program 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. When a vacancy is to be filled, criteria are established for selecting a qualified individual to fill the vacancy.

Education level, training, work experience, oral presentations, publications, membership in professional organizations, etc. are documented and maintained in personnel files.

Quality Assurance and Quality Control Training for Water Program Managers and staff will be developed by the WQA Officer in coordination with the Water Program Managers. QA training will be documented and records will be kept on file by the WQA Officer.

3.2 Training Processes and Documentation

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

Training courses offered to Water Program 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, Non-Point Source Pollution Control, Enforcement, Computer Technology, Safety, and Supervision. Water Program staff attend EPA's Water Quality Standards Academy, Permit Writers Workshop and Whole Effluent Toxicity (WET) training. The teachers chosen to present training courses come from government agencies, private industry, and universities.

The mechanism for identifying Water Program training needs, for providing training opportunities, and for 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. Additionally, 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 WQA Officer receives annual training in Quality Assurance and Quality Control Processes. The WQA Officer is responsible for setting up a QA/QC training program for Water Program staff. In addition to formal training conferences and workshops, the WQA Officer 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.

4.0 Procurement of Items and Services

4.1 Non-Professional Items and Services – Review & 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 Information and Administrative Services (DIAS) provides hardware and software computer services to ADEC Divisions. The Division Water, Water Programs, receives desktop and server support from DIAS' Network Services group, and software development and database integration support from DIAS' Integrated Databases group. Purchase of computer hardware and software must have the signed approval of DIAS.

4.2 Professional Services and Contracts

Whenever a Professional Services Contract is required, the Department follows the requirements of the ADEC *Professional Service Contract Manual, September 2000*.

In addition, in June 2006 three commercial analytical laboratories were included in the term contractor program. This approach provides streamlined processing for requesting and obtaining analytical 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 samples for metals analysis to the EHL.

The *Non-Point Source Water Pollution Control* Program, 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 Non-Point Source Water Pollution Control Program staff administer this grant program in Alaska. The Alaska Clean Water Actions (ACWA) coordinates the water quality priorities of the state agencies: ADEC, ADF&G, ADNRR, and ADCED. The ACWA grant process is described in the ADEC, Division of Water, ACWA webpage:

http://www.state.ak.us/dec/water/acwa/acwa_index.htm. Online application is possible.

The Non-Point Source Pollution Control program 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 acquire approval from the QA officer and the DEC project officer, prior to beginning data acquisition.

Within the *Wastewater Discharge Authorization* Program, fixed flat fee requirements are found in 18 AAC 72 Wastewater Discharge Regulations. These regulations also include a provision for negotiated annual fees for large projects. ADEC has Reimbursable Service Agreements (RSAs) with the Alaska Department of Natural Resources for large projects. Processes and procedures are governed by state regulation and policy.

It is the intent of the Division Water to use permanent computer database files for water quality monitoring, grant and permit data results to the extent possible

5.0 Documentation and Records Management

Hard copy files (paper files) of *Water Quality Assessment and Monitoring* projects, *Non-Point Source Water Pollution Control* grant and contracted projects, and *Wastewater Discharge Permit* projects, and other projects, are kept in the office where the Project Manager works. Grant files contain the complete record of the grant administration. Wastewater discharge permit files include the process of permit development, and may include monitoring and enforcement information.

It is the intent of the Division Water to use permanent computer database files for water quality monitoring, grant and permit data results to the extent possible. The Wastewater Discharge Authorization Program uses the Discharge Results & Online Permitting system (DROPS) to track permitted facilities, discharge monitoring report and other required

reports, and compliance and enforcement data. This system is designed for upload of data to EPA's ICIS-NPDES system via the Exchange node, upon Alaska's assumption of the National Pollutant Discharge Elimination System (NPDES) Program.

Originally, all water quality data generated or collected was to be entered into the Alaska STORET database, after quality assurance protocols were followed. Projects that require data collection develop Quality Assurance Project Plans (QAPPs) in accordance with EPA Quality Assurance Project Plan Requirements, EPA QA/R-5. Each QAPP defined protocols related to data collection and reporting. The QAPP served as the vehicle to populate STORET with specific project-related minimum data requirements, including QA/QC collection and analysis information required of STORET for establishing a project.

Project data was entered into local STORET as individual records or batch uploaded. An alternative means of loading project data was agency staff batch loading data at periodic intervals, although the preferred method was for data generators to upload data to local STORET. Either way, data received quality assurance/quality control review and validation in temporary files prior to uploading to local STORET. Upon approval by the Water Program QA Officer, data was moved to permanent storage in the agency's local STORET system. At periodic intervals, data was transferred to the national STORET system managed by EPA.

With the EPA announcing the end of support for the current version of local STORET and massive schema changes, we are assessing the feasibility of continuing this strategy. Personnel turn over, with its inherent knowledge drain, and the difficulty of using STORET successfully, factor into this decision. We have the options of supporting a local data repository or retrieving our data directly from EPA after that support ends. Tools under development in conjunction with EPA and other states may prove the best solution but will not be ready till mid federal fiscal year 08 or later. Currently we are pursuing a multi-pronged approach by working on STORET while assisting in new tool development and looking at other options to find the best way to utilize our budget dollars to maximum effect.

6.0 Computer Hardware and Software

6.1 General

ADEC maintains an information technology staff within the Division of Information and Administrative Services. These staff install and maintain computers with updated Microsoft Office software. Additionally these staff are responsible for the development and maintenance of the Alaska Central Data Exchange Implementation in cooperation with three other Pacific Northwest states including Oregon, Washington, and Idaho. Through an EPA Challenge Grant these states have developed a common water quality data exchange template for use through the Internet to pass STORET data to the national

STORET. More information about the Pacific Northwest Water Quality Data Exchange (PNW WQDE) is available at:
http://www.ecy.wa.gov/pnwdx/pnwdx_main.htm.

6.2 Quality Assurance - Data Management

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. Increased capability to communicate has resulted in quantum increases in data management requirements. Water Program Project Managers encourage grantees, contractors and permittees to use error-checking data entry programs that incorporate STORET compatible formats and protocols.

To ensure that water quality data are made available to ADEC in STORET-compatible formats, Project Managers provide technical assistance to their permittees, grantees, contractors and consultants.

There are several ways to upload data to STORET. The most direct, however cumbersome, requires the installation of STORET 2.0 and a copy of Personal Oracle 8.1.7 on a Windows 98SE, Windows NT, Windows 2000, or Windows XP operating system. The Department will provide a copy of Personal Oracle 8.1.7 that can be used for the duration of this project.

The project must be established within the STORET database. The first step to establishing a project is activation. In order to activate a personal copy of STORET, a unique national STORET ID must be requested through the ADEC Water Quality Assessment and Monitoring Program. Once the personal copy of STORET is activated, data entry can commence about the organization and the project.

There are tools available to help load data into STORET, however, these tools still require that the organization and project are established within STORET.

The main data entry tool used for pre-existing data is the STORET Interface Module (SIM). Through the use of SIM, station and results are directly loaded into STORET. A minimum set of data elements must be provided to STORET in addition to only valid STORET values. SIM will perform data validation, so if the dataset has errors or missing information, this will be identified and corrected.

6.3 Mixing Zone Modeling Software

In addition to software programs such as Excel which are used to build data spreadsheets, mixing zone models are used in the *Wastewater Discharge Permit 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 Permit* staff review the model assumptions and the validity of the data used to build the model. If these assumptions and data meet Department criteria, the model is approved and used in the permitting process.

7.0 Planning & Implementation of Work Processes

7.1 Water Program Planning

Annual planning for the Water Program occurs prior to the end of the fiscal year when managers and staff submit their annual work plans and projected budgets. Periodically during the year, Water Program Managers meet to discuss goals, objectives and work strategies. The *Non-Point Source Water Pollution Control* program holds one to two meetings annually. Database training sessions also provide the opportunity for database planning.

All Water Program staff participate in statewide monthly teleconferences and the Non-Point Source and Wastewater Discharge Programs each have semi-monthly teleconferences.

The Water Quality Assurance Officer works with the Water Program Managers to set goals and objectives for Quality Assurance and Quality Control. Mid-year and end-of-year PPA reports to EPA include QA/QC progress reports and future goals.

7.2 Specific Project Planning - QAPP Processes

Within each of the three Water Program sections, intensive, systematic planning occurs at the development phase of each project-specific QAPP. All projects which generate, use or compile monitoring data, require an approved QAPP. Project Managers for environmental monitoring projects, grant projects and wastewater projects use the guidance documents and generic QAPP documents developed by the WQA Officer. The WQA Officer uses the *ADEC Water Program Quality Assurance Project Plan Review Checklist, Rev.1.0, November, 2001* to ensure that all appropriate QAPP elements are included in each project-specific QAPP document.

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, if applicable:

- 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, management system reviews, technical systems reviews, technical systems audits, performance evaluations, and audits of data quality.

Each QAPP fully describes the project's Quality Assurance and Quality Control assessments, and how Quality Assurance and Quality Control problems are to be addressed. QAPP documents must provide the protocol that the ADEC staff, grantee, permittee or contractor must follow should Quality Assurance or Quality Control problems arise. The QAPP specifies the required notification procedures for quality problems that arise. If necessary, the WQA Officer is brought into the discussions to resolve problems. Should the approved QAPP require major modification, all QAPP signers must sign the modified document.

8.0 Assessment and Corrective Response

8.1 Water Program – Review, Assessment and Corrective Action

The Water Program will undergo periodic external audits to ensure achievement of the Quality Assurance objectives expressed in the Water Program Quality Management Plan. Contractors or EPA, which is mandated to audit state agency Quality Systems once every 3 years, may perform these audits. External audits will determine the adequacy of, and adherence to, the Water Program QMP policies within all the Water Program sections and their project-specific QAPPs.

Following an external audit, the Water Programs Manager, the Managers of the four Water Programs and the WQA Officer 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 Program Manager decides what recommendations are to be included in updated Water Quality Management Plans, as well as the implementation schedule.

The Water Quality Assurance Officer provides a level of independent management oversight by periodically conducting Water Program management systems reviews. These reviews provide an independent qualitative assessment to determine whether the

Water Program QMP Quality System, policies, procedures, and practices adequately address generating the type and quality of data required. Management supports the WQA Officer in the efforts to assess situations, identify the problems/issues and recommend appropriate solutions. Assessment results are described in QA reports to EPA. The Water Program Manager decides which recommendations are to be included and implemented in the subsequent Water Program QMP update.

8.2 Quality Assurance Project Plans

– Review, Assessment and Corrective Action

All Water Program 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. Program Managers and the Water Quality Assurance Officer must be kept informed of all Water Program and project-specific problems, needs and corrective actions.

To ensure that the policies of the WPQMP are implemented, the WQA Officer, along with the Project Manager, is responsible for the review and approval of project-specific Quality Assurance Project Plans. These will be reviewed for adequacy and modified as necessary. The WQA Officer will strive to meet a 10 working day turnaround time in the review of draft QAPPs.

The WQA Officer and Project Manager will assess specific projects in two ways: site inspections and data review. The WQA Officer 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, ADEC Project Managers will spot check all data for projects within their realm of responsibility. The WQA Officer will review and verify project-specific data for at least 5% of projects which have ADEC-approved QAPPs.

On-site inspections and data verification will ensure that the requirements of the approved QAPP are being met; and will uncover any quality assurance or quality control problems. The ADEC Project Manager and the WQA Officer will work with the ADEC staff, permittee, grantee or contractor to resolve all quality assurance and quality control problems in a timely manner. No new grants or permits will be issued to the party involved until these Quality Assurance and/or Quality Control problems have been resolved.

Assessments are based on the following:

Quality Assurance Project Plan - Before the project begins, the WQA Officer 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, permittee, 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, permittee or contractor. It summarizes the project and presents observations, monitoring and measurement results. The Project Manager is responsible for ensuring that the data and observations are internally consistent, and that they meet QAPP project objectives.

Project File - This file is the repository of documents related to the project, including both field and laboratory records. It is the responsibility of the Project Manager to ensure that relevant documents are in the file, and that the file is secure, in accordance with the Department policies and procedures.

Statewide Data Base - Project Managers and the WQA Officer work directly with the Statewide Data Base Section Chief to ensure that all data which enters the statewide data base meets the QA requirements described in the WPQMP.

9.0 Quality Improvement

Quality Improvement can occur if each Water Program 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 WQA Officer will be consulted or informed of action taken to improve quality.

The process of constant assessment and review at the project-specific QAPP level by the WQA Officer and Project Managers begins the Quality Improvement process. At the project level, the ADEC-Project Manager coordinates with ADEC staff, grantees, permittees and contractors to ensure the QAPP has all the required elements and is signed by all parties. This document sets the standard that the project must meet. During projects, ADEC Project Managers interact with ADEC staff, grantees, permittees and contractors to ensure that quality assurance and quality control problems are identified and solved. This happens as data are reviewed, validated and verified, and during field and laboratory inspections and audits.

The WQA Officer reports on QA/QC progress in the mid-year and end-of-year PPA reports. These reports include the products and processes of the previous fiscal year, the QA progress made, identifies problems and recommends improvements in the Water Program Quality System.

EPA recommends that the Water Program Quality Management Plan be reviewed and updated at least every 3 years. ADEC will update its WPQMP at least that often and more often if possible, until such time as the Water Program is completely re-established. The WQA Officer will annually review and assess the Water Program 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.

10.0 References

Alaska Wastewater Disposal regulation, 18 AAC 72, Amended January 17, 2002

Alaska Water Quality Standards regulations, 18 AAC 70, Amended December 28, 2006.

ANSI/ASQC E4, Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, 1994

EPA Requirements for Quality Management Plans, EPA QA/R-2, March 2001

EPA Performance Partnership Grant FY00 CDF66.605

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

11.0 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 staff Project Managers are the lead staff in the development and implementation of Water Program monitoring projects, in the development and administration of grants, and in the development and implementation of wastewater discharge permits. As such, these 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 Program.

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 quality assurance and quality control activities.

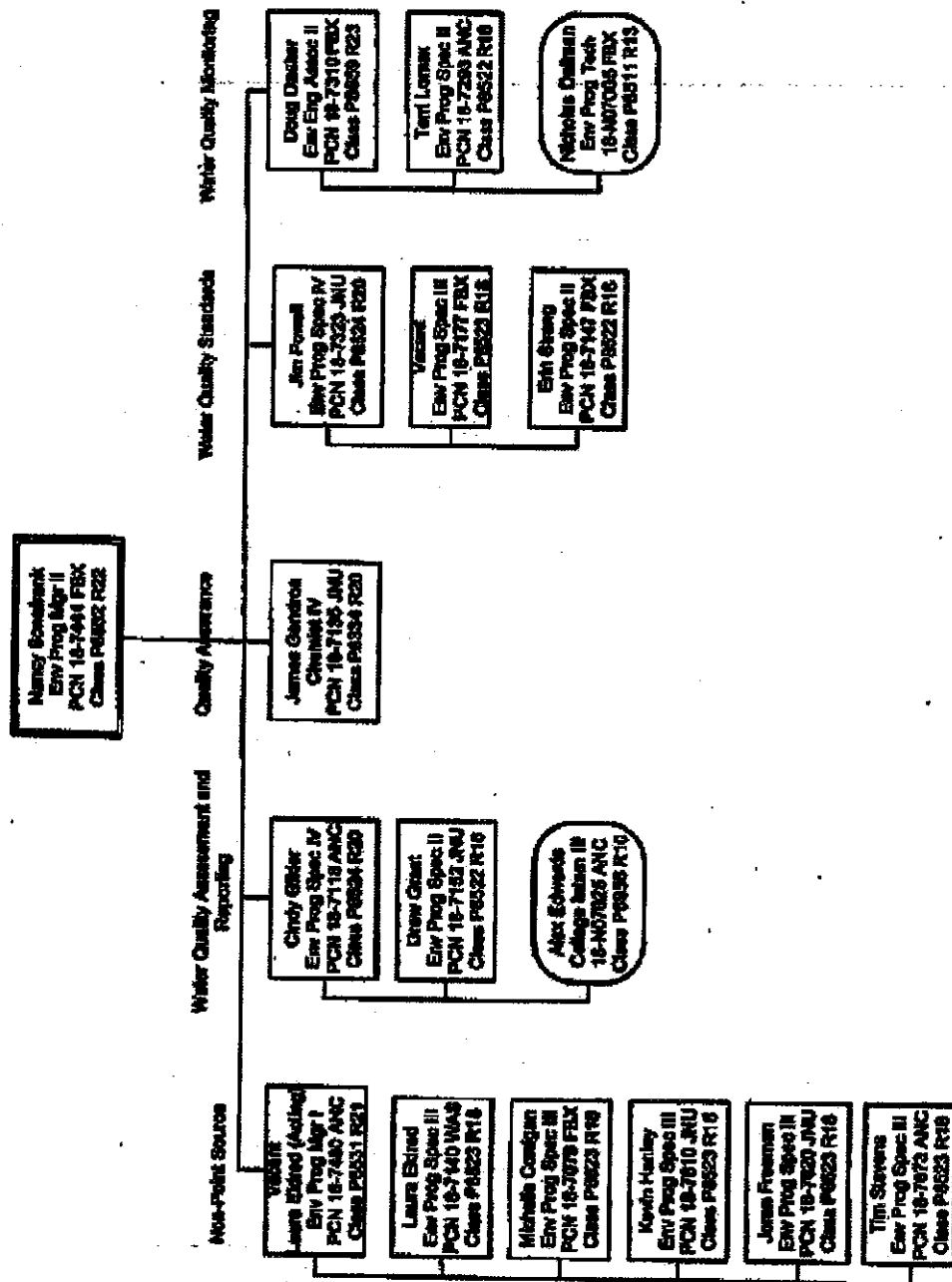
SQL –Standard Query Language– a database software program developed by Microsoft..

STORET (short for 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.

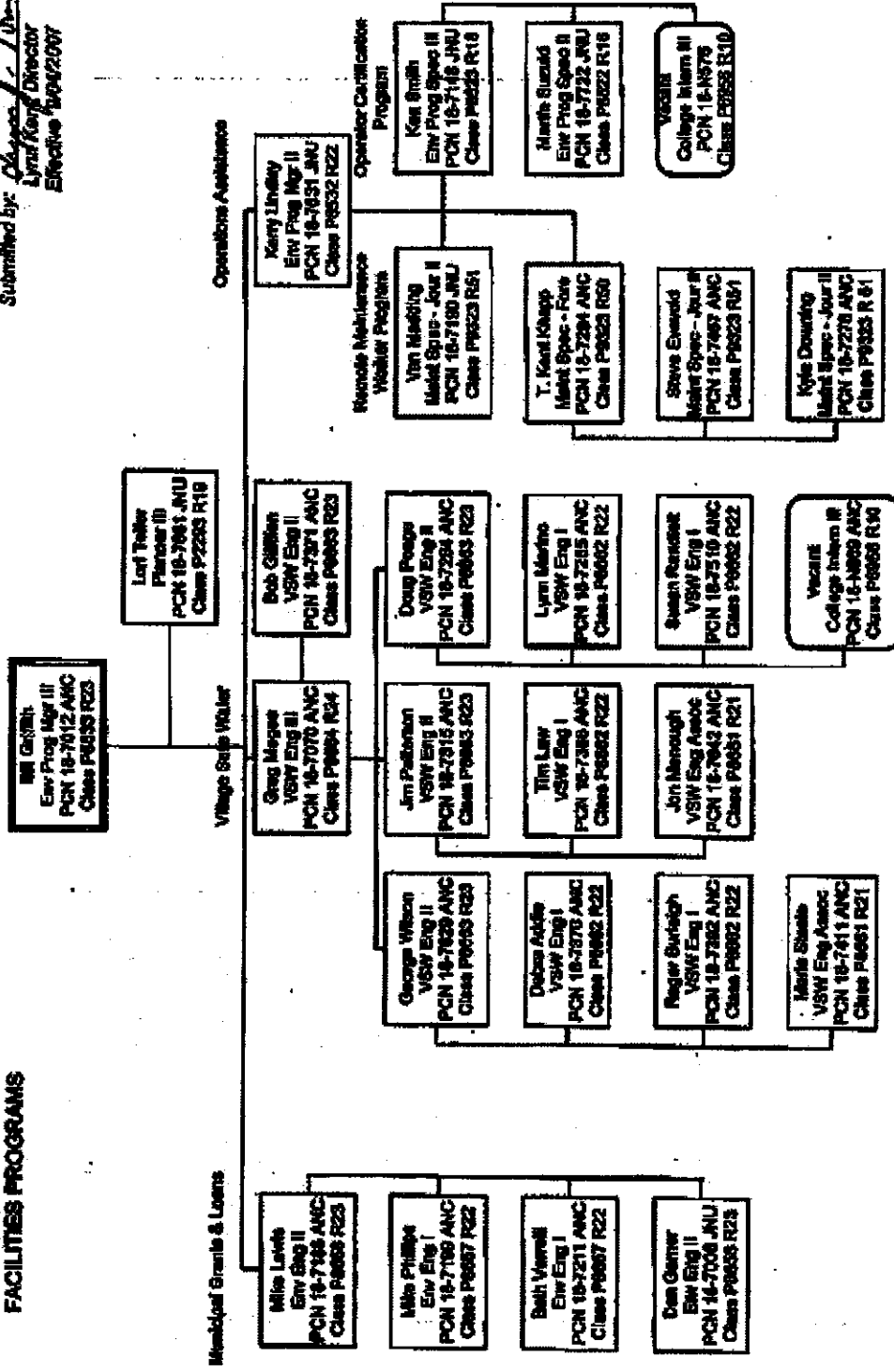
Technical Assessment Audit – The process used to measure the conformance of a measurement system to the criteria assigned.

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

Submitted by: *[Signature]*
Lynn Kent, Director
Effective 9/04/2007

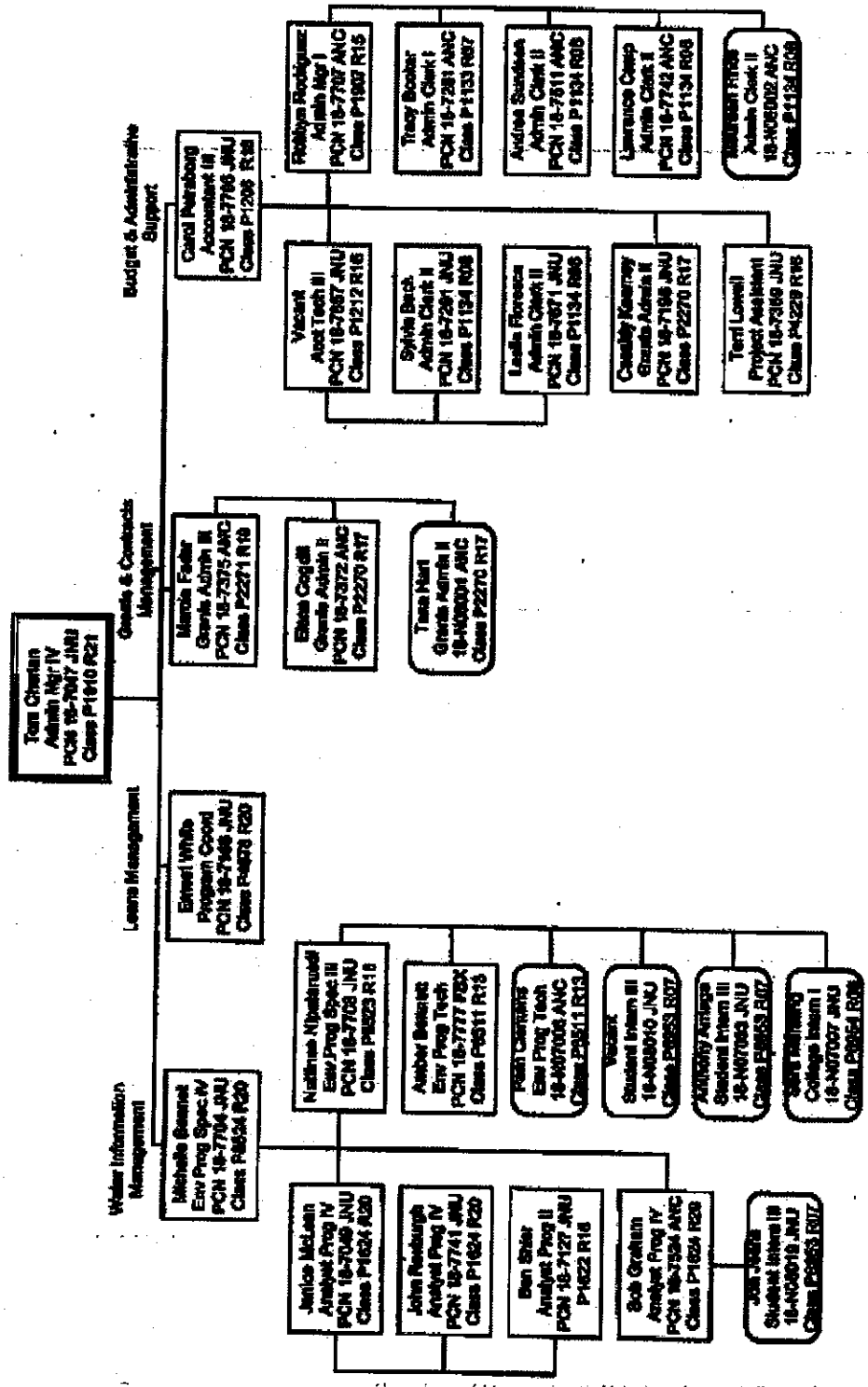


Lynn Kang
Lynn Kang, Director
Effective 1/24/2007



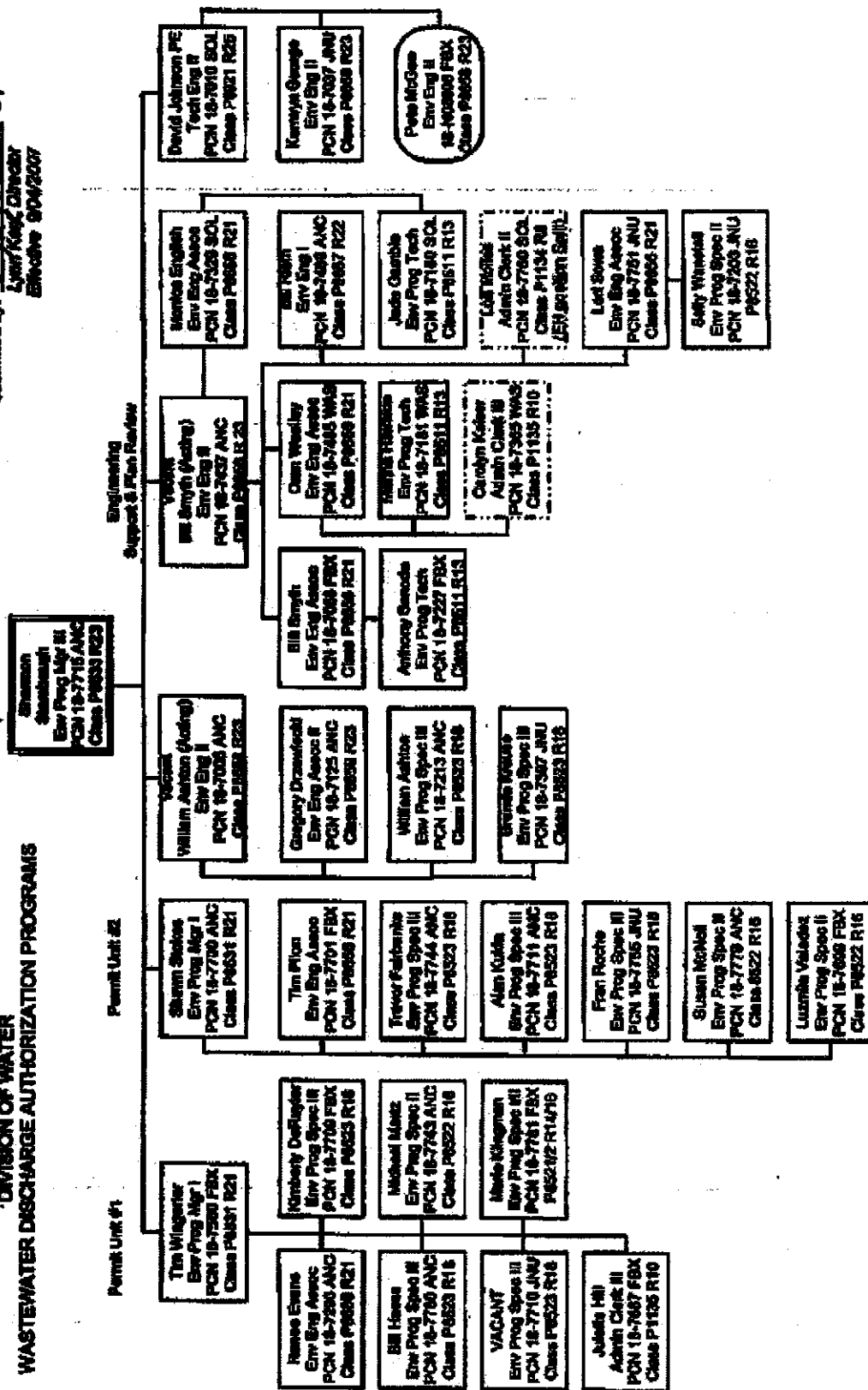
STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
ADMINISTRATION and INFORMATION PROGRAMS

Submitted by: *Steph J. Tait*
Lynn Rife, Director
Effective 8/24/2007



STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WASTEWATER DISCHARGE AUTHORIZATION PROGRAMS

Submitted by: *[Signature]*
Lynn Reed, Director
Effective 9/04/2007



STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
COMPLIANCE PROGRAM

Submitted by: *[Signature]*
Lynn Kaul/Director
Effective 8/24/2007

VACANT
Chris Foley
(Active)
Env Prog Spec II
PCN 18-7788 ANC
Class P8524 R20

Projected Additions
(from program as vacancies occur)

Juneau

Chris Foley
Env Prog Spec IV
PCN 18-7816 JNU
Class P8524 R20

Kyle McNamey
Env Prog Spec IV
PCN 18-7186 JNU
Class P8524 R20

Anchorage

Matthew Pelly
Env Prog Spec II
PCN 18-7783 ANC
Class P8522 R16

Monor Carpenter
Env Prog Spec II
PCN 18-7778 ANC
Class 8522 R16

Richard Kotish SR.
Env Prog Spec II
PCN 18-7784 ANC
P8522 R16

Vacant

VACANT
Env Prog Spec IV
PCN 18-7788 ANC
Class P8524 R20

VACANT
Env Prog Spec III
PCN 18-7789 ANC
Class P8523 R16

VACANT
Env Prog Spec IV
PCN 18-7813 JNU
Class P8524 R20

Non Point Source

NPD23
Implementation &
Program Coordination

NPD23
Implementation &
Program Coordination

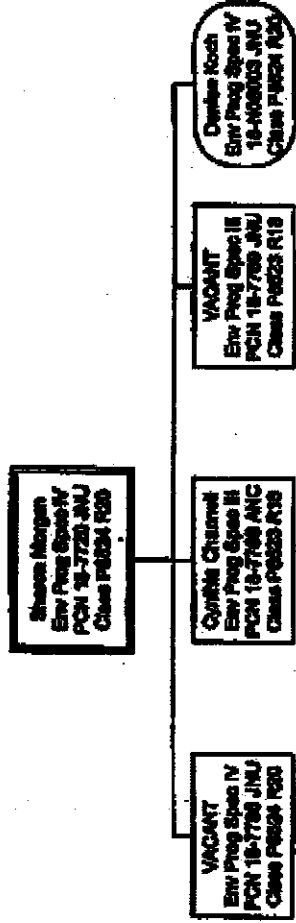
Wastewater
Discharge
Authorization

Wastewater Discharge
Authorization
Stormwater/Inlets

NOTE: - All filled positions report directly to the Program Manager

STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
NPDES PRIMARY

Submitted by: *[Signature]*
Lynn Kelly, Director
Effective 9/04/2007



STATE OF ALASKA
ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
CRUISE SHIP PROGRAM

Submitted by: *[Signature]*
Lynette J. J. J.
Effective 9/04/2007

