EPA QAPP Training:
Environmental Information Related to Activity Data on Vehicles, Other Mobile Equipment, and Related Fueling Infrastructure

Clean Heavy-Duty Vehicles (CHDV) Program and Clean Ports Program Grants

April 30, 2025

U.S. Environmental Protection Agency

Housekeeping Notes:

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Housekeeping Notes:

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- Click the 'thumbs-up' graphic on a question submitted by another participant to upvote it.

- Questions with more upvotes will be prioritized during the Q&A portion
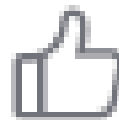
Agenda

Intro to Quality Assurance

Contents of a QAPP

QAPP Support

Questions & Answers

Disclaimer:

The information contained in this presentation is intended for the sole purpose of providing tools and technical assistance to grant recipients under the EPA's Clean Heavy-Duty Vehicles (CHDV) and Clean Ports Programs. Specific questions on how this information relates to a particular grantee's deliverables should be directed to that grantee's EPA Project Officer.

Nothing contained in this presentation should be construed as creating new requirements beyond those already enumerated in each respective grant program's guidance or the terms and conditions that apply to the grantee.

Intro to Quality Assurance

What is a QAPP?

- A Quality Assurance Project Plan (QAPP) is your organization's planning document for conducting a specific project involving environmental information. It is an overview of your organization's specific business rules, policies, and quality assurance/quality control (QA/QC) procedures for conducting the project's activities that involve Environmental Information Operations (EIO).

- The QAPP helps to focus and define some of the key project details and decisions - WHO is doing WHAT, WHERE are they are doing it, WHEN are they doing it, HOW are they are doing it, and WHY are they doing it.

Why Do I Need a QAPP?

2 CFR § 1500.12 requires the EPA to have a Quality Program, and each grant program's terms and conditions include stipulations for awardees to complete an approved QAPP.

The QAPP is designed to:
- Help your project team produce high quality data in a consistent manner.
- Help improve communications with all staff involved with the project.
- Detail each team member's responsibilities such that all parties are aware of their roles within EIO-related activities for the project.
- Help participants understand the importance of the specific project and can serve as both a training guide and legacy documentation.

See also:
- CIO 2105.4: EPA's Environmental Information Quality Policy
- EPA Solicitation Clauses
- https://www.epa.gov/quality/agency-wide-quality-program-documents

When is a QAPP Needed?

- An approved QAPP is required when the project activities involve Environmental Information Operations (EIO).

- Environmental Information includes **data and information** that describe environmental processes or conditions.

- EIO is a collective term that includes the collection, production, evaluation, or use of environmental information including the design, construction, operation, or application of environmental technology.

- Awardees should work with their EPA Project Officer and Regional Quality Assurance Manager to determine the extent to which project activities include EIO.

Indicators that a project's activities may include Environmental Information Operations:

- Gather
- Collect
- Generate
- Monitor
- Evaluate
- Use

- Quantify
- Compile
- Analyze
- Model
- Implement
- Measure

QA Terms and Conditions

- Authority: Quality Assurance applies to all assistance agreements involving environmental information as defined in 2 C.F.R. § 1500.12 Quality Assurance.

- The recipient shall ensure that subawards involving environmental information issued under this agreement include appropriate quality requirements for the work. The recipient shall ensure subaward recipients develop and implement Quality Assurance (QA) planning document[s] in accordance with this term and condition; and/or ensure sub-award recipients implement all applicable approved QA planning documents.

QAPP vs QMP: What is the Difference?

In addition to a QAPP(s), some recipients may also need to develop a Quality Management Plan (QMP). Please discuss requirements with your project officer.

Quality Assurance Project Plan (QAPP):

A QAPP describes how environmental information operations are planned, implemented, documented, and assessed during the lifecycle of a **specific project**.

Quality Management Plan (QMP):

A QMP describes an **organization's quality program**, including descriptions of its internal quality procedures for implementing and assessing the effectiveness of the program; criteria for and areas of application; and roles, responsibilities, and authorities.

What is the process to develop and approve a project's QAPP?

- Grantees are responsible for developing a QAPP.

  - Details on recommended QAPP contents are included in the slides that follow.

  - Project Officers, grant program teams, and contractor support will be available to provide technical assistance for QAPP development (more detail to follow).

- EPA's Quality Assurance Managers review and approve QAPPs for all environmental information operations projects **prior to any information gathering, work, or use**, except under circumstances requiring immediate action to protect human health and the environment or operations conducted under police powers.

EPA Quality Assurance Project Plan Standard (8/21/2023)

Contents of QAPPs

QAPP Requirements

Quality Assurance Project Plan Standard (8/21/2023)

IT/IM DIRECTIVE STANDARD

Directive No: CIO 2105-S-02.1

*Issued by the EPA Chief Information Officer,
Pursuant to Delegation 1-19*

Quality Assurance Project Plan Standard

https://www.epa.gov/quality/agency-wide-quality-program-documents

QAPP Elements

Group A: Project Management & Information/Data Quality Objectives

Describe the overall **plan** for the project

Group B: Implementing Environmental Information Operations

Describe **how** the plan will be implemented

Group C: Assessment, Response Actions and Oversight

Describe how the project will be **assessed** and at what frequency

Group D: Environmental Information Review and Usability Determination

Describe how the resulting **information** will be evaluated

QAPP OPTIONAL Guide:

Environmental Information Related to Activity Data on Vehicles, Other Mobile Equipment, and Related Fueling Infrastructure

Clean Heavy-Duty Vehicles (CHDV) Program and Clean Ports Program (CPP) Grants

QAPP Guidance Outlines – what to expect

QAPP Guide Documents:
- Environmental Information Related to Activity Data on Vehicles, Other Mobile Equipment, and Related Fueling Infrastructure (CHDV and Clean Ports ZE Technology grants)
- QAPP Outline DRAFT (all awardees)

What these guides do:
- Provide awardees guidance on QAPP elements consistent with the EPA Quality Assurance Project Plan Standard Directive.
- Provide "helper text" to describe QAPP elements.
- Pose key "lead-in" questions to assist in thinking through the project as it pertains to a specific QAPP element.
- Provide examples of how awardees could respond to each QAPP element.
- Provide a list of key references to help with QAPP development.

What these guides do NOT do:
- Serve as a fill-in-the-blank template.
- Include examples that are specific to your organization or project.
- Guarantee that a QAPP will be approved on its first submission.

QAPP Outline: Group A Elements

Group A: Project Management & Information/Data Quality Objectives
- Describe the overall **plan** for the project

Element	Description
A1	Title Page
A2	Approval Page
A3	Table of Contents, Document Format, and Document Control
A4	Project Purpose, Problem Definition, and Background
A5	Project Task Description
A6	Information/Data Quality Objectives and Performance/Acceptance Criteria
A7	Distribution List
A8	Project Organization
A9	Project QAM Independence
A10	Project Organizational Chart and Communications
A11	Personnel Training/Certification
A12	Documents and Records

QAPP Outline: Group A Elements

Group A. Project Management and Information/Data Quality Objectives

A.1 Title Page

Quality Assurance Project Plan for
<add long title of project here line 1>
<add long title of project here line 2>

Grant Number:
<add grant number, line 1>

Prepared by:
<add name of grant applicant, line 1>
<add name of grant applicant, line 2>
<add street address, line 1>
<add street address, line 2>
<add city, county, state, zip code>

Prepared for:
US EPA Region <add EPA Region Number>
<add EPA regional office street address, line 1>
<add EPA regional office street address, line 2>
<add EPA RO city, state, and zip code>

Date prepared:

<add date of submission>

Period of Applicability:

<add period of applicability>

QAPP Outline: Group A Elements (cont.)

A.2 Approval Page

_____   _____
Signature of Project Manager   Date
(Name and Title: Project Manager)
(Organization)

_____   _____
Signature of Project Quality Assurance Manager   Date
(Name and Title: Project Quality Assurance Manager)
(Organization)

_____   _____
Signature of EPA Regional Project Officer   Date
(Name and Title: EPA Regional Project Officer)
(Organization)

_____   _____
Signature of EPA Regional Quality Assurance Manager or Designee   Date
(Name and Title: EPA Regional Quality Assurance Manager or Designee)
(Organization)

QAPP Outline: Group A Elements (cont.)

A.3 Table of Contents, Document Format, and Document Control

Instructions:

This table of contents includes all the elements specified in the EPA QAPP Standard consistent with EPA Quality Assurance Project Plan Standard (Directive No: CIO 2105-S-02.1). If you determine that one of the listed elements is not required for your implementation grant, please retain the section in your QAPP and provide an explanation as to why you believe your project does not require the associated content specified in the EPA's QAPP Standard.

Include a separate "List of Tables and Figures" that follows the main contents, if applicable. Provide page numbers for all tables and figures. It is recommended that tables be listed first, followed by figures.

Example Table of Contents

Group A:	Project Management and Information/Data Quality Objectives	
A.1	Title Page	1
A.2	Approval Page	2
A.3	Table of Contents, Document Format, and Document Control	3
A.4	Project Purpose, Problem Definition, and Background	4
A.5	Project Task Description	5
A.6	Information/Data Quality Objectives and Performance/Acceptance Criteria	6
A.7	Distribution List	7
A.8	Project Organization	8
A.9	Project QAM Independence	9
A.10	Project Organizational Chart and Communications	10
A.11	Personnel Training/Certification	11
A.12	Documents and Records	12
Group B:	Implementing Environmental Information Operations	
B.1	Identification of Project Environmental Information Operations	14
B.2	Methods for Environmental Information Acquisition	15
B.3	Integrity of Environmental Information	16
B.4	Quality Control	17
B.5	Instruments/Equipment Calibration, Testing, Inspection, and Maintenance	18

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QAPP Outline: Group A Elements (cont.)

Outline Structure of Sections Starting at A.4

Sub-section Header

- Description of QAPP element

- 'Helper' questions to consider addressing in response to each section (tailored to each program's typical grant activities)

- Example QAPP response for each section

QAPP Outline: Group A Elements (cont.)

**Description of QAPP Element –
Mobile Equipment & Infrastructure Deployment QAPP for CHDV and Clean Ports ZE Tech Awards**

A.4 Project Purpose, Problem Definition, and Background

Instructions:

In this section of the QAPP, state the specific environmental problem that is to be investigated, the purpose of the project's collection and use of environmental information, the type of information needed, the problems and questions to be addressed, and decision(s) to be made. For example, if the purpose of the project's collection and use of environmental information is to ensure the data quality of vehicle and equipment activity data collected for project reporting under a specific grant, then this section could discuss the need to provide accurate information on vehicles, equipment, and infrastructure covered under the grant award. Further, this section could briefly discuss the types of questions that would be addressed by collecting data for project reporting, and the acceptance criteria for the data related to vehicles, equipment, and infrastructure. For additional decision points and data needs, please consult your respective grant program's reporting requirements and templates.

Include sufficient background information in this section to provide a historical, scientific, and regulatory perspective for the project. If data has been collected in the past or if this is a revised QAPP, historic information / data should be summarized. Some information can be pulled from the approved workplan. For example: If the project includes vehicle or equipment deployment similar to past fleet upgrades, a discussion of the assumptions and findings of the prior deployment could be included here. Also in this section, identify other QA planning documents (e.g., QMPs) and briefly describe their relation to this QAPP.

QAPP Outline: Group A Elements (cont.)

'Helper' questions –
Mobile Equipment & Infrastructure Deployment QAPP for CHDV and Clean Ports ZE Tech Awards

When describing the project purpose, problem definition, and background, consider addressing the following questions if applicable to your project type:

- What is the environmental problem / issue to be studied?
- What is the background / history of the project?
  - Is this an update to or expansion of prior work?
- What is the purpose of collecting and using environmental information for the project?
- What are the sources for collecting environmental information?
  - What type, quantity, and quality of information is needed?
- What planned environmental decisions or actions might this work inform?
- What is the geographic extent of the project/data collection?
  - In which counties will vehicles deployed as part of this project operate?
  - Where will the fixed infrastructure components of this project be installed?
- What is the temporal scope of the project/data collection?
  - What is the cadence of reporting?
  - What is the extent or duration of the planned reporting?
- What types of vehicles, equipment, and/or infrastructure are included in the data collection effort?
  - Does it include onroad vehicles such as commercial trucks or buses?

QAPP Outline: Group A Elements (cont.)

Example Response Text –
Mobile Equipment & Infrastructure Deployment QAPP for CHDV and Clean Ports ZE Tech Awards

Example A.4 (Project Purpose, Problem Definition, and Background)

The "City of ABC" (grantee) currently operates a cargo truck fleet comprised of 50 internal combustion engine cargo trucks. The purpose of this project will be to replace 10 older internal combustion engine (ICE) cargo trucks in the fleet with 10 new zero-emission electric cargo trucks and to install 10 chargers (also referred to as EVSE) to support the new trucks utilizing funds from the Clean Heavy-Duty Vehicles (CHDV) grant program. The oldest cargo trucks in the fleet will be retired first. This project will help reduce harmful emissions, improving air quality in the community. A total of 20 trucks (10 ICE trucks being replaced and 10 new ZE trucks) and 10 chargers will be tracked for this project. Replaced trucks will be scrapped by the end of the project period in accordance with the guidelines as delineated in the approved workplan. The period of performance for this project is the 24-month period of January 1, 2025, through December 31, 2026.

In support of this CHDV grant project and to better understand outcomes associated with the project, the "City of ABC's" Primary Technical Team will regularly collect and compile vehicle and EVSE activity data on the 20 trucks and 10 chargers over the life of this project and periodically submit the data to the EPA. These data will be used to fulfill reporting requirements to the EPA established in the final award's terms and conditions. The purpose of this QAPP is to ensure that the quality of the environmental information collected for these reports meets program and project objectives. The Environmental Information Operations (EIOs) are defined as the activities related to the collection and compilation of vehicle and infrastructure data for the grant:

a) *Collect vehicle and infrastructure activity data.*
The project team will collect activity data for the vehicles and infrastructure involved in this CHDV grant project on a quarterly basis. The data collected will be from the internal combustion engine trucks being replaced, the new zero-emission electric replacement trucks, and the EVSE that will be acquired under this CHDV grant. The program will regularly collect and report the data required in the program's Reporting Template, including but not

QAPP Outline: Group B Elements

Group B: Implementing Environmental Information Operations

- Describe **how** the plan will be implemented

Element	Description
B1	Identification of Project Environmental Information Operations
B2	Methods for Environmental Information Acquisition
B3	Integrity of Environmental Information
B4	Quality Control
B5	Instruments/Equipment Calibration, Testing, Inspection, and Maintenance
B6	Inspection/Acceptance of Supplies and Services
B7	Environmental Information Management

QAPP Outline: Group B Elements (Selected)

B.1 Identification of Project Environmental Information Operations

- Overview: This section describes the Environmental information operations (EIOs) to be conducted and how they satisfy the project purpose, data quality objectives, and performance and acceptance criteria.
- EIOs are the work performed to collect, produce, evaluate, compile, or use environmental information and the design, construction, operation, or application of environmental technology.
- Environmental information can be classified as either:
    - Primary data - environmental data collected directly by the organization whether through field activities or other on-site data gathering activities.
    - Secondary data (also referred to as existing data or non-direct measurements) - may come from several sources, including other studies, government databases, etc.

QAPP Outline: Group B Elements (Selected)

B.2 Methods for Environmental Information Acquisition

- Overview: This section describes how environmental information will be acquired and implemented.
- Considerations for this section could include:
  - For primary data:
    - What primary data will be collected throughout the project period?
    - If analysis of the primary data is necessary, what analytical method will be used to analyze any primary data collected?
    - Did you reference the specific analytical SOPs that will be utilized for each method?
  - For secondary data:
    - What secondary data will be used for any analyses conducted throughout the project period?
    - If the information is to be combined with new environmental information, describe the criteria to ensure compatibility.

QAPP Outline: Group B Elements (Selected)

B.7 Environmental Information Management

- Overview: This section describes how environmental information will be managed from data generation to the final data use and end storage.
- Some considerations for this section could include:
    - How and where are data stored?
    - What type of data acquisition system will be used?
    - How is data integrity maintained? Is raw, unaltered data maintained such that the project team can always see or retrieve the original data? If so, where and how is the raw data maintained?
    - Are procedures to process, compile, and analyze data included in a specific SOP?

QAPP Outline: Group C Elements

Group C: Assessment, Response Actions and Oversight

- Describe how the project will be **assessed** and at what frequency

Element	Description
C1	Assessments and Response Actions
C2	Oversight and Reports to Management

QAPP Outline: Group C Elements

C.1 Assessments and Response Actions

- Overview: In this section of the QAPP, describe the assessments your project team performs or participates in, to ensure the project activities are being conducted as planned and are generating acceptable data.

- Considerations for this section could include:
  - How do you ensure the project is conducted as described in the QAPP?
  - Do you plan to conduct internal systems audits? If so, describe. Who will conduct them and on what frequency?
  - Is there a process in place that would allow project personnel to initiate a corrective action process, if warranted? If so, describe. If included in an SOP, provide the specific reference.
  - Who will assess the effectiveness of a corrective action measure to determine whether it successfully resolved the issue?

QAPP Outline: Group C Elements

C.2 Oversight and Reports to Management

- Overview: In this section of the QAPP, describe how the results of assessments are communicated up the management chain, so that all parties supporting the project – including the lead organization's director (or equivalent) – are aware of data quality issues and concerns.

- Considerations for this section could include:
  - Are there routine reports to the appropriate Supervisor or QA Manager that summarize the reporting period's activities and/or highlights specific reasons for data discrepancies?
  - If during a performance or systems audit issues are found that require corrective action, do you generate a separate Corrective Action Report that is geared towards correcting and monitoring the specific issue?

QAPP Outline: Group D Elements

Group D: Environmental Information Review and Usability Determination

- Describe how the resulting **information** will be evaluated

Element	Description
D1	Environmental Information Review
D2	Useability Determination

QAPP Outline: Group D Elements

D.1 Environmental Information Review

- Overview: In this section of the QAPP, describe the methods or procedures to be used when verifying and validating data, as well as documenting the process. The QAPP should describe who is responsible for each level of data review and what each level of data review entails.

- Considerations for this section could include:
    - Do you have a Data Validation SOP?
    - Do you identify and flag data that may have been considered an outlier or exceptional event?
    - Who verifies the data? On what frequency does it occur and what does it entail?
    - Who validates data? On what frequency does it occur and what does it entail?
    - Is there a hierarchy in this data review process that ensures multiple sets of eyes review the data?

QAPP Outline: Group D Elements

D.2 Usability Determination

- Overview: Determining usability of the environmental information is the culmination of the entire QA process and involves a retrospective evaluation of the planning process. Not all environmental information may end up being suitable for its intended purpose.

- Considerations for this section could include:
  - Describe the overall project evaluation process that will be routinely performed to determine the usability of the data.
  - Identify who will conduct the determination and where documentation of the determination will be kept.
  - Describe communication methods of any known or anticipated limitations on the use of the environmental information, to whom that information will be communicated, and how and where the communication will be documented.

QAPP Outline: Key Takeaways

Address each element of the standard; provide a justification if not applicable

Emphasis is on environmental information operations (EIO), not just data

Focus on QA Manager (QAM) independence

Concentrate on content, not format

(Consider that if the QAPP follows the outline of the QAPP elements in the Standard, then EPA can more readily verify that all elements have been addressed.)

EPA's Grants QA Contractor Support

Clean Heavy-Duty Vehicles (CHDV) Program and Clean Ports Program Grants

EPA Support for QAPP Development

To support CHDV & CPP grantees with developing the required QAPP materials, the following resources will be available:

Optional QAPP Guide

- Compliant with EPA's new QAPP Standard
- Provides the QAPP structure and instructions on what should be included in each section
- Includes sample text for example responses

QAPP Technical Assistance

- Contact your Project Officer to find out about technical assistance

- Work with EPA QA staff to support/expedite review as much as possible

Questions?

Specific questions on how this information relates to a particular grantee's deliverables should be directed to that grantee's EPA Project Officer.

Appendix

Environmental Information Operations:

- A collective term that encompasses the <u>collection</u>, <u>production</u>, <u>evaluation</u>, or <u>use of environmental information</u> and the <u>design</u>, <u>construction</u>, <u>operation</u>, or <u>application of environmental technology</u>.

- Environmental information includes data and information that describe environmental processes or conditions.

- Examples include but are not limited to:
  - direct measurements of environmental parameters or processes,
  - analytical testing results of environmental conditions (e.g., geophysical, or hydrological conditions),
  - information on physical parameters or processes collected using environmental technologies,
  - calculations or analyses of environmental information,
  - information provided by models,
  - information compiled or obtained from databases, software applications, decision support tools, websites, existing literature, and other sources,
  - development of environmental software, tools, models, methods, and applications, and
  - design, construction, and operation or application of environmental technology.

QA and QAPP Resources

EPA Quality Program Guidance

https://www.epa.gov/quality/agency-wide-quality-program-documents

- Environmental Information Quality Policy
- Environmental Information Quality Procedure
- Environmental Information QA Project Plan (QAPP) Standard

EPA Regional Sites for Quality Management Plans and Guidance

https://www.epa.gov/quality/regional-offices