



Quality Management Plan

for the
Alaska Department of Environmental Conservation
Division of Environmental Health
Pesticide Control Program

Quality Management Identification and Approval Form

Document Title: Quality Assurance Project Plan for the Alaska Department of Environmental Conservation, Division of Environmental Health, Pesticide Control Program

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Organization Title: Alaska Department of Environmental Conservation, Division of Environmental Health, Pesticide Control Program

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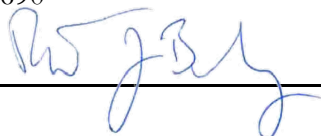
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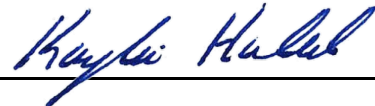
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Plan Coverage: This plan covers the pesticide enforcement program for pesticide product compliance, misuse investigation, and monitoring programs under the U.S. Environmental Protection Agency Cooperative Agreement with the ADEC Pesticide Control Program.

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Acronyms and Abbreviations

%	Percent
%R	% Recovery
ADEC	Alaska Department of Environmental Conservation
CFR	Code of Federal Regulation
CoC	Chain-of-Custody
DGR	Dangerous Goods Regulations
DOT	U.S. Department of Transportation
DQO	Data Quality Objectives
EH	Division of Environmental Health
EPA	U.S. Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
IATA	International Air Transportation Association
LC	liquid chromatography
MS	mass spectrometry
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PCP	Pesticide Control Program
QA	Quality Assurance
QAM	Quality Assurance Manager
QAPP	Quality Assurance Project Plan
QC	Quality Control
QMP	Quality Management Plan
RPD	Relative Percent Difference
SOP	Standard Operating Procedures

This document provides information about how the Alaska Department of Environmental Conservation (ADEC) Pesticide Control Program (PCP) will ensure that environmental information generated and used for pesticide product compliance, misuse investigations, and monitoring programs is of the type and quality required by the U.S. Environmental Protection Agency's (EPA's) Quality System. Environmental information includes both quantitative data such as sampling results or other measurements, and qualitative data such as observations, photos, and records. This document addresses procedures for how data should be collected or generated, as well as how it should be processed, documented, and recorded. These activities and procedures make up the quality assurance system for the PCP.

1.0 Project Management

1.1 Quality Assurance Policy

The ADEC Division of Environmental Health's Director is committed to ensuring that all environmental information generated by or on behalf of the PCP are suitable for their intended use. The systems and practices presented in this document provide a framework for assuring the quality of all environmental information generated and processed as appropriate for the intended use, scientifically valid, of known precision and accuracy, of acceptable completeness, representativeness, and comparability and are legally defensible.

ADEC implements a comprehensive pesticide program for the State of Alaska and has federally delegated enforcement responsibility for pesticide use and control since 1989. ADEC PCP is the state lead agency for pesticide regulatory programs and is authorized under Alaska Statutes Title 46 (AS 46) Water, Air, Energy, and Environmental Conservation.

Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, a Cooperative Agreement has been developed between EPA and ADEC PCP. The purpose of the cooperative agreement is to develop an effective pesticide enforcement program for pesticide product compliance, misuse investigations, and monitoring programs. Examples of pesticide compliance program activities include marketplace inspections, applicator records and use inspections, and restricted-use pesticide dealer inspections. In addition to enforcement and compliance related activities, PCP activities also include groundwater protection, endangered species protection, worker protection, and other environmental protection programs.

An ADEC PCP generic Quality Assurance Project Plan (QAPP) was written in support of requirements of EPA (per the *EPA Requirements for Quality Assurance Project Plans* [EPA QA/R-5]) and the State of Alaska. Sampling, analysis, data collection and documentation requirements unique to pesticide compliance, investigations, and inspections are outlined in the ADEC PCP Generic QAPP.

The PCP may enter into cooperative agreements with other federal and state agencies or local governments for various pesticide projects. The PCP also has the authority to contract with outside laboratories for analytical services. Currently, pesticide related samples may be analyzed by the Washington State Chemical and Hop Laboratory (WSCHL) in Yakima, WA.

PCP staff are responsible for collecting and documenting representative samples and for maintaining chain-of-custody (CoC) of the samples until they are officially transferred to the laboratory. The analytical laboratory is responsible for analyzing samples using the appropriate analytical techniques and methods, and for transmitting analytical results, including quality control data, to PCP staff.

ADEC PCP's quality system prescribes the following:

- ADEC will implement a quality system that conforms to the FIFRA Cooperative Agreement and EPA's Quality Directive 2105.1.
- ADEC PCP personnel who generate, use, or require the collection of environmental information will follow the requirements outlined in this Quality Management Plan and the PCP QAPP.
- Prior to initiation of data collection efforts, management and staff will establish the intended use for the data and the level of data quality necessary to support decisions.
- All new quantitative data generated by ADEC PCP will be of known and documented quality, as defined by pre-established data quality objectives (DQOs) as defined in the QAPP.
- Project-specific QAPPs and Standard Operating Procedures (SOPs) will be developed and implemented as required. A comprehensive program generic QAPP details activities related to collection of quantitative data. It describes intended data uses, level of quality to be obtained, and data acceptance criteria for field, laboratory, and data management activities that are common to all ADEC pesticide inspections, investigations, and projects in which samples are collected.
- A separate stand-alone project specific QAPP or sampling plan may be developed as needed for monitoring, inspections, or investigations. Project-specific sampling and analysis requirements will be added to the appropriate report.
- All Quality Assurance (QA) matters will be assigned to the Quality Assurance Manager (QAM). Any project-specific QAPPs will be submitted to the QAM for approval. The QAM will be the focal point for interaction between the EPA Regional QA program and the PCP.
- Technical assessments and audits will be conducted by the PCP Coordinator when samples are collected for the purpose of investigation, inspection, or monitoring to ensure they

comply with QA requirements. This is to verify conformance with the QAPP, identifying possible causes for not meeting QA, and identifying corrective actions.

- PCP management will ensure adequate resources to support the PCP's quality system efforts are provided to accomplish objectives for all environmental information collection programs, inspections, and tasks. As Alaska's partner in pesticide regulation, EPA supplies some of the resources to support the quality system through the Cooperative Agreement process.
- PCP management will provide QA training to staff at all levels to ensure that QA requirements and responsibilities are understood and implemented in all program activities. This training may be provided through internal training and/or external sources. Some of the training needed to support the quality and enforcement systems will be provided by EPA.
- The requirements of the PCP QMP may be waived under exceptional circumstances. Any deviation will be considered on its own merits and documented accordingly. The actual procedures will be documented and will be made available for review and assessment.

1.2 Mission and Organization

Under FIFRA, as amended, a Cooperative Agreement has been developed between the EPA and ADEC. ADEC is the state lead agency for pesticide regulatory programs and is authorized under Alaska Statutes Title 46 Water, Air, Energy, and Environmental Conservation to conduct pesticide product compliance, misuse investigations, and monitoring programs in the state.

The quality system is led, ultimately, by the ADEC EH Director and includes both administrative functions, such as program management, work plan development, and plan updates, and technical functions, such as inspections, enforcement, and technical assistance. Project organizational chart and responsibilities are provided in Figure 1 and Table 1, respectively.

**Figure 1
Pesticide Control Program Organization Chart**

Department of Environmental Conservation
Division of Environmental Health
Solid Waste Management


Christina Carpenter
Division Director
Effective 07/01/2021

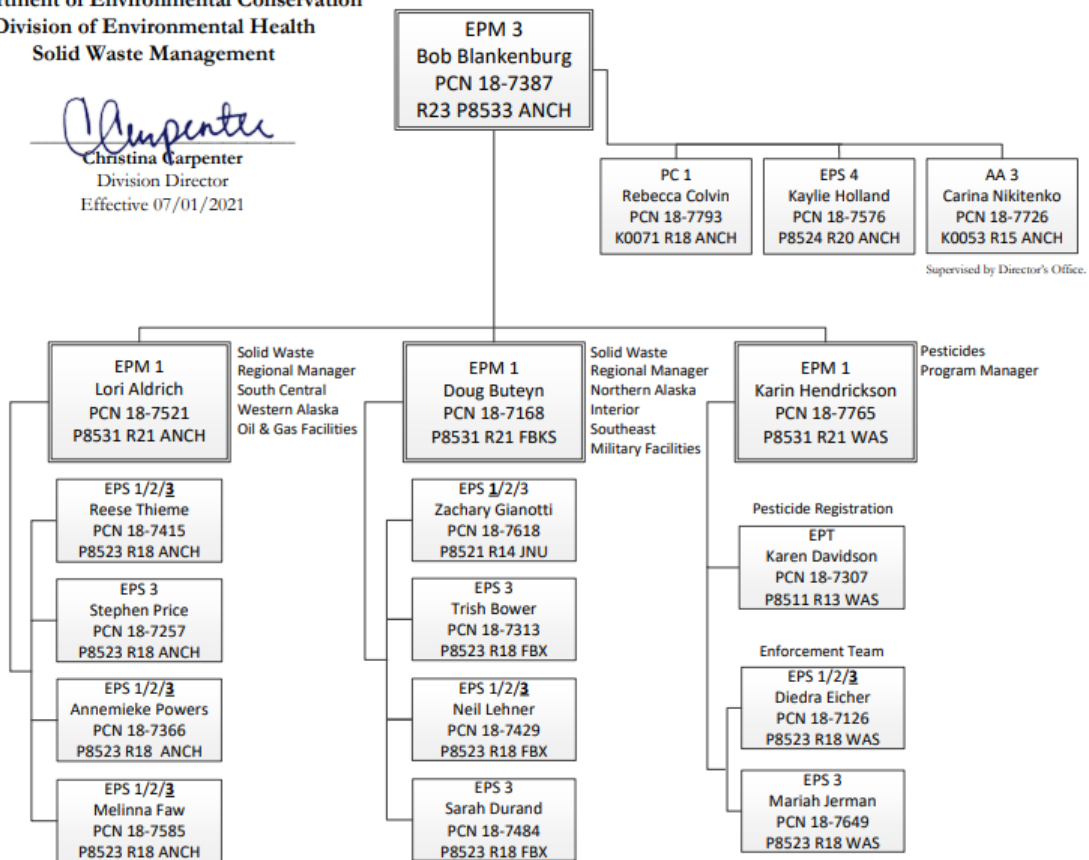


Table 1
Project Organizational Responsibilities

NAME/ POSITION TITLE	ASSOCIATION	CONTACT INFORMATION	RESPONSIBILITIES
Christina Carpenter, ADEC EH Director	ADEC, EH	555 Cordova Street Anchorage, AK 99501 (907) 269-7645 christina.carpenter@alaska.gov	Provides policy definition, leadership, and oversight for ADEC EH quality system. Serves as the overall authority for directing activities in accordance with EH policy. Responsibilities, with regard to quality, include: serving as the final authority for resolving quality related issues and ensuring that the proper training is provided; resources are available to support the quality approach; and QMP is in place and functioning.
Robert Blankenburg, ADEC Solid Waste Program/PCP Manager	ADEC, EH, Solid Waste Program/PCP	555 Cordova Street Anchorage, AK 99501 (907) 269-7690 bob.blankenburg@alaska.gov	Provides leadership and oversight for the Solid Waste Program and PCP quality system and serves as the overall authority for directing activities in accordance with EH policy. Responsibilities, with regard to quality, include: serving as the final authority for resolving quality related issues and ensuring that the proper training is provided; resources are available to support the quality approach; and QMP is in place and functioning.
ADEC PCP Staff	ADEC, EH, PCP	1700 E Bogard Road Bldg. B, Suite 103 Wasilla, AK 99654	Conduct inspections, investigations, and sampling as described in the QAPP and EPA's most recent FIFRA Inspection Manual.
Karin Hendrickson, PCP Coordinator	ADEC, EH, PCP	1700 E Bogard Road Bldg. B, Suite 103 Wasilla, AK 99654 (907) 376-1856 karin.hendrickson@alaska.gov	Responsible for overall technical and contractual management of the project. Maintains a central resource file of quality related documents and coordinates all audits.
Kaylie Holland, Quality Assurance Manager	ADEC, EH, Solid Waste Program/PCP	555 Cordova Street Anchorage, AK 99501 (907) 269-1099 kaylie.holland@alaska.gov	Responsible for the review of the QAPP and QMP as well as the SOPs. Also responsible for providing technical advice to the PCP program for developing sampling protocols. The QA Manager is independent from the data generation and collection entities.

2.0 Types of Environmental Information Generated

EPA defines environmental information as any measurements or information that describes environmental processes or conditions, or the performance of engineered environmental systems. Thus, environmental information include all chemical, physical, or biological measurements relating to the environment; however, they do not include demographic or financial data. In addition, environmental information includes both direct measurements of environmental conditions and data collected from other sources such as literature, industry survey, computerized databases, and mathematical models.

Examples of environmental information that the ADEC PCP may generate include data on compliance with Federal and State pesticide laws, generated during inspection/investigation activities of the enforcement program.

3.0 Quality System and Description

The PCP quality system provides a framework for planning, implementing, documenting, and assessing work conducted. The purpose of this system is to enable the PCP to generate the type and quality of information required to fulfill PCP's environmental enforcement mission.

The ADEC PCP is committed to quality assurance and maintaining this QMP. Quality assurance addresses the broad plan for maintaining quality in all aspects of the program. Quality assurance includes planning of environmental inspections and projects, proper documentation of all procedures, training of employees, study design, data management and analysis, specific quality measures, and assessment of the process. Quality control consists of the steps taken to determine the validity of specific inspection, sampling, and analytical procedures.

3.1 Technical Functions - Environmental Monitoring, Sampling, and Measurement

Technical functions include sampling, testing, evaluating evidence, forming opinions related to that evidence, and other activities. Technical functions are conducted by appropriately qualified and trained personnel. These activities are conducted while gathering evidence to support potential enforcement actions. The activities are routine and non-routine, and include identifying potential sources of noncompliance using standard and/or innovative approaches, or identifying characteristics necessary to define exceedances of regulatory requirements.

Data collected during investigation, enforcement, and inspections may be used for legal proceedings. As such, the PCP must follow the rules of evidence while conducting these activities because PCP may be required to present fact as well as expert witness testimony to a judge, jury, or panel.

3.2 Technical Functions - Technical Support

Technical functions of the PCP are supported from within ADEC as well as other agencies and organizations.

ADEC's Division of Administrative Services (DAS) provides stable and secure hardware and software computer services to the PCP. Desktop and server support is provided from DAS' Network Services group. Software development and database integration support is provided from DAS' Integrated Databases group. DAS implements ADEC and State information technology policies, ensuring that the ADEC is compliant with software vendor licensing requirements.

The PCP uses spreadsheets, databases, and other systems for collection and management of targeting, compliance, or enforcement data. Due to the limited size of the PCP and activities in Alaska, Excel spreadsheets are generally adequate for most needs. Current systems include:

- Kelly Registration System on-line database, which tracks certified pesticide applicators;
- Excel spreadsheet used to track inspections, from selection of facilities proposed for inspection, through completion of inspection report;
- Excel spreadsheet used to log and track approved continuing education courses for pesticide applicator recertification;
- Excel spreadsheet used to log and track pesticides of interest evaluation and reporting status related to water quality; and
- Excel spreadsheet used to log and track commercial business insurance data, certification card numbers, test scores, and etc.

Due to lack of training opportunities in Alaska, most Certified Applicators study for the required exams by reviewing information in the manuals required for the Core Exam and the respective certification category exams. Worker Protection Standard (WPS) information is covered briefly in the Core study manual and Core Exam that all certified applicators must pass. It is covered in more detail in the Agricultural Pesticide category, as WPS applies to agricultural workers and handlers.

The Alaska State Library provides technical support by facilitating pesticides literature reviews.

The Environmental Section of the State of Alaska Department of Law provides advice and representation to the PCP to assist in the performance of their duties related to environmental matters.

The PCP's Pesticide Public Health Communication Plan outlines how pesticide related illnesses or incidents are communicated. Healthcare providers are required by law (AS 18.15.370) to report any known or suspected pesticide poisoning or illness to the Epidemiology Section of the Department of Health and Social Services. Per 7ACC 27.017, healthcare providers are also required to report any chemical exposure to HSS. The Alaska Occupational Health and Safety Administration has internal

protocols in place to report public health violations to HSS and is aware they need to report any pesticide incidents or violations to the PCP. The Poison Control Center (based in Oregon) has protocols to automatically report pesticide related illnesses or incidents to the Department of Health and Social Services. In turn, the Department of Health and Social Services has agreed to report any pesticide to the PCP.

ADEC's Division of Water investigates and responds to water resource contamination and coordinates with the PCP for any pesticide-related contamination. The PCP consults and coordinates with other water resource agencies in responding to any identified pesticide contamination.

3.3 Operational Policies, Procedures, Guidance, and Tools

The quality system for environmental monitoring, sampling, and measurement activities include:

- Compliance with
 - QMP
 - PCP Policies
 - generic QAPP
 - project QAPP, if applicable
 - standard operating procedures (SOPs)
- Quality planning (ex. DQO development, planning what data needs to be collected, and of what quality it needs to meet project objectives)
- Implementation of project activities (ex. conducting inspections, investigations, and other activities)
- Technical assessment

These principal tools are reviewed by the PCP management and staff as needed to address changes in the quality system. Suggestions for changes come from staff proposals for improvements and lessons learned from PCP involvement in enforcement actions.

3.3.1 Quality Management Plan

This QMP is an essential component of the quality system. It describes and documents the quality system and is used to guide the PCP's work. It identifies what the PCP does in quality management, and gives a rationale for why it is done. The QMP provides the basis for discussing changes and improvements to the quality system. All PCP staff are required to read and be familiar with the QMP to ensure that they understand and are following the quality management process. PCP management also uses the QMP as a tool to gauge whether the quality system is being successfully implemented.

3.3.2 Department Policies

ADEC policies are designed to present general guidelines for planning investigations, and collecting and developing admissible and defensible evidence in support of ADEC's environmental programs. PCP staff are informed of ADEC and PCP policies upon hire and any new policies or revisions to existing policies are communicated as appropriate. Listed below are some of the applicable policies for the PCP:

- PCP generic QAPP and/or project-specific QAPP (if applicable)
- Pesticide Control regulations under Title 18, Chapter 90 of the Alaska Administrative Code (18 AAC 90)
- State of Alaska General Administrative Records Retention Schedule
- State of Alaska Records Retention and Disposition Schedule
- ADEC Public Records Requests under AS 40.25.110
- Procurement procedures under AS 36.30, 2 AAC 12, Alaska Administrative Manual (AAM) 81 and AAM 82

PCP management solicits ongoing input from PCP staff regarding the adequacy and completeness of the policies. Suggested revisions are typically drafted by the staff suggesting the change or having expertise in the area addressed. The draft revisions are reviewed for approval prior to implementation.

3.3.3 Quality Planning

The PCP quality goal is to conduct environmental measurements that meet the objectives of the program and/or inspection. To this end, our organization ensures that the information generated is based on scientifically sound data and is supported by legally defensible documentation. Quality planning describes the procedures developed to ensure that the environmental measurement activities conducted will be of the quality and types required to support enforcement actions. This process and its application in enforcement inspections, involving both field and laboratory assistance, are described in the Quality Planning section of this document. All quality planning will be consistent with the Data Quality Objective process (EPA 2006).

3.3.4 Program Generic Quality Assurance Project Plan

The PCP generic QAPP describes the information used in pesticide sampling and inspection activities. It describes some of the different decisions related to sampling to be made under the program and the individuals responsible for making those decisions. It describes how different samples will be collected, preserved, shipped, stored, and analyzed. The process by which data generated by outside organizations will be evaluated to ensure that they are of known quality is also described in the generic QAPP. Sampling SOPs, the laboratory's QMP, and any other documentation to support the PCP inspection and sampling activities will be included as part of this

document. The PCP generic QAPP also describes how the organization ensures data generated are of sufficient quality for the decision maker to use.

3.3.5 Project-Specific Quality Assurance Plans

Most pesticide inspections and investigations do not include sample collection. Ideally, samples will be collected after a project specific QAPP is approved unless the nature of the project cannot support that timeframe. If emergency samples or sample of opportunity are collected, sampling and analysis requirements, which are unique for the activity, will be added to the inspection report. By including this information, the inspection report will become the project specific QAPP for the inspection. Details which describe field sampling requirements, number of samples, number of applicable QA samples (i.e. field duplicate samples, trip blanks, and matrix spike/matrix spike duplicate), and analytical requirements for the inspection will be added to the inspection reports. These sampling and analysis details will be unique for each specific inspection and will provide information which is not covered in the PCP generic QAPP.

3.3.6 Standard Operating Procedures

SOPs are developed to provide consistency in activities performed, such as the collection and analysis of pesticide samples. The purpose of these procedures is to document current and historical knowledge and to make that knowledge available to those within the PCP who need it. SOPs developed by the PCP are reviewed by PCP staff prior to approval by the PCP management.

PCP staff are expected to follow applicable procedures while conducting environmental sampling and measurement activities. They may modify the procedures or develop new ones if allowed by regulation and if the situation warrants it. Procedures are modified or new ones developed when existing procedures are inadequate or inappropriate to meet the needs of the project. Modifications are reviewed by the PCP staff prior to approval by the PCP management. It is the responsibility of the PCP Program Coordinator to ensure that the most current procedures are available for use, and that outdated and/or revised procedures are removed from use. The PCP Program Coordinator will maintain an up-to-date file of all currently used SOPs.

3.3.7 Implementation

The PCP staff are responsible for implementing inspections and investigations. This can include the following:

- Custody Documents - Includes chain-of-custody forms, receipt for sample forms, and sample tags.
- Field Notes - A detailed record of when, where (including site maps), how, and by whom each sample was taken. The results of any applicable field measurements, field calibration results, and background monitoring readings will be 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. In addition, a photographic log will be maintained.

- Field Photographs - A visual record of site conditions, processes, samples, and sample source will be taken.
- Standard Procedures - Procedures used for routine activities associated with field and analytical measurements. The Inspector is responsible for ensuring that the procedures are understood and followed in the field, and that deviations from these procedures are documented.
- Data Quality Requirements and Sample Analytical Strategies - DQOs that support the overall objective of the investigation, are 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 investigation. The selection of the laboratory analytical test method is the responsibility of the laboratory supervisor and is based on the purpose for the sample(s) in meeting the project objective.
- Laboratory Standard Procedures – Internal procedures used by the laboratory for their operations.
- Laboratory Records - As the analyses are completed, they are reviewed by appropriate personnel. The complete file is then reviewed by the laboratory supervisor or their designee. Included in this file maintained by the laboratory are as follows:
 - Results and observations made during analyses, recorded by the analyst.
 - Records of when and how analyses were performed and completed by the analyst.
 - Permanent records of raw analytical results produced by various instruments.
- Analytical Results - The laboratory supervisor or their designee ensures that analytical results are consistent with each other, and that they meet the data quality requirements of the project objective.

3.3.8 Technical Assessment

Technical assessments are conducted to verify and document the integrity and accuracy of the information generated. The goal is to generate scientifically sound and legally defensible information. Technical assessments include self-assessment backed up with assessments by others involved in the activities and by the PCP Coordinator or QAM. These assessments result in the development of strategies and actions. These strategies and actions are recorded in the various documents previously described.

Assessments are based on the following:

- QAPP - Before any sampling activity is conducted in accordance with the PCP's generic QAPP the PCP staff will contact the laboratory to ensure project objectives can be met. Any deficiencies or inadequacies will be discussed with PCP management and QAM. The PCP Coordinator and/or PCP staff will decide how to proceed based on the findings.

- Quality Control Indicators - During the project, personnel will use quality control indicators to identify problems with sampling and/or analytical procedures and to highlight anomalous results. Quality control indicators can include blanks, standard reference materials, QC check samples, replicates, spikes, and alternative methods. Any identified problems will be documented in the project file. Corrective action is subject to the same technical assessment as the original procedures.

When an inspection is concluded, the PCP Coordinator will review the inspection/investigation reports completed by the PCP staff to evaluate for completeness, accuracy, and appropriateness to meet the project objectives.

The preparation of the inspection/investigation report and assembly of associated files are important milestones in the assessment process. During this process, PCP staff make judgments regarding potential violations, and the evidence and data that will be used to support those potential violations.

- Inspection/Investigation Report - Preparation is the responsibility of the PCP staff assigned to the project. The report summarizes the PCP's findings, and the monitoring and measurement results. The PCP staff is responsible for ensuring that the data and observations are consistent, and that they meet project objectives.
- Project File - The inspection file contains all documents related to the inspection/investigation, including both field and laboratory records. The PCP staff is responsible for ensuring that relevant documents are filed correctly in the PCP office located in Wasilla, Alaska.

At the end of the inspection/investigation, an evaluation may be done to determine what worked well and what areas need to be corrected or strengthened. The evaluation can include the findings resulting from both scientific and legal scrutiny. Lessons learned are then shared amongst PCP management and staff. PCP management decides which recommendations are appropriate to be incorporated into future inspections.

3.3.9 Management Systems Reviews

Management systems reviews may be conducted, if appropriate, to gauge whether the quality system is being successfully implemented and to identify opportunities for improvement. This review identifies patterns or issues that can affect inspection/investigation commitments or performance quality. As problems that need attention are identified, PCP management determines the most satisfactory solutions, recognizing that those who actually do the work are best suited to focus on the real issues and recommend the most effective solutions.

4.0 Personnel Qualifications and Training

4.1 Administrative Level

Each position in the PCP 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. Each position has a Position Description document, which includes job duties for the position. Positions are classified into various Job Classes, and the minimum qualifications, including education and experience, are established for each Job Class. Applicants for open positions must meet the minimum qualifications in order to be considered for the position.

The PCP Program Coordinator manages the PCP staff training and development. These functions are conducted following the State of Alaska's Performance Evaluation model. Goals and training are established as part of employee evaluation and are reviewed and updated at least annually by the supervisor.

4.2 Technical Level

All PCP staff should have the qualifications necessary to conduct investigations and inspections. Environmental monitoring, sampling, and field and laboratory measurements are performed by trained, knowledgeable professionals.

PCP staff are required to attend Basic Inspector/Investigator Training as provided by EPA Region 10, and other State authorized training as deemed necessary. Each PCP staff are expected to obtain state inspector or enforcement credentials within one year of hire and EPA enforcement credentials as soon as possible. Skills are assured by field training, provided by staff who are more experienced.

PCP staff also attend regional and national courses, training sessions, meetings, and conferences, as appropriate, including EPA Pesticide Inspector Residential Training, EPA Pesticide Regulatory Education Program courses, and the EPA Pacific Northwest Pesticide Inspector Conference.

Additional training courses may include quality assurance/quality control, environmental sampling, basic toxicology, and organizational policies and procedures. These courses are offered by a variety of sources, including government agencies, private industry, colleges, and universities.

Training records are maintained in the ADEC Division of Environmental Health Training Database, as well as the employee personnel file.

5.0 Procurement of Items and Services

5.1 General Procurement

Procurement ranges from general supplies to highly sophisticated scientific equipment which directly affects the quality of environmental measurements. The procurement process is governed by State regulations and may involve the approval of other agencies within the State. Within this organization, the PCP staff identifies equipment needs, and submits requests to management, who prioritize, rank, and approve items for proposed procurement. This process allows organizational units to identify equipment needs relative to other needs in order to facilitate quality in measurement processes. Specific monitoring, sampling, and analytical equipment are procured only after quality requirements have been discussed between procurement officials and the PCP staff.

5.2 Contracts

The responsibility for contracts within PCP management includes:

- Identifying all the contracts in effect
- Identifying personnel responsible for contracts
- Ensuring that all contracts collecting environmental information meet QMP requirements
- Providing information to PCP staff on rules and directives for contract management
- Acting as quality review for financial tracking information

5.3 Equipment Maintenance

Laboratory and PCP staff are responsible for their respective equipment maintenance (i.e. sampling supplies, sample coolers, etc.). PCP has either service contracts for equipment maintenance (i.e. vehicle maintenance) or in-house capabilities (i.e. DAS services) and responsibilities. Schedules for preventative and/or corrective maintenance are determined and carried out through service contracts or in-house capabilities.

6.0 Documentation and Records Management

PCP policy requires that completed project files contain all documentation related to the inspection/investigation. Project files may include both hard copies, maintained in PCP filing cabinets in the Wasilla office, and electronic documents, which are maintained on ADEC's network servers. All project files are maintained in accordance with the ADEC records retention policies. The PCP staff conducting the inspection/investigation are responsible for assuring that field and analytical records are in the project file. A copy of the data packages generated by laboratory are also maintained by the laboratory.

PCP management will assure that the following records management objectives are achieved:

- Prevent the creation of unnecessary records in any media.
- Ensure files are organized and maintained adequately to allow retrieval and review.
- Ensure files are retained in accordance with the ADEC Records Retention Policies.

7.0 Information Resources Management

There are five major kinds of environmental information management activities conducted by the PCP:

1. Planning the inspection/investigation
2. Gathering the data
3. Managing the data
4. Disseminating the data
5. Evaluating results

These activities occur in sequence, with the understanding that each activity can be adjusted to reflect changing conditions and project results. Other activities should occur throughout the lifetime of a project, as follows:

- Communication
- Quality assurance
- Cost control
- Security

This section focuses on the information management aspects of the PCP inspections/investigations – managing and disseminating data. It does not address the other aspects of project management, planning, data gathering, and evaluation.

7.1 Best Management Practices for Environmental Information

Document the project: Each PCP inspection or investigation will be thoroughly documented.

Establish back up: Electronic project documents are maintained on the ADEC network servers which are backed up in accordance with DAS procedures.

Ensure data integrity: Ensuring data integrity involves addressing the vulnerability of the system to unauthorized access, date manipulation, theft, and environmental damage. Key potential threats include:

- Inappropriate/inaccurate information – PCP staff can supply inappropriate or inaccurate information accidentally or on purpose.

- Compromised information integrity – documents or data can be accidentally or intentionally modified. Electronic files are protected from unauthorized access, data manipulation, and theft by firewalls and other security measures put in place by the Alaska Department of Administration Office of Information Technology. Hard copy files are kept in non-public areas of the PCP Wasilla office. Internal quality assurance/quality control processes ensure that inappropriate or inaccurate information is not included in the files.

Present data in an understandable format: PCP inspection and investigation reports will be presented in a way that is suitable for the intended audience. The following guidelines are helpful in designing effective approaches in PCP inspections/investigation reporting:

- Establish a context for presenting data – methods for providing context include displaying data in a geographic context, combining a new data source with existing collections of historical data, or aggregating the data collected to demonstrate a trend or ongoing view of the environmental conditions. Inspections/investigations will present the data in ways that make the data relevant and useful.
- Format data for easy interpretation – Environmental information can be interpreted in many ways. Data will always be presented in a format that is not subject to misinterpretation.
- Be responsive to the users of the data – to keep abreast of changing user needs, the PCP inspections/investigations build in ways for users to provide feedback on the results of investigations.

Ensure data quality: The PCP will determine the project DQOs in the early planning stages of the inspection/investigation. Both the PCP staff responsible for the inspection/investigation and the laboratory involved in data generation, use, and compilation are responsible for ensuring those DQOs are met.

7.2 Information Management Plan Requirements

The PCP Coordinator provides instruction to staff on how to document inspections/investigations and file items for data quality control and security, as appropriate. All reports are reviewed by the PCP Coordinator, feedback is provided as necessary, and corrections are made if needed. The PCP Generic QAPP outlines the data management program and requirements.

7.3 Levels of Documentation for Environmental Projects

Documentation is important because it helps users make informed use of data, provides consistency and project memory over time, and allows data to be shared and used.

The PCP develops the following kinds of documentation for environmental projects:

- Project documentation – inspection/investigation reports

- Data set documentation – clear information about what data is collected and how it may be accessed and used

8.0 Quality Planning

8.1 Program and Project Planning

Annual planning for the PCP occurs prior to the end of the fiscal year when the annual work plan and projected budget is submitted. Throughout the year, PCP management and staff periodically meet to discuss goals, objectives, and work strategies.

8.2 Initial Contact with Federal, State, and Local Government Entities, and the Public

The PCP is a partner with EPA in the regulation of pesticides through a Cooperative Agreement to enforce pesticide regulations. Thus, EPA regional and headquarters' offices are significant customers for our analytical and regulatory services. However, other federal, state, and local government entities, as well as the citizens of Alaska may also call upon the PCP for analytical and regulatory support relating to pesticides.

The common needs and expectations include sample and data integrity, scientific accuracy, regulatory correctness, and skill in presenting and defending facts and opinions in legal proceedings.

In the case of EPA, the PCP enters into a Cooperative Agreement at the beginning of each fiscal year which sets forth the general responsibilities and expectations of both parties in relation to pesticide enforcement and compliance activities.

8.3 Planning

In the PCP Cooperative Agreement with EPA, the PCP commits to certain activities or programs, such as investigation of pesticide accidents or misuse, as well as conducting certain types of investigations. Since specifics such as chemical identities, sites, number of samples needed, forensic requirements and so on, associated with such activities cannot be predicted in advance, these responsibilities are described in the sampling plan and project-specific reports. The PCP's generic QAPP covers the basics of field investigation and laboratory analysis which may be included in inspections.

The PCP does not currently conduct any long-term sampling projects. If the PCP agrees to a specific long-term project beyond the scope of unique investigation cases, such as a monitoring program for a specific contaminant, then an individual QAPP for that project would be developed.

When the PCP undertakes an incident or misuse investigation or other project, a PCP staff is assigned to the project. The assigned PCP staff develops a preliminary plan for accomplishing the

requested work to meet the objectives and defines associated data quality requirements. The assigned PCP staff consults with the PCP Coordinator and/or QAM for direction or clarification as needed. In the case of incidents and misuse investigations, time constraints may severely limit the planning process.

The planning process takes the following into account:

- Identifying the regulations involved
- Defining the forensic requirements of the regulations
- Structuring communication between all the parties involved in the inspection/investigation
- Defining the scope of the inspection/investigation to meet project objectives
- Identifying and scheduling activities
- Identifying resources needed
- Identifying health and safety issues
- Defining time-frames to be followed

8.4 Sampling

The determination to use on-site monitoring, and the specific type of monitoring to be conducted, is based on objectives defined in the Generic QAPP. Field screening information, combined with statistics, can be used to define the number and type of samples needed to meet project objectives. Quality control indicators used in on-site monitoring depend on the applicable regulations, the type of equipment, the nature of the materials monitored, and the monitoring objectives. Quality control results, such as blanks and calibrations, are documented.

Note: The PCP does not have the resources to conduct routine monitoring for pesticide worker exposures or effects on water resources or endangered species. Hence, on-site monitoring activities will be conducted only in rare cases.

8.5 Sampling

Sampling activities are designed to meet the regulatory and technical requirements defined during planning. Sample collection is designed to answer questions such as:

- Is a pesticide/condition present?
- Which pesticide is present?
- Are there trends or hot spots?
- How much pesticide is present?

The sampling activity requires the following:

- Coordinating field activities with laboratory activities
- Maintaining sample integrity

- Meeting data quality requirements, as defined by regulatory requirements and PCP.

8.6 Analysis

Analysis involves the characterization of samples based on chemical and/or physical properties. Analysis results in raw data from instrumental analysis, chemical analysis, or physical testing. The analytical methods should be specific and sensitive enough to answer the question posed by the project objectives and meet the data quality goals associated with those objectives. For most inspections and investigations, arrangements will be made prior to the inspection to send collected samples to Washington State Chemical and Hops Laboratory.

Most analytical procedures for the measurement of pesticides are described in the PCP generic QAPP. Laboratory analysts use a variety of published or written materials to aid them in selecting or developing measurement technologies. The PCP maintains a file of laboratory SOPs used in the analytical measurement process.

Quality control indicators and professional knowledge are used to identify instances when general analytical procedures are inappropriate.

8.7 Data Translation

Data translation involves translating raw data into qualitative identifications, quantitative determinations, and/or statements of condition - in other words, into useable information. This process can include arithmetic calculations and statistical evaluation of results for a sample or collection of samples.

8.8 Data Interpretation

The PCP staff assigned to an inspection/investigation, with input from the PCP Coordinator and/or QAM as appropriate, uses sample data to form an opinion about the characteristics of a data set. They use the quality control indicators incorporated into sampling and analyses to support these opinions or to identify limitations of the data. The characteristics of the data set may then be compared to regulatory requirements to determine compliance.

8.9 Health and Safety

Health and safety are an integral part of the PCP's quality system. The PCP carefully considers health and safety issues prior to the initiation of measurement activities. Inspectors do not perform site inspections or investigations where there has been a known or suspected spill or release of a hazardous substance and/or worker exposure. These situations are instead handled by the ADEC Division of Spill Prevention and Response and/or the regional Occupational Safety and Health Administration as appropriate.

9.0 Quality Implementation of Work Processes

9.1 Management Level

The basic provisions for program and project management are found in the PCP's policies and procedures. PCP management participate in every phase of inspection/investigation, from the preliminary discussions, implementation, reporting, and enforcement case support. Changes in time lines and resource needs are discussed and reconciled.

EPA may serve in an independent management oversight function through the review of finished work products and communication of findings to management. Any feedback on quality will be provided in EPA's end of year review and other communications with EPA project managers.

9.2 Program Level

The PCP generic QAPP addresses the objectives of the PCP. The strategy and/or the plan to meet the objectives will be changed as warranted by new information. Activities in the field and in the laboratory will be documented as they occur and may be used to update the generic QAPP as necessary.

Laboratory staff are knowledgeable in a broad range of analytical approaches, from simple spot tests to the state-of-the-art instrumental techniques. Both field and laboratory personnel will be aware of the data quality requirements of the specific investigation and of the importance of documentation and maintaining the chain of evidence in general.

Measurement activities can include the use of both standard and innovative approaches. The laboratory scientists follow prescriptive methods when required to do so by the environmental regulations.

PCP staff along with assistance from the QAM evaluate the analytical data and compare the associated error to the accuracy defined in the DQOs. PCP staff are aware that reliable interpretation of the analytical data requires involvement with and/or knowledge of the previous steps in the measurement and data collection process.

Prior to conducting sampling, the PCP staff will develop a strategy, a sampling plan, and an analytical scheme to enable them to use sample data to meet the project objectives. Any error associated with the sample (variability and bias) are considered in the use of the data. At the program level, PCP staff plan for, verify, and document the accuracy of the information.

9.3 Project Level

A project specific QAPP may be developed to address the project specific objectives as identified during project planning process. The strategy and/or the plan to meet the objectives may be

changed as warranted by new information. Activities in the field and in the laboratory will be documented as they occur and will become part of the project file.

Laboratory staff are knowledgeable in a broad range of analytical approaches, from simple spot tests to the state-of-the-art instrumental techniques. Both field and laboratory personnel will be aware of the data quality requirements of the specific investigation and of the importance of documentation and maintaining the chain of evidence.

Measurement activities can include the use of both standard and innovative approaches. The laboratory scientists follow prescriptive methods when required to do so by the environmental regulations. The laboratory technical staff evaluate the analytical data and compare the associated error to the accuracy defined in the DQOs. They are aware that reliable interpretation of the analytical data requires involvement with and/or knowledge of the previous steps in the measurement process.

Prior to conducting sampling, the Pesticide Control Program staff will develop a strategy, a sampling plan, and an analytical scheme to enable to meet project specific data quality objectives. Any error associated with the sample (variability and bias) are considered in the use of the data. At the project level, PCP staff plan for, verify, and document the accuracy of the information.

10.0 Quality Assessment and Response

The PCP conducts assessments to verify and document the integrity and accuracy of the information generated annually. The goal is to generate scientifically sound and legally defensible information. Assessment is also used to identify opportunities for improving the measurement and data collection process.

CoC procedures are outlined in the generic QAPP. These procedures guard against tampering with the samples or the analytical results. Sampling and analytical procedures are based on known and demonstrated scientific principles. Interpretation of analytical results is based on scientific logic and is backed up by documented quality control indicators.

Quality control indicators are selected that are appropriate for meeting the objectives of the investigation. Those indicators are used to:

- Establish traceability (the ability to trace an analytical result back through the analytical process) to standard reference materials and/or reference methods.
- Demonstrate comparability to true values and/or known experimental results.

In the area of data usability, scientific scrutiny is used to determine if the information resulting from the measurement process is appropriate to meet the data quality requirements. Scientific scrutiny takes the form of questioning the validity of assumptions, models, and methods.

Assessments are ongoing and continuous during an inspection or investigation, from design through data interpretation. Technical assessments are performed by PCP staff.

Technical self-assessment is conducted within the inspection or investigation by the PCP staff assigned to the project. The PCP staff or QAM will use quality indicators to identify problems with sampling and/or analytical procedures and to highlight anomalous results. Quality control indicators can include analysis of blanks, standard reference materials, spikes, and/or QC check standards, the performance of replicate measurements, or the use of alternate analytical methods. If identified, problems will be documented in the project files. If a problem cannot be corrected, the work in progress will be stopped. This phase of the work will not resume until the PCP staff and the laboratory supervisor can agree on corrective action. Corrective action is subject to the same technical assessment as the original procedure.

When a task is completed, the inspector is responsible for reviewing the work product. This review includes evaluating the data and information for completeness, accuracy, and appropriateness to meet the data quality requirements. Guidelines for conducting this type of evaluation are provided by the Pesticide Control Program QAM.

An independent technical assessment may be performed at the request of the PCP staff, either during or after completion of tasks. Such assessment will be conducted by someone not directly involved in the project, such the PCP QAM and/or other scientists with specialized in-depth knowledge in a particular subject area. This type of assessment can also be initiated by the PCP QAM in order to conduct a spot check of documentation, standards and/or chemicals traceability, and the adequacy of quality control indicators to support reported results.

The PCP Coordinator or QAM conducts surveillance of sampling and analytical procedures periodically and ensures that project-specific QAPPs are reviewed and approved, and that SOPs are accurate and current. This assessment is used to revise and/or clarify procedures and to evaluate the adequacy of the current documentation.

The PCP Coordinator, QAM, and PCP staff are empowered to discussions of problems with scheduling, resources, or the need for training at staff meetings.

The PCP QAM may conduct an independent audit to assess PCP staff's management of the project. This type of audit is a qualitative evaluation of quality assurance procedures, from sampling through the reporting of results for a specific inspection. The audit consists of evaluating the procedures and

documents for adherence to PCP policy and procedures. The PCP QAM will communicate audit results via discussions of causes and corrective actions with PCP management and staff.

For program oversight, EPA Region 10 conducts a Quality System Review of ADEC's Pesticide Control Program at a frequency of once every 3-5 years, depending on availability of resources. An on-site Technical System Audit may also be conducted by EPA on some high visibility and controversial inspections/enforcement activities conducted, if deemed necessary. In accordance with the Cooperative Agreement, the PCP prepares an end-of-year report, which is submitted to EPA Region 10 by the end of September. The end-of-year report includes the following:

- A summary of PCP activities and accomplishments as measured against work plan commitments.
- A description of existing and potential problem areas.
- Suggestions for improvements for the coming fiscal year.

A copy of the report is submitted to the EPA Region 10 Project Manager.

11.0 Quality Improvement

PCP management actively supports quality improvement by encouraging the staff to do the following:

- Continually evaluate the effectiveness of current policies, procedures, and practices.
- Apply innovative approaches while maintaining integrity and accuracy.

The assessment process is used to identify opportunities for improving the measurement process. Improvement can take the form of preventing quality problems from occurring by adjusting current work processes, or by seeking out better ways to do the work.

The PCP's goal is to prevent quality problems from occurring or recurring. At the end of selected projects, an evaluation is conducted of what worked and what areas need to be corrected or strengthened. The evaluation can include the findings resulting from scientific scrutiny. PCP staff develop recommendations for improvement, and PCP management decides which recommendations to implement in future investigations. Personnel are encouraged to continually search for better ways to conduct activities.

12.0 References

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EPA. 2017. National Functional Guidelines for Organic Superfund Methods Data Review (EPA-540-R-2017-002). January 2017.