



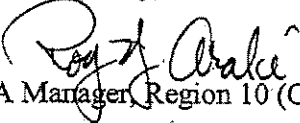
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

September 21, 2006

Reply To
Attn Of: OEA-095

MEMORANDUM

SUBJECT: Approval of Alaska Department of Environmental Conservation (ADEC)
Ambient Air Monitoring Quality Management Plan (QMP)
Revision 1.0, Dated July, 2006

FROM: Roy Araki 
Regional QA Manager, Region 10 (OEA-095)

TO: Marcia Combés, EPA Alaska Operations Director

The excellent response of ADEC Air Quality to EPA's comments on the updating of their QMP for Ambient Air Monitoring is noted. All EPA comments have been addressed and I am pleased to provide my approval to ADEC Air Quality QMP for Ambient Air Monitoring.

Please extend my personal congratulations to ADEC Air Quality Director Tom Chapple, Air QA Officer Richard Heffern, and other Department Staff who worked so hard to write and revise the QMP. The EPA Region 10 Quality Staff look forward to supporting Mr. Heffern in his efforts to provide ADEC Ambient Air Monitoring Program with a viable and effective Quality System.

A copy of the ADEC Air Quality QMP for Ambient Air Monitoring is provided for your convenience. The original signature page of the QMP will be forwarded directly to ADEC Air QA Officer, Richard Heffern. We have retained a copy in the OEA files.

Please let our R10 Quality Staff know if we can be of additional assistance to ADEC Air Program or if you have any questions regarding the above comments. My number is 206-553-6395 and my email is araki.roy@epa.gov.

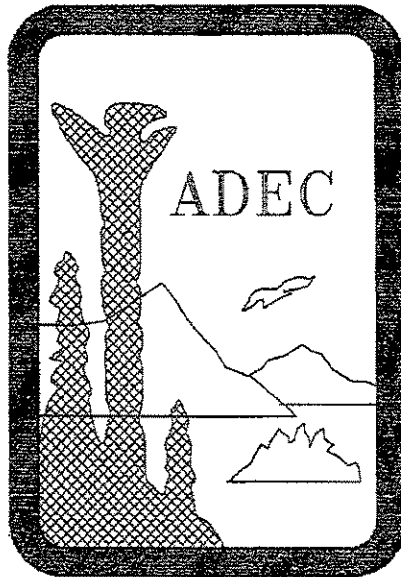
Enclosure

cc: Greg Kellog, AOO Deputy Director (w/o enclosure)
William Riley, OEA Director (w/o enclosure)
Chris Hall, OEA-TSU (w/o enclosure)
Richard Heffern, Air QA Officer, ADEC Air Quality M&QAP (with signature page only)

Quality Management Plan

For

Ambient Air Monitoring



Alaska Department of Environmental Conservation
Division of Air Quality
410 Willoughby Avenue Suite 303
P.O. Box 111800
Juneau, Alaska 99801-1800

Date: Revision 1.0
August 22, 2006

Quality Management Identification and Approval Form

Approval for Implementation:

Title: Air Quality Management Plan, State of Alaska Department of Environmental Conservation (ADEC), Division of Air Quality, Air Monitoring & Quality Assurance Program.

(This Air Quality Management Plan is hereby recommended for approval and commits the Air Monitoring & Quality Assurance Program to follow the elements described within.)

Dan Easton, Deputy Commissioner
ADEC

Signature: Dan Easton

Phone: (907) 465-5065

Email: dan_easton@dec.state.ak.us

Date: 09.14.06

Tom Chapple, Director
Division of Air Quality

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Date: September 7, 2006

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Date: Sept 11, 2006

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Introduction

The Air Quality Management Plan (Air QMP) for Ambient Air Quality contains an outline of the systematic approach to quality assurance adopted in the Air Monitoring and Quality Assurance Program (AM&QA) of the Division of Air Quality of Alaska's Department of Environmental Conservation (DEC). The Air Quality System is a structured and documented management system. This system describes the policies, objectives, principles, organization authority, responsibilities, accountability and implementation plan for ensuring quality in its work process, products (items) and services. 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/quality/qa_docs.html. All organizations conducting environmental programs funded by EPA are required to establish, implement and document a Quality System (EPA 5360.1 A2 (May 2002), EPA 5360 Manual A1 (May 2000) and 40 CFR 30.54). This Quality Management Plan (QMP) is implemented statewide and assures 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 Air QMP is to establish consistency in Ambient Air Monitoring practices within the Division of Air Quality in the application of quality assurance and quality control practices.

DEC developed this Air QMP to document how AM&QA Program staff will consistently plan, implement and assess the effectiveness of quality assurance and control operations in ambient air quality monitoring. It describes the quality system's 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 Air QMP are significant. The AM&QA Program will phase in any requirements outlined in this Air QMP which do not currently exist, such as AM&QA Procedures and Guidance documents, generic Quality Assurance Project Plans (QAPPs) and Standard Operating Procedures (SOPs).

1.0 Management and Organization

1.1 Quality Assurance Policy

The Division of Air Quality Director ensures all environmental data generated by or on behalf of the AM&QA Program are suitable for their intended use. QMP systems and practices provide a framework to assure that the quality of all environmental data generated and processed are appropriate for their intended use, valid, precise, accurate, complete, representative, comparable, and where appropriate, legally defensible. Implementation of this plan will allow Air Program Managers to make decisions based on verifiable environmental data.

The Department of Environmental Conservation is committed to quality assurance practices. This commitment compliments EPA's emphasis on comprehensive and coordinated Quality Assurance (QA) Programs. The AM&QA Program continues to revise, develop and integrate quality assurance (QA) practices into its data collection and measurement activities. These QA and quality control (QC) practices are designed to cost effectively generate and process data of defined quality.

QA policies cover:

- All environmental data generated will be of known quality. This quality standard will meet the needs of the intended data use as stated in the individual Quality Assurance Project Plan (QAPP). This Air QMP is the "umbrella" document under which project-specific QAPPs will be developed.
- All Alaskan air programs generating, using, or requiring the collection of ambient air quality and meteorological data will follow the requirements outlined in this Air Quality Management Plan.
- Management and staff will establish the intended use(s) of ambient air quality and meteorological data and thus the level of quality necessary to support the intended use prior to data collection efforts.
- All new ambient air quality and meteorological data generated by the Air Quality Division will be of known and documented quality using a systematic planning process.
- Acceptable and effective QAPPs and subsequent Standard Operating Procedures (SOPs) will be developed and implemented. The AM&QA 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).
- Project-specific QAPP documents will be submitted to the project QA officer for approval prior to new ambient air quality and meteorological data collection activities. Technical and administrative authority for all QA/QC resides with the Air QA Officer. In matters of quality assurance and quality control, the Air QA Officer reports directly to the Division Director (Appendix 12.1.1: DEC, Division of Air Quality Organization Chart). The Division of Air Quality Air QA Officer is the contact between EPA's Regional QA/QC Program and DEC's Monitoring & Quality Assurance Program.
- Data quality information will be documented and available.

- Regular audits will be conducted on program sections and projects involving data collection to ensure compliance with QA/QC requirements. Deficiencies highlighted in these assessments will be addressed in a timely manner. Audits may be conducted internally or by an outside party.
- Management defines personnel and training requirements. Adequate resources to support the AM&QA Program Quality System will be provided to accomplish objectives for all ambient air quality and meteorological data collection programs, projects, and tasks. As DEC's partner in Air Quality, EPA supplies some resources to support the AM&QA Quality Management System.
- Management supports QA training. Staff training may be achieved through internal or external sources for all levels to ensure that QA requirements and responsibilities are understood and implemented at all stages of projects. EPA will provide some of the training needed to support the AM&QA Quality System.

1.2 Organization Chart

The Division of Air Quality has three Programs: *Air Permits*, *Air Non-Point and Mobile Sources* and *Air Monitoring and Quality Assurance* (Appendix 12.1.1: Organization Chart). Ambient air and meteorological monitoring projects may be undertaken or administered by these programs. Projects which generate, use, or collect this data, must have approved Quality Assurance Project Plans (QAPPs).

The Division of Air Quality 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.

The Air Monitoring and Quality Assurance Program (AM&QA) serves as the monitoring services group within the Division of Air Quality. The AM&QA Program ensures ambient air and meteorological monitoring projects supported by the Department provide data of known quality. Projects requiring approved ambient air or meteorological monitoring QAPPs include routine and special monitoring projects led by DEC staff or its contractors; Prevention of Significant Deterioration (PSD) ambient air and/or meteorological monitoring projects required by DEC in support of a construction permit; and PSD quality ambient air and/or meteorological monitoring projects required by DEC in support of an operating permit condition.

The Air QA Officer works with the Air Program Managers and their staffs to ensure each project has an approved QAPP, and that it is followed to meet project objectives.

1.3 Responsibilities and Authorities for Quality Assurance

DEC Division of Air Quality, Director

Name: Tom Chapple Phone: (907) 269-7634
or successor

Responsibilities: Provides overall policy direction, leadership and oversight for the QMP and serves as the overall authority for directing activities in accordance with Department policies and regulations; particularly 18 AAC 50.010 Alaska Ambient Air Quality Standards (AAAQS).

DEC Monitoring & Quality Assurance Program Manager

Name: Gerald Guay Phone: (907) 269-3070
or successor

Responsibilities: Provides policy direction, leadership and oversight for the AM&QA Program's Quality System and serves as the overall authority for directing its activities in accordance with Department regulations and policies. During the planning of grant, permit or other monitoring projects, the AM&QA program manager is 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, the AM&QA program manager is responsible for ensuring that the quality of the information generated meets the requirements in the approved QAPPs. The program manager serves as quality program liaison between the DEC AM&QA program and the EPA regional office.

Specifically, the AM&QA program manager is responsible for the following:

- Primary responsibility for facilitating the development, renewal and implementation of QAPPs according to EPA QA/R-5 requirements, by providing technical assistance and training to grant recipients and DEC air staff.
- Review, approve and sign, if acceptable, final draft QAPP, along with the DEC Air QA Officer.
- Review data as they become available, and provide technical assistance, as necessary, to assure compliance with approved QAPP,
- Working with the statewide ambient air monitoring staff, to assure that applicable ambient air monitoring data become part of the DEC ambient air and meteorological monitoring

database as well as the EPA Air Quality System (AQS) database in an acceptable manner, and

- With the assistance and guidance of the Air QA Officer, audit projects to assure compliance with approved QAPPs.

DEC Air Non-Point and Mobile Sources Program Manager

Name: Alice Edwards Phone: (907) 465-5109
or successor

Responsibilities: Provides policy direction, leadership and oversight for the Non-Point and Mobile Source Program and serves as the overall authority for directing its program activities in accordance with Department regulations and policies. With respect to quality, responsibilities include actively engaging and relying on the expertise of the AQA Officer to ensure that the QMP is implemented and functioning properly with respect to any ambient air quality and/or meteorological monitoring done by the program or contracted by the program.

DEC Air Permits Program Manager

Name: John Kuterbach Phone: (907) 465-5103
or successor

Responsibilities: Provides policy direction, leadership and oversight for the Air Permits Program and serves as the overall authority for directing its activities in accordance with Department regulations and policies. With respect to quality, responsibilities include actively engaging and relying on the expertise of the AQA Officer to ensure that the QMP is implemented and functioning properly with respect to ambient air quality and/or meteorological monitoring required by the program via pre-construction or post-construction permit requirements.

DEC Air Quality Assurance Officer (AQA Officer)

Name: Richard Heffern Phone: (907) 465-5111
or successor

Responsibilities: Provides AM&QA Program-wide focus on quality management with respect to ambient air and meteorological monitoring. The Air QA Officer reports directly to the Division of Air Quality Director on QA related issues. Assures that management and staff members recognize their respective QA responsibilities, reporting mechanisms, and methods of dispute resolution. Assures that

program managers, section managers and staff are knowledgeable about current quality policy, requirements, and guidance. Establishes quality policy in coordination with management. Maintains resource file of quality-related documents. Coordinates updating the QMP for the Division. Assists in the development of new ambient air and meteorological monitoring methods and recommends their approval.

The Air QA officer is responsible for assuring the reliability of the state-wide ambient air monitoring network through:

- Routine performance and systems audits of Alaska's ambient air quality monitoring network,
- Approval of project-specific QAPPs,
- Data reviews (including data validation/verification) to ensure compliance with approved QAPPs.

For projects not directly under the purview of the AM&QA program, the Air QA Officer provides recommendations to Air Permits and Air Non-Point and Mobile Sources Program/Project Managers regarding the development and acceptability of QAPPs, and the collected data quality governed by approved QAPPs.

DEC Division of Air Quality Project Managers and Staff

Air Permits Program

Air Monitoring & Quality Assurance Program

Air Non-Point Mobile Source Program

Responsibilities:

For grants, permits or projects that include ambient air and/or meteorological monitoring, QA project managers and staff are responsible to ensure a QAPP is developed that meets EPA QA/R-5/G5 criteria. QA project managers may be lead staff assigned by the respective program manager and knowledgeable about the project's specific monitoring goals and objectives. The AMQ&A program is available to provide assistance and guidance for the development of acceptable QAPPs. AM&QA QA staff reviews, and if acceptable, recommends approval of all QAPPs. Throughout the implementation and assessment of monitoring projects, QA project managers are responsible for ensuring that the quality of the information generated meets the requirements in the approved QAPPs.

Specifically, these individuals are responsible for assistance with the following:

- Primary responsibility for facilitating the development, renewal and implementation of QAPPs according to EPA QA/R-5 Air requirements, by providing technical

assistance and training to permittees, grant recipients, consultants, federal, state and local government representatives, tribes and ADEC air monitoring staff.

- Review, approve and sign, if acceptable, final QAPP, along with the AQA officer.
- Review data as they become available, and provide technical assistance, as necessary, to ensure compliance with approved QAPP.
- Working with AM&QA Air Quality System (AQS) database staff, assure that applicable data become part of the EPA AQS database in an acceptable manner.
- With the assistance and guidance of the AQA officer, assesses and audit projects to ensure compliance with approved QAPPs.

2.0 Quality System Description and Implementation

The Quality System provides a framework for planning, implementing, documenting and assessing work conducted within the Monitoring & Quality Assurance Program. Through this system, the Monitoring & Quality Assurance Program should generate the type and quality of information required to fulfill its duties under state law and regulations.

Management's commitment to quality is the foundation of this Quality System. The DEC AM&QA Quality Policy reflects management's philosophy. The Quality Policy states that all personnel have responsibility for quality, and will strive to build quality into work processes, products and services related to ambient air and meteorological data collection. Management provides support, 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)

Air Program Managers and their staffs are responsible for implementing project-specific Ambient Air and Meteorological Monitoring QAPPs in the field and laboratory.

Project Managers lead the development and implementation of ambient air quality and meteorological monitoring projects in their respective programs. As such, these managers are in consultation with the Air QA Officer, responsible to ensure that each QAPP follows EPA QA/R-5 requirements adopted by the AM&QA Program. The QA section of AM&QA provides the essential QA direction, review and recommends approval of all acceptable QAPPs. For monitoring projects outside AM&QA direct authority, ultimate project compliance with EPA R5/G5 criteria lies with the program manager in the AQ Division who initiates or authorizes the field monitoring project.

The Air QA Officer is available to provide training and technical assistance to Project Managers and DEC Air staff during all phases of the QAPP. The Air QA Officer provides technical assistance in development of the QAPP, such as project objectives, data quality indicators, appropriate sampling and analytical methods, etc. Once a final draft QAPP is available, the Air QA Officer and respective project manager(s) review the document. If acceptable, the Air QA officer and project manager(s) sign the approval page, along with any grantee or permittee project manager and project quality assurance officer. By signing, all parties agree the QAPP will be followed during the life of the project.

Project managers are the principal points of contact as data are delivered to the Air Programs. Whenever problems occur with monitoring protocols or elements of the approved QAPP, Project Managers will discuss and resolve these problems in coordination with the Air QA Officer as needed. Major modifications to an approved QAPP requires that all signatories reapprove/resign the modified QAPP.

It is the goal of the Air Monitoring and Quality Assurance Program to make data verification and validation a major component of each Quality Assurance Project Plan. Data review, verification and validation are the responsibility of the party gathering the data.

DEC project managers and the Air QA Officer will review ongoing monitoring projects with approved QAPPs as needed to ensure these projects are following QAPP requirements. DEC Air Program Project Managers will routinely provide the Air QA Officer with copies of QA data and audit summary reports.

Alaska's air monitoring network includes State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitoring (SPM) networks. Each monitoring quarter, the Air QA Officer (or their designee) will audit at least 25% of the SLAMS/SPM network monitors. Each year each SLAMS/SPM network monitor will be audited. Every 6 years EPA will alternate a Technical Systems Audit (TSA) of Alaska's SLAMS/SPM air monitoring network with DEC such that, every 3 years a TSA of Alaska's SLAMS/SPM air monitoring network will be performed.

For Prevention of Significant Deterioration (PSD) ambient air and/or meteorological monitoring projects, the permit applicant, its consultant(s) and contractor(s), will be responsible for arranging:

- Quarterly independent performance audits of each ambient air monitor in the network.
- Semi annual independent performance audits of each meteorological sensor and parameter within the monitoring network.
- An independent TSA of the PSD quality monitoring network within the first monitoring quarter (preferably within the first 30 days of operation) to ensure the approved QAPP is being followed. Any deviations from the approved QAPPs must be dealt with in a timely manner.

2.2 Dispute Resolution

When 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 occur at the lowest management level practicable. All parties should resolve disputes through discussion and negotiation. If unsuccessful, final resolution will rest with the Director of Air Quality.

2.3 Types of Environmental Data Generated

Quality management controls are required wherever data generation or collection occur. To assure the collection of quality data, the AM&QA program requires oversight of DEC and permit related ambient air and meteorological monitoring projects. For effective quality management to occur, coordination must be maintained between the DEC Air QA Officer and project managers responsible for the development and oversight of project-specific QAPPs.

Types of air quality and meteorological monitoring data include:

- Baseline data collected by prospective permittees, and monitoring data required by PSD permits.
- Data collected by DEC monitoring staff as baseline, inspection, compliance or complaint response data.
- Data collected by DEC or its contractors to answer environmental questions to assist DEC in making sound policy decisions.
- Compliance with NAAQS.

The Air Monitoring and Quality Assurance Program staff is trained to perform ambient air quality monitoring activities. The current statewide "*Alaska Quality Assurance Manual for Ambient Air Quality Monitoring, revised August 21, 1996*," is being revised to meet current EPA QAPP requirements. The current *Alaska Quality Assurance Manual for Ambient Air Quality Monitoring* includes or references Standard Operating Procedures (SOP) based on Alaska's Ambient Air Quality Standards (AAAQS); 18 AAC 50.010 and the National Primary and Secondary National Ambient Air Quality Standards (NAAQS); 40 CFR 50. The *Alaska QA Manual for Ambient Air Quality Monitoring*, when revised, will also incorporate the "*Quality Assurance Project Plan for the State of Alaska PM_{2.5} Ambient Air Quality Monitoring Program, December 1998*."

2.4 Technical Functions – Environmental Monitoring, Sampling and Measurements

To ensure a Quality System, qualified and trained personnel must be used to perform all sampling, monitoring and laboratory activities. Technical functions may include sampling, testing, shipping/transporting, evaluating, reviewing, validating and verifying data. These activities are conducted by DEC staff, grantees, permittees, subcontractors and others as prescribed in a Quality Assurance Project Plan (QAPP). QAPPs may either be project-specific or fall under the revised State of Alaska QAPP for State and Local Ambient Air Monitoring Networks. Project-specific QAPPs are developed by the grantee, permittee, or DEC Project Managers with technical assistance from AM&QA staff, if necessary. QAPPs are signed by the Project Manager, Project Quality Assurance Officer, DEC Project Manager, and Air QA Officer.

QAPP implementation can include the following:

Field Monitoring and Laboratory Equipment –

Field monitoring and laboratory equipment will be kept calibrated and in working order. Calibration standards will be kept in-certification and traceable to known standards of accuracy.

Custody Documents –

Examples of custody documents include chain-of-custody forms, receipt for sample forms, and sample tags.

Field Log Books and Field Notes-

Log Books are bound, page-numbered books, whereas field notes can be individual event sheets. Log books and field data sheets contain detailed records of when, where (including site maps),

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.

Maps and Photographs –

A visual and graphical record of sampling site location/s, site exposures, environmental conditions, processes, sample source, etc. is taken by appropriate personnel.

Climatological Charts –

A graphical record of climatic conditions prepared from either existing on-site meteorological data or collected data is prepared by project personnel as required by the QAPP.

Standard Operating Procedures (SOPs) for Sampling, Field Analytical and Laboratory Measurements –

These are procedures used for conducting routine ambient air monitoring activities. SOPs may be incorporated into, or referenced in, the QAPP. AQ Project Managers are responsible for ensuring procedures are understood and followed in the field and laboratory. Deviations from these procedures must be documented.

Note: DEC's Ambient Air Monitoring Program is in the process of revising existing SOPs for field monitoring and laboratory analysis as well as adding new ambient air quality monitoring methods and SOPs to its QAPP. These methods/SOPs follow Federal Reference or Equivalent Methods where applicable.

All monitoring projects, implemented by AQ staff, grantees, or permittees, will follow methods found in AAAQS regulations, 18 AAC 50.010; 40 CFR Part 53 Ambient Air Quality Reference and Equivalent Methods; and 40 CFR Part 58 Ambient Air Quality Surveillance. Exceptions must be specifically addressed and approved in a specific QAPP.

Each contracted field monitoring or laboratory contractor may have their own Standard Operating Procedures (SOPs) document. When using a contracted field monitoring operator or laboratory, their QMP will be referenced in the project-specific QAPP. The Air QA officer keeps these QMPs on file. The field monitoring or lab contractor must provide and maintain up-to-date QMPs and SOPs with DEC's Air QA officer.

SOP document/s will be either referenced or included in project-specific QAPP/s. If referenced, a complete set of SOPs are to be maintained on file with the Air QA officer. It is the responsibility of the respective permittee, DEC grantee and/or field monitoring/lab contractor to provide and maintain up-to-date SOPs. DEC project managers will ensure that data quality indicators required to meet the project-specific objectives are clearly stated in the QAPP. The indicators include detection levels, data completeness, accuracy, precision, etc. The Air QA Officer ensures that the most current field monitoring and laboratory analytical procedures are available for use, and that outdated and/or revised procedures are removed from use.

Data Quality Objectives 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 data completeness and reliability required by the project. AQ project managers will select the analytical test methods and appropriate detection and reporting levels with assistance from the Air QA Officer when necessary. Acceptable methods include: federal reference methods (FRM), federal equivalent methods (FEM) and/or State of Alaska approved ambient air monitoring methods. The selected methods 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 define acceptable criteria for precision, accuracy, completeness, representativeness, and comparability for each sampling parameter.

Analytical Results –

AQ project managers 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. The project manager is responsible for ensuring that data results are received in a manner consistent with EPA's Air Quality System (AQS) database or other data format specified in a project specific QAPP.

Field Monitoring and Laboratory Records –

As field monitoring and laboratory analyses are completed, whichever group is performing the field monitoring or laboratory analyses must review, verify and validate the data. The field monitoring or laboratory supervisor must review and approve the data results before submittal to the AQ project managers. The field monitoring or laboratory group will submit to DEC complete QA/QC information sheets with data results and provide specific information on deviations from data quality objectives. When appropriate, completed chain-of-custody or transmission forms will be provided along with data results. DEC may also require responsible field monitoring or laboratory groups provide the following information: observations and interpretations made during sampling or analyses, records of when and how analyses were performed, and permanent records of raw analytic results.

Tribal Monitoring Support – The Division of Air Quality provides monitoring assistance to Tribal Villages as funding allows in the same fashion as it does to other non-tribal communities in Alaska (e.g., Anchorage, Fairbanks, Juneau). The Department provides direct monitoring assistance to villages receiving air monitoring funding through EPA Region 10 Air Tribal Programs. Technical assistance may include any of the following:

- Development of project specific air monitoring QAPPs,
- Air monitoring equipment operations training,
- Air monitoring station site selections,
- Installation of monitoring sites,
- Instrument maintenance and repairs,
- Instrument calibrations and operations,

- Instrument performance and systems audits,
- Laboratory analysis of air monitoring samples,
- Equipment loans,
- Data analysis.

The Air Quality Division is not responsible for Quality Assurance oversight of tribal monitoring projects where a tribal entity is the Project Manager. This QMP does not govern these tribally led projects.

2.5 Technical Support

Support for technical functions is provided through DEC management. Technical support includes management, health and safety training, document and record management, information retrieval, and computer hardware and software administration. Management provides technical support via several options (term contract, vendor provided safety training, etc.). Computer hardware and software administration is provided by DEC's Division of Information Services (DIAS).

2.6 Operational Policies, Procedures, Guidance and Tools

The Monitoring & Quality Assurance Program Quality System for ambient air quality monitoring, sampling and measurement activities include:

- Air Quality Management Plan (AQMP).
- DEC Air Quality Regulations, particularly 18 AAC 50.010 Alaska Ambient Air Quality Standards (AAAQS).
- DEC Division of Air Quality Policies and Guidance documents.
- EPA and DEC Quality Assurance Guidance Documents.
- M&QA Program Technical Assessment Reviews.
- M&QA Quarterly Audit reports to DEC, Division of Air Quality and to EPA.
- Management System Reviews.
- The Monitoring & Quality Assurance Program Manager's Annual Report and Work Plan to DEC Division of Air Quality management and to EPA.

Quality Assurance and Quality System tools will be stored in the DEC Statewide Allshare drive S:\AQ\M&QA Guidance folder (or successor electronic file system) for AQ staff access. These tools will be reviewed periodically as appropriate to address changes in the Quality System. The Air QA Officer in coordination with the Air Program Managers, is responsible for this review. A copy of these documents is available from the Air QA officer.

2.7 AM&QA Program Quality Assurance Guidance Documents

The DEC monitoring program began its formal QA program in the late 1970s. Since that date, the *Alaska Quality Assurance Manual for Ambient Air Quality Monitoring*, has undergone several revisions. The last revision was August 21, 1996. In December 1998, Alaska added a separate Statewide, *Quality Assurance Project Plan for the State of Alaska PM_{2.5} Ambient Air*

Quality Monitoring Program. The Air QA Officer has worked with DEC project managers, grantees, and permittees to develop project-specific QAPPs which follow EPA requirements. The following QA guidance documents, located in the DEC Statewide Allshare drive S:\AQ\AM&QA QA Guidance folder, are available to anyone conducting ambient air monitoring in Alaska:

- *Ambient Air Monitoring Quality Assurance Project Plan (QAPP) Elements;*
- *Ambient Air Monitoring QAPP Checklist;*
- PSD Quality Ambient Air Quality & Meteorological Monitoring Annual Data Report Format (MAR-05); and
- PSD Quality Ambient Air Monitoring Quarterly Data Summary Format (MAR-05).

3.0 Personnel Qualifications and Training

All personnel involved in data generation, use, and compilation will have adequate education, training, and experience in the area of their technical expertise and in quality assurance to meet their designated responsibilities. All other data collection personnel will possess adequate experience and knowledge to perform all assigned duties.

3.1 Training Policy

The Division of Air Quality provides training for AM&QA management and staff that meets the statutory, regulatory and professional requirements for each position. The Air QA Officer in coordination with the AM&QA Program Manager, will setup Quality Assurance and Quality Control Training for managers and Monitoring & Quality Assurance staff. This training will be documented in the employee's personnel training file.

Each position within the AM&QA Program is evaluated to determine level of education, experience, and training necessary to effectively carry out the duties of the position. When a vacancy is to be filled, established criteria are used to select a qualified replacement. Employees education level, training, work experience, oral presentations, publications, membership in professional organizations, and more are documented and maintained in personnel files.

3.2 Training Processes and Documentation

The AM&QA program uses trained professionals to perform environmental monitoring tasks such as sampling, and field and laboratory measurements.

Training courses available to AM&QA staff include, but are not limited to, Quality Assurance, Quality Control, Ambient Air Quality Standards and Monitoring, Meteorological Monitoring, Computer Modeling, Grant Writing, Computer Technology, Safety, Supervision, Hazardous Materials Training, and more. Some training classes are provided through:

- U.S. EPA's Air Pollution Training Institute (APTI)
- U.S. EPA's Office of Air Quality Planning and Standards (OAQPS)
- U.S. EPA Quality System
- American Society for Quality (ASQ)

- Air & Waste Management Association (AWMA)
- Western States Air Resources Council (WESTAR).

The mechanism for identifying AM&QA Program training needs, for providing training opportunities, and for documenting the training received is as follows:

- Each fiscal year AM&QA staff prepare individual work plans which include travel and training plans, along with estimated budgets.
- The AM&QA Program Manager builds the AM&QA Program annual budget using information from staff.
- Each employee receives periodic performance evaluations where employee qualifications and training needs are discussed.

The Air QA Officer is required to maintain his/her expertise in QA and QC Processes. The Air QA Officer works with the monitoring program manager to set up QA/QC training for AM&QA staff and others in the Division as appropriate and necessary. In addition to formal training conferences and workshops, the Air QA Officer works with Air staff to ensure that all ambient air quality data generated and/or used by Air Division staff meet the requirements of this QMP.

4.0 Procurement of Items and Services

4.1 Non-Professional Items and Services – Review & Approval

Procurement items include general supplies, computer hardware and software, field and laboratory analytical equipment, field and laboratory parts and supplies, calibration standards, and chemical reagents, etc. Stock request forms are available to all staff for procuring these items. These forms require specific information for procurement to occur, such as financial coding item description, recommended vendor, costs, delivery date and signatory approval by the individual granted spending approval authority.

DEC's Division of Information and Administrative Services (DIAS) provides hardware and software computer services to all DEC. 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, DEC uses documents found on the State of Alaska Department of Administration General Services Division web page and on the Department's Division of Administrative Services S drive. All forms and procedures are consistent with the State of Alaska Division of Administrative Services contractual criteria. Table 4.2-1, *DEC Professional Services and Contractual Procedures/Forms*, lists contractual forms and procedural documents used. DEC air staff work within the current departmental procurement processes to obtain professional service. State and local air agencies are required to follow the appropriate state and federal QA guidance when using federal Air Monitoring grants.

Table 4.2-1 DEC Professional Services and Contractual Procedures/Forms

Item #	Agency	Document Title	Document Description
1	SOA	RFP0406.doc	Request for Proposal Form
2	SOA	RFQ.doc	Request for Quotation Form (02-110)
3	SOA	Standard Agreement Form.xls	Standard Agreement Form (02-093)
4	SOA	Standard Agreement Form Amendment.xls	Amendment to Standard Agreement Form (02-112)
5	DEC	DEC Standard Agreement Form Instructions.doc	Instructions for completing Standard Agreement Form
6	SOA	AK BusLicenseProof.doc	Proof of Alaska Business License Form
7	SOA	Appndx A.doc	General Provisions (02-093)
8	SOA	Appndx B1.doc	Indemnity and Insurance (02-093 B-1)
9	SOA	Appndx B2.doc	Indemnity and Insurance (02-093 B-2)
10	SOA	Appndx C.doc	Scope of Work
11	SOA	Appndx D.doc	Compensation
12	SOA	Basis of Selection.xls	
13	SOA	ITB0106.doc	Invitation to Bid Brief Description
14	SOA	ITBMAST1.doc	Invitation to Bid form
15	SOA	B-ITBlog.doc	Invitation to Bid Log
16	SOA	B-Amend.doc	Amendment to Invitation to Bid
17	SOA	ITB4.doc	Standard Terms and Conditions for High Technology Contracts
18	SOA	ITB3.doc	Invitation to Bid Standard Terms & Conditions
19	SOA	WRITAG.doc	Invitation to Bid Written Determinations
20	DEC	Instructions for contracts less than 5000.doc	
21	DEC	PSC Flow Chart \$5000 – \$50000.doc	
22	DEC	PSC flow Chart Less \$5000.doc	
23	DEC	Instructions for PSCAR Review.doc	
24	SOA	Matrix Formal.doc	RFP Process formal Procurement Matrix
25	SOA	Matrix Informal.doc	Small Procurement Matrix
26	EPA	MBE WBE Goals for DEC Fed Grants effective till Sept 30 2006.PDF	
27	DEC	Notice of Award Letter.doc	
28	DEC	Process of a contract1.doc	
29	DEC	RAPDEC.doc	Request for Alternative Procurement
30	SOA	RAP DOA.doc	Request for Alternative Procurement form (02-100)

5.0 Documentation and Records Management

Hard copy files (paper files) of Ambient Air Quality Monitoring projects, and PSD Ambient Air Quality and Meteorological Monitoring projects, are kept in the project manager's office. The Division of Air Quality, Monitoring & Quality Assurance program intends to use permanent electronic files for ambient air quality and meteorological monitoring results.

Validated State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitoring (SPM) ambient air quality monitoring data are reported to the AM&QA AQS database manager. The database manager verifies submitted data and electronically reports quarterly results to EPA's national Air Quality System (AQS) data base.

The Division of Air Quality maintains a hard copy of the Division's Air Records Retention Schedule #183200 in the Anchorage, Juneau and Fairbanks offices. The Division of Air Quality follows this retention schedule. AS: Alaska Statute, Management & Preservation of Public Records, may be found at:
http://www.archives.state.ak.us/pdfs/records_management/schedules/dec/air/183200.pdf

Records management and preservation is defined in AS: Alaska Statute, Management & Preservation of Public Records (http://www.legis.state.ak.us/cgi-bin/folioisa.dll/statx05/query=40!2E21/doc/{t15801}/hit_headings?).

The disposition of state records must be in accordance with 4 AAC 59 and records management policies and procedures. These regulations, policies/procedures, applicable forms, etc may be found at:
http://www.archives.state.ak.us/records_management/records_management.html

6.0 Computer Hardware and Software

6.1 General

DEC maintains an information technology staff within the Division of Information and Administrative Services. The staff installs and maintains computers with updated Microsoft Office software.

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 messaging of raw data. Increased capability to communicate has resulted in quantum increases in data management requirements. Data management becomes problematic in the QA/QC process if the old approach to QA/QC persists; proofreading page by page. This ineffective approach to QA/QC is exacerbated as the amount of data being amassed today increases exponentially. DEC is moving towards improving quality assurance of the data management process to produce reports that contain secure, complete and defensible data sets. This approach requires the elimination of data input errors.

Accurate input of data is the primary key to a defensible data set. The data input screen is the key to accurate and secure data entry. The design of the input screen must be password protected. The data input screen must be intuitive, user friendly, and must be error checked, that is, it must identify unreasonable or illogical entries as they happen.

Data entry accuracy is greatly enhanced by well-conceived data input screens. Instead of spending time finding transcription errors and proof-reading raw data, quality assurance staff can focus on running QA/QC statistics on selected groups of data, such as month-to-month coefficients of variation and variation in data vs. outside variables. This enables staff to routinely report to management on the defensibility of DEC data.

Figure 6.1 and 6.2, AM&QA Data Management Flow Charts provide a visual summary description of the data flow/management process.

Figure 6.1 AM&QA Data Management Flow Chart – State & Local Alaska Air Monitoring

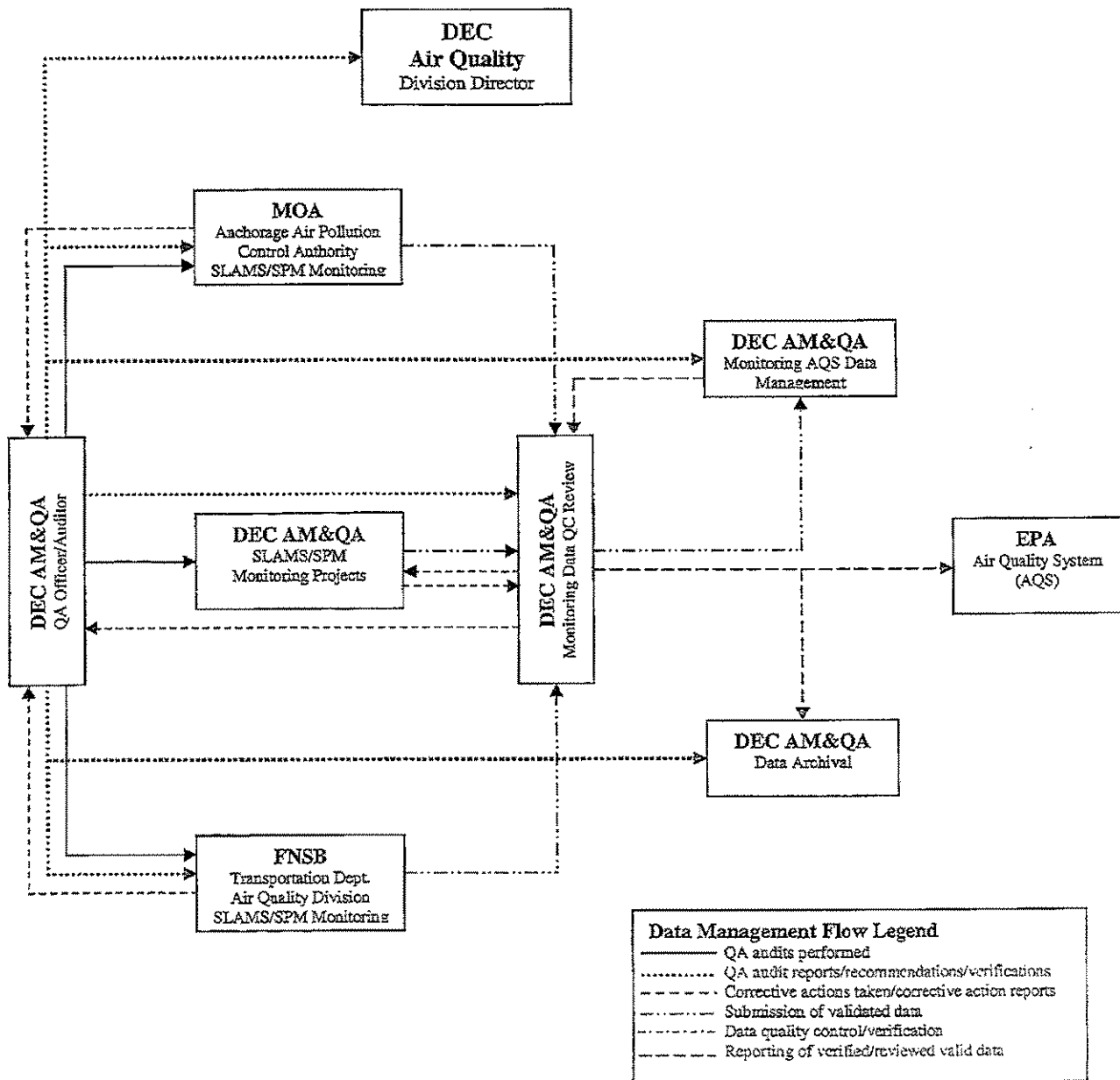
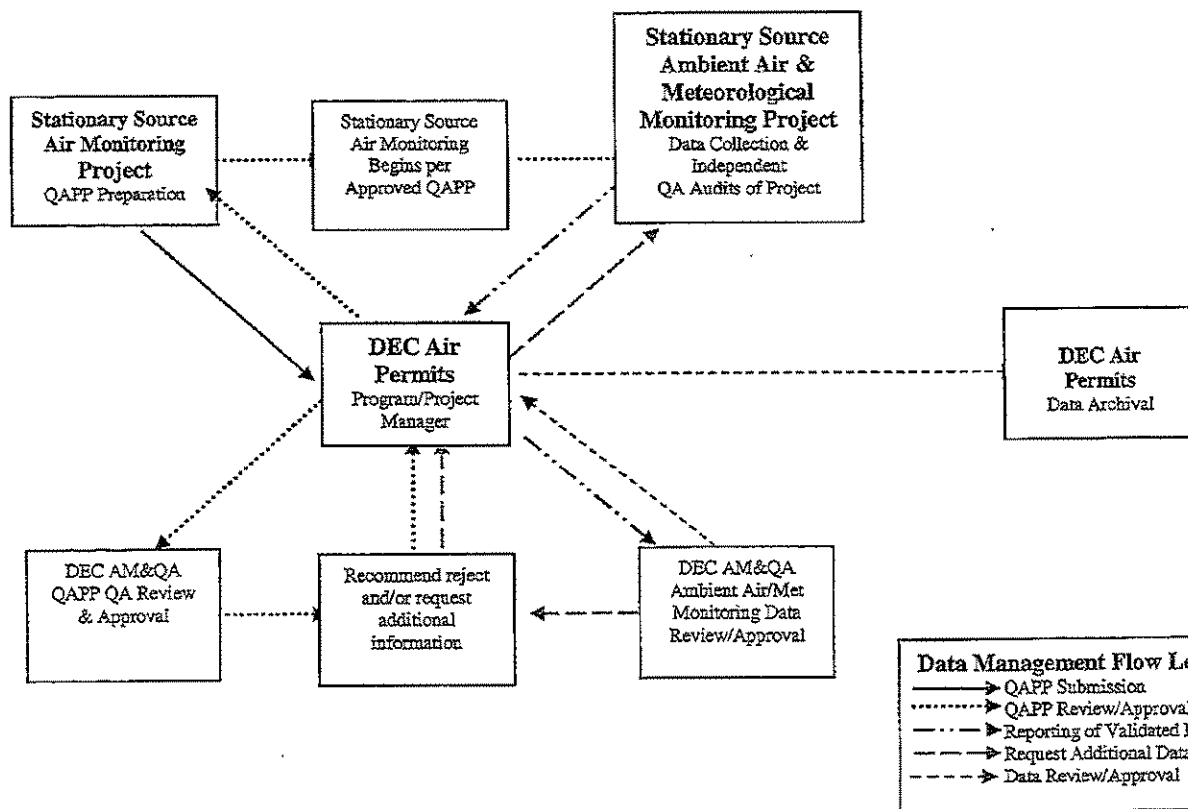


Figure 6.2 AM&QA Data Management Flow Chart - Industry Air Monitoring



7.0 Planning & Implementation of Work Processes

7.1 Monitoring & Quality Assurance Program Planning

Annual planning for the overall Air Monitoring & Quality Assurance (AM&QA) Program occurs prior to the end of each fiscal year when managers and staff submit their annual work plans and projected budgets. Periodically during the year, the Division of Air Quality Program Managers meet to discuss respective goals, objectives, and work strategies. The AM&QA Program conducts frequent meetings via teleconference to discuss the status of current and future monitoring projects.

The Air QA Officer works with Air Permits and AM&QA staff to set QA/QC goals and objectives for the program.

Project managers in coordination with the Air QA Officer follow the EPA Data Quality Objectives (DQO) process to develop specific DQOs for each monitoring project. The DQO process contains the following steps and is fully discussed in the EPA document, *Guidance for the Data Quality Objectives Process EPA QA/G4*³⁹ (<http://es.epa.gov/ncercqa/qa/>):

- The problem to be resolved
- The decision
- The inputs to the decision
- The boundaries of the study
- The decision rule
- The limits on uncertainty
- The study design optimization

7.2 Specific Project Planning - QAPP Processes

All federally supported projects which generate, use, or compile, monitoring data, require an approved QAPP. Ambient air monitoring project managers use the guidance documents and generic QAPP documents developed by the Air QA Officer. The Air QA Officer uses *DEC's Ambient Air Monitoring QAPP Checklist (referenced in section 2.7, AM&QA Quality Assurance Guidance Documents)* to ensure all 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*. It is a road map for successfully carrying out a project and ensuring the collection of valid data. The ultimate goal of a project is to produce a defensible data set. Therefore, project objectives must be clear, and the sample design must meet project objectives. The sampling and analytical protocols must be correct, and data management must include accuracy and security. Elements of an approvable QAPP must include the following, if applicable:

- Title and Approval Sheet

- Table of Contents
- Distribution List
- Project/Task Organization
- Problem Definition/Background and Project Objectives
- Project/Task Description
- Quality Objectives and Criteria for Measurement of Data
- Special Training/Certifications
- Documents and Records
- Sampling Process Design
- Sampling Methods
- Sample Handling and Custody
- Analytical Methods
- Quality Control (QC)
- Instrument/Equipment Testing, Inspection and Maintenance
- Instrument/Equipment Calibration and Frequency
- Inspection/Acceptance of Supplies and Consumables
- Non-direct Measurements
- Data Management
- Assessments and Response Actions
- Reports to Management
- Data Review, Validation, & Verification Requirements
- Validation and Verification Methods
- Reconciliation with User Requirements

Each project QAPP fully describes the QA and QC assessments and how problems are to be addressed. QAPP documents must provide the protocol for problem identification, notification, and corrective action that must be followed should quality problems arise. If necessary, the QA Officer is brought into the discussions to resolve problems. Should the approved QAPP require significant modification, all QAPP signers must sign the modified document.

Standard Operating Procedures (SOPs) augment project QAPPs. SOPs provide specific uniform directions for conducting routine operations (e.g., monitoring methods, instrument operations, laboratory procedures, data validation procedures, etc.) such that data collected in accordance with these procedures will yield data of known and acceptable quality. DEC's long standing SOPs were granted conditional approval by EPA several years ago and are in the process of being revised. Additional SOPs will be developed as DEC implements new monitoring methods/procedures into its routine ambient air monitoring activities. These SOPs when finalized will be available on the DEC Monitoring & Quality Assurance web site (<http://www.dec.state.ak.us/air/am/index.htm>).

8.0 Assessment and Corrective Response

8.1 AM&QA Program – Review, Assessment and Corrective Action

EPA is mandated to audit state agency Quality Systems once every 3 years. The AM&QA Program will undergo periodic external audits to ensure achievement of the Quality Assurance objectives expressed in the Air Quality Management Plan. EPA or contractors may perform these audits. External audits will determine the adequacy of, and adherence to, the Air QMP policies for Quality Assurance within the AM&QA and project-specific ambient air monitoring QAPPs.

External audit results and recommendations are reported to DEC's Division of Air Quality Director and to EPA. Following an external audit, the AM&QA Program Manager and Air QA Officer will review and evaluate the provided recommendations. The AM&QA Program Manager and the Division of Air Quality Director decide what recommendations are to be included in updated Air Quality Management Plans and the implementation schedule.

The Air QA Officer provides management oversight by periodically conducting program management reviews. These reviews provide an independent qualitative assessment of whether the AM&QA Program's Air Quality Management Plan Quality System, policies, procedures, and practices adequately generates the type and quality of data required. Management supports the Air QA Officer in the efforts to assess situations, identify the problems and issues and recommend solutions. Assessment results are described in the Air QA Officer Quality Assurance reports to DEC Division of Air Quality Director and EPA. The Air Quality Division Director in consultation with the AM&QA Program Manager decides which recommendations will be included and implemented in the subsequent Air QMP update.

8.2 Quality Assurance Project Plans – Review, Assessment and Corrective Action

All staff involved in data generation, compilation, and use are responsible for overseeing the quality assurance activities within the realm of their responsibilities. This includes identifying and responding to quality assurance problems and needs. Program Managers and the Air QA Officer must be kept informed of all AM&QA Program and project-specific problems, needs and corrective actions. Corrective action must be taken promptly to resolve program and project-specific problems. The Air QA Officer will develop a Corrective Action Form available to all Air Program staff involved in ambient air and meteorological monitoring Quality Assurance activities. Quality Assurance Project Plans will be reviewed for adequacy and modified as necessary.

The Air QA Officer and Project Manager(s) assess specific projects through site inspections, performance audits, technical systems audits and data reviews. The Air QA Officer may accompany the DEC Project Manager, grantee, permittee project manager, or quality assurance officer on routine monitoring events to conduct project assessments. The contracted laboratory, or grantee, or permittee, is responsible for verification and validation of all field and laboratory data. However, DEC Project Managers and/or the Air QA Officer will spot check project data for

projects within their realm of responsibility to guarantee data quality. The DEC Project Manager and/or Air QA Officer will review and verify project-specific data for at least 5% of projects with DEC-approved QAPPs.

On-site inspections and data verification ensure approved QAPP requirements are being met, and uncover any quality assurance or quality control problems. The DEC Project Manager and the Air QA Officer will work with the DEC monitoring staff, permittee, or grantee, to resolve all quality assurance and quality control problems in a timely manner.

Assessments are based on the following:

Quality Assurance Project Plan –

Before the project begins, the Air QA 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. Deficiencies or inadequacies are discussed with the DEC monitoring staff, the grantee, permittee, management, and technical experts, as necessary. Decisions on how to proceed are based on the findings.

Quality Control Indicators –

Project staff use quality control indicators to identify problems with sampling and analytical procedures and to highlight anomalous results. 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. Identified problems 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 whether it met project objectives. The procedures used and the documents generated are evaluated for adherence to approved QAPP, EPA and DEC policies and procedures.

Reports –

The preparation of the interim and final project reports, 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 permittee. It summarizes the project and presents observations, and the monitoring and measurement results. The Project Manager is responsible for ensuring the data and observations are internally consistent, and meet QAPP project objectives.

Project File –

This file is the repository of documents related to the project, including both field and laboratory records. The Project Manager must ensure relevant documents are in the file. The file must be secured in accordance with DEC policies and procedures.

EPA AQS Data Base –

Project Managers and the Air QA Officer work directly with DEC Air Quality System (AQS) Data Base manager to ensure that all data which enters the EPA AQS data base meets the QA requirements described in the Air QMP.

9.0 Quality Improvement

Quality Improvement can occur if each AM&QA 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 Air QA 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 AQA Officer and Project Managers begins the Quality Improvement process. At the project level, DEC Project Manager coordinates with the grantees, permittees and AQ monitoring staff to assure that 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, AQ Project Managers interact with grantees, permittees and monitoring staff 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 AM&QA program manager with support from the Air QA Officer reports on QA/QC progress in Performance Partnership Agreement (PPG) and/or single source funded grant reports as required. These reports include the products and processes of the previous fiscal year, QA progress, problems, and recommended improvements.

EPA recommends Quality Management Plans be reviewed and updated at least every 3 years. The Air QA Officer and the AM&QA Program manager will annually review and assess Alaska's ambient air quality monitoring Quality System and make recommendations for improvements. If acceptable these recommendations will be incorporated into the subsequent Air QMP. Outside audits of the AM&QA Program will also allow DEC to determine how well the Air QMP quality assurance policies are being implemented.

10.0 References

DEC Professional Service Contract Manual, September 2000

Alaska Ambient Air Quality Standards regulations, 18 AAC 50.10, Amended June 21, 1998

Alaska Quality Assurance Manual for Ambient Air Quality Monitoring, revised August 21, 1996

Quality Assurance Project Plan for the State of Alaska PM_{2.5} Ambient Air Quality Monitoring Program, December 1998

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

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

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

40 CFR 50, National Primary and Secondary National Ambient Air Quality Standards (NAAQS)

40 CFR Part 53, Ambient Air Quality Reference and Equivalent Methods

40 CFR Part 58 Ambient Air Quality Surveillance

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 – DEC staff Project Managers are the lead staff in the development and implementation of ambient air quality monitoring projects, in the development and administration of grants, and in the development and implementation of air quality control 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 Division of Air Quality, Monitoring & Quality Assurance 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.

AQS – Air Quality System, a national repository for ambient air quality data developed by EPA for use by EPA, state, local agencies and tribes.

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

12.0 Appendices

12.1 QA Responsibility

12.1.1 DEC Division of Air Quality Organization Chart



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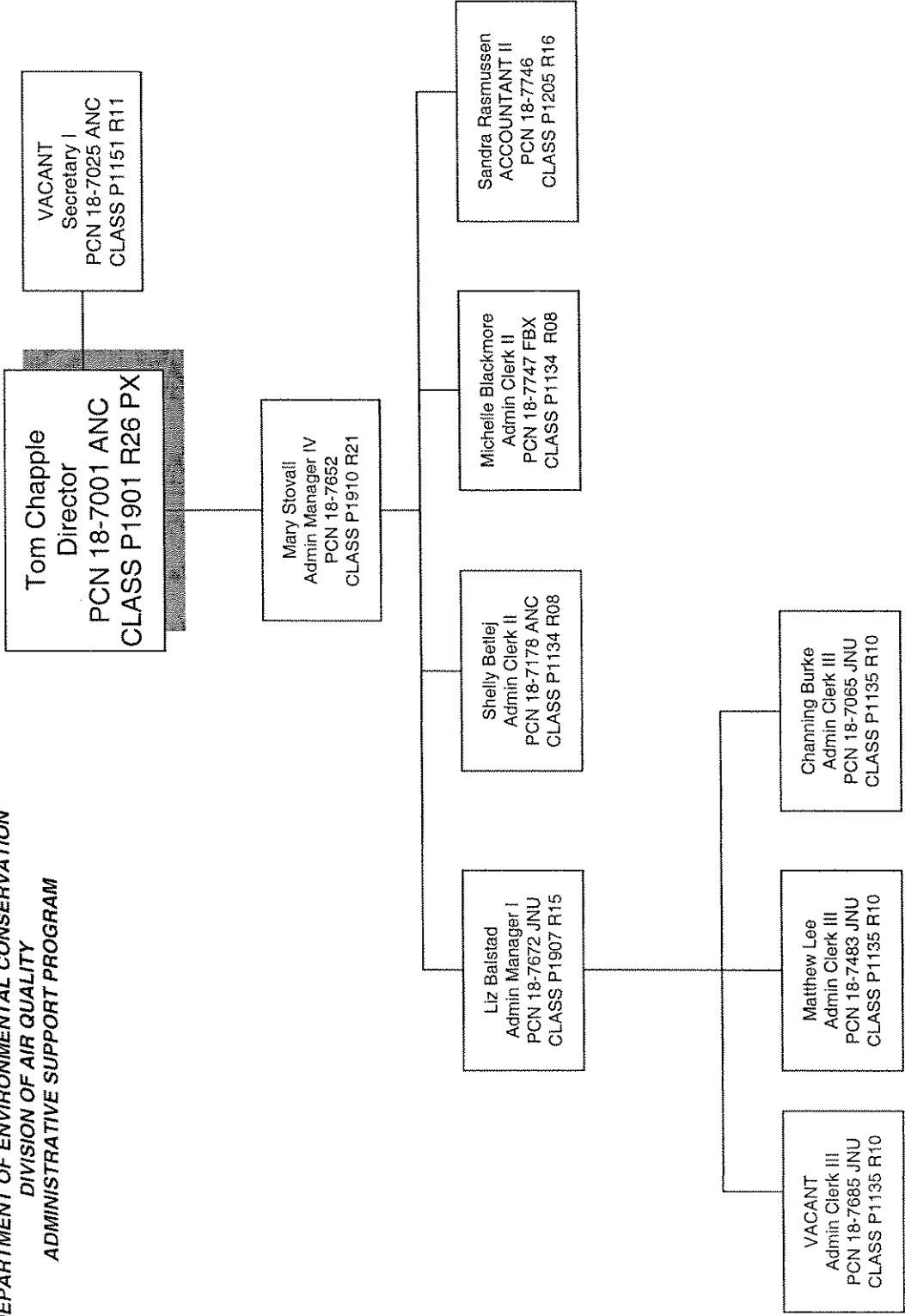
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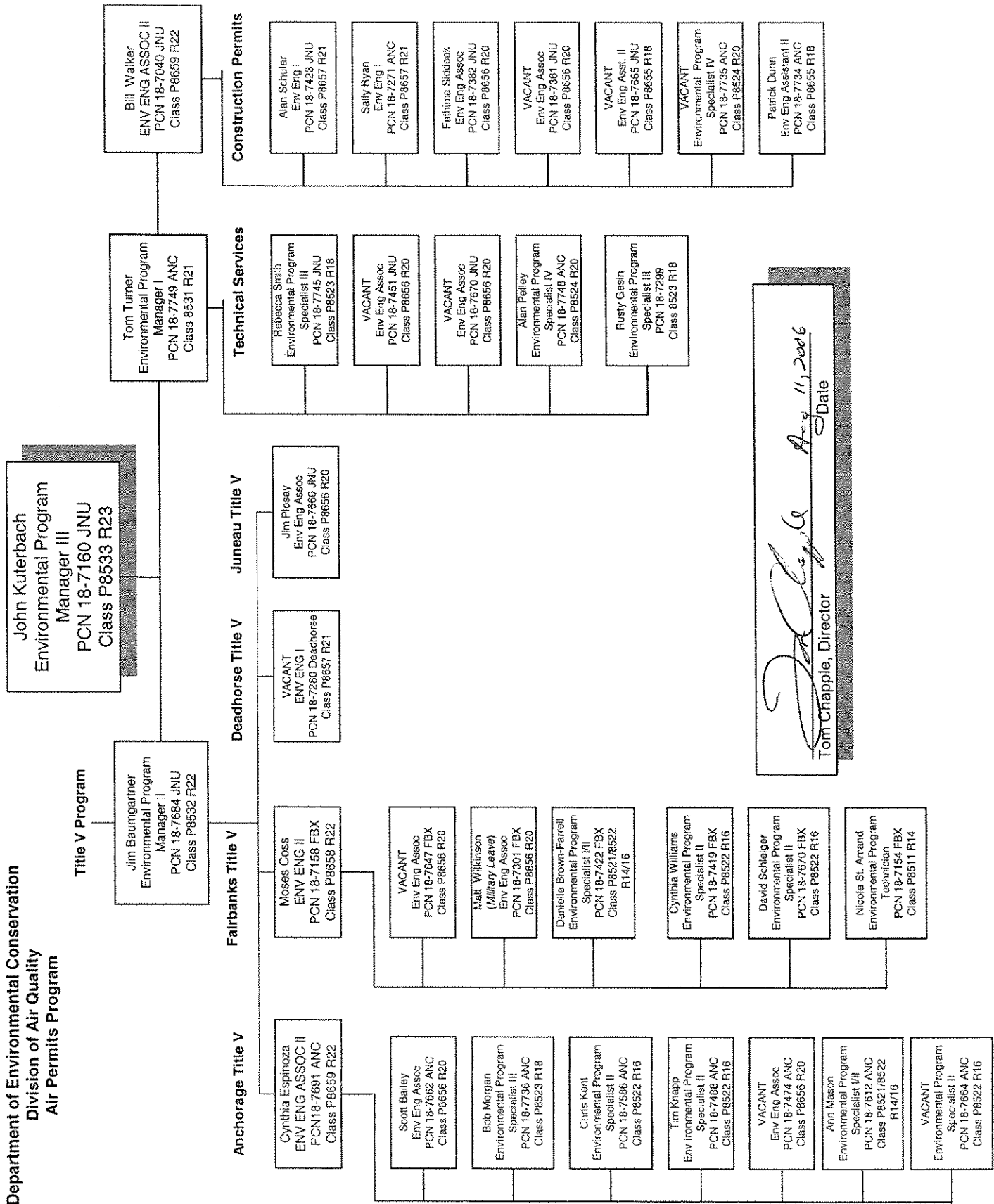
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DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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Department of Environmental Conservation
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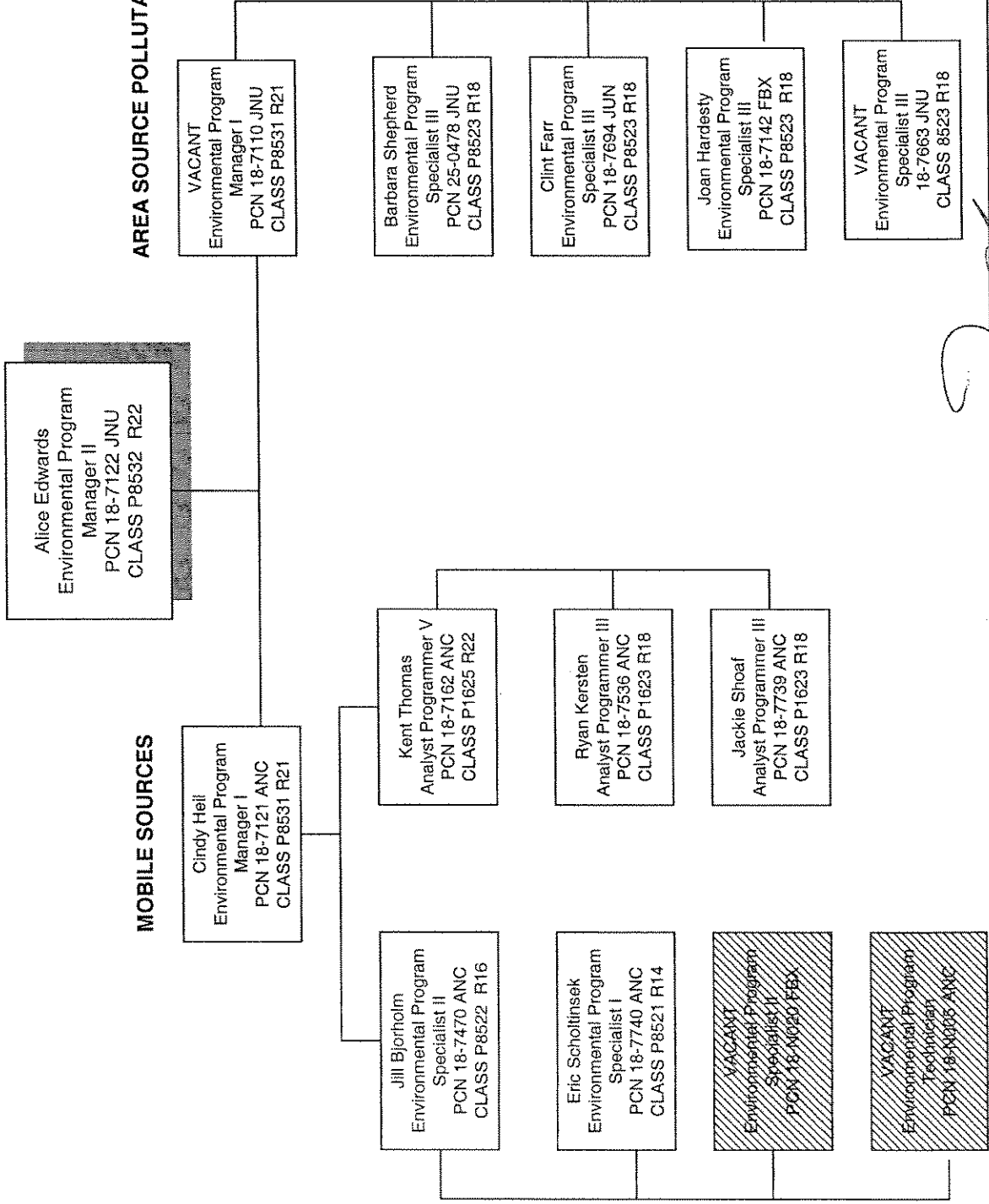
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DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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MOBILE SOURCES

AREA SOURCE POLLUTANTS



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