AirKnowledge
DRAFT Content Development Plan (FY 2024-2026)

August 2023

OVERVIEW: This draft plan was developed by the Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (OAQPS) AirKnowledge team. The draft indicates the proposed topics the team anticipates addressing with new training materials in FY 2024–2026.

This content development plan is a living document that evolves to some extent as each year progresses. It is refreshed annually, with EPA and training partner input, to identify the training materials completed at the end of each year, provide a current snapshot of the topics planned for the upcoming two years, fold in a new third year of proposed topics, and make other adjustments as necessary.

The plan reflects needs expressed by AirKnowledge training partners, including: (1) state and local air agencies, (2) national and regional multijurisdictional organizations (MJOs), (3) tribes and tribal organizations, and (4) the EPA (the OAQPS Divisions and EPA Regional Offices). Communities, industry, academia, international audiences, and the public also have an interest in AirKnowledge training materials.

CURRICULA: The AirKnowledge team worked across the EPA and with training partners to develop a set of air quality training curricula that frame the scope of AirKnowledge content development efforts.

The curricula include a broad cross-cutting Air Pollution Basics curriculum and seven curricula that relate to air agency functional areas: Air Quality Planning, Permitting, Air Quality Modeling, Ambient Air Monitoring, Emissions Inventories, Air Toxics Rule Development and Implementation, and Source Emissions Testing and Source Emissions Monitoring.

CONTENT DEVELOPMENT: AirKnowledge training material builds out the detailed information needed by learners for the broad curricula learning objectives. Content development work to address the curricula learning objectives and maintain current information will be accomplished on an ongoing basis.

- This plan reflects the AirKnowledge team's current status with respect to planned content development efforts for FY 2024 and FY 2025 as they have evolved since last year's plan (for FY 2023-2025). In addition, content development efforts are included for a new year, FY 2026. These are based largely on:
    - input on training priorities received from training partners,
    - current EPA priorities, and

  - the judgment of the AirKnowledge team (e.g., topics that flow neatly from recently completed content).

- The plan indicates the training materials the AirKnowledge team would complete in each year; content development typically begins at least a year prior to the completion dates indicated in this document. As a result, the topics indicated for the first year of this plan (FY 2024) are more firm than those indicated in subsequent years because the FY 2024 development efforts are already well underway.

- Reasons for shifting a topic from one year to another within the content development plan include: subject matter expert availability, emerging priority needs, and changes in available resources (in particular, the AirKnowledge team currently has fewer members than in prior years). In addition, refinements to the projects indicated in the plan are made to address learners' training needs and subject matter experts' recommendations.

- EPA anticipates further discussions with MJOs to identify key curricula learning objectives that are not addressed by existing training content or by this plan. MJOs could consider addressing these gaps as they map out their plans for the training materials that they will take the lead on developing in the coming years.

- In an effort to further integrate, as appropriate, tribal and environmental justice topics within new AirKnowledge training materials, the content development process incorporates a review to better ensure that each product reflects these perspectives.

COMPLETED CONTENT: New AirKnowledge training materials completed during the past two years are identified in the attachments to the plan. These materials are available to states, local governments, tribes, tribal organizations, and MJOs on the AirKnowledge Learning Management System (LMS), which offers the ability to store learners' progress and provides access to instructor-led classes. The materials are also available to the public on the AirKnowledge website airknowledge.gov.

SUMMARY

Click on the links in the list below to jump directly to the relevant location in the plan.

FY 2024-2026 *DRAFT* CONTENT DEVELOPMENT PLAN

FY 2024

Air Pollution Basics

Environmental Justice (e-learning module)

This module would be bundled with a second module (i.e., Environmental Justice and Air Permitting Programs) and an exam in FY 2024 to form a course on Environmental Justice and Permitting.

- Curriculum: Air Pollution Basics
- Curriculum Learning Objective:
  - Identify basic issues related to environmental justice
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS and OEJECR, MJOs
- Module Learning Objectives:
  - Explain the historical background leading to the current efforts to address environmental justice concerns
  - Explain how exposure pathways and vulnerabilities can impact certain populations
  - Define key terms relating to environmental justice
  - Identify Federal directives and policies relating to environmental justice (e.g., Executive Orders, EPA policies and guidance)
  - Explain the connections between environmental justice issues and Title VI of the Civil Rights Act
  - Describe environmental justice issues faced by tribes, which have a unique status as sovereign nations

Tribal Air Quality (e-learning module)

This module could be taken in preparation for taking the FY 2025 course on Working With Tribes.

- Curriculum: Air Pollution Basics
- Curriculum Learning Objective:
  - Describe the roles and responsibilities of air agencies under the CAA
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regions, state and local air agencies
- Module Learning Objectives:
  - Describe tribal sovereignty and the Federal trust responsibility
  - Explain Treatment as a State and the Tribal Air Rule
  - Compare tribal outreach vs. consultation
  - Generally describe the EPA consultation process for reference by state and local air agencies that may adopt analogous procedures

Resources to Mitigate Public Health Risks Associated with Wildfires (e-learning module)

- Curriculum: Air Pollution Basics
- Curriculum Learning Objective:
  - Describe tools and resources available for public health messaging
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS and ORD

- Module Learning Objectives:
    - Describe historical trends associated with wildfires and air quality
    - Explain the relevance of the Air Quality Index to wildfires
    - Explain how available resources for public health messaging during wildfires can be used (including Smoke Ready resources, AirNow, Air Trends, Air Data, Air Quality Flag Program, sensors, Wildfire Guide, Smoke Sense)

Air Quality Planning

Assembling an Exceptional Events Demonstration (e-learning module)

This module would be bundled with a module on Exceptional Events Core Concepts (available now) and an exam to form a course on Exceptional Events Demonstrations in FY 2024.

- Curriculum: Air Quality Planning
- Curriculum Learning Objective:
    - Apply the exceptional event demonstration process to case-specific scenarios
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
    - Identify the components of an exceptional events demonstration.
    - Define the term “conceptual model.”
    - Explain what a conceptual model for an exceptional events demonstration must contain.
    - Define the “clear causal relationship” criterion in an exceptional events demonstration.
    - Identify the types of information and analyses that support the “clear causal relationship” portion of an exceptional events demonstration.
    - Explain how individual measurements in the Air Quality System (AQS) are compared with the relevant National Ambient Air Quality Standard (NAAQS) in the “clear causal relationship” portion of an exceptional events demonstration.
    - Describe how events that occur over a period of several days can be aggregated in the “clear causal relationship” portion of an exceptional events demonstration.
    - Explain how data from non-regulatory ambient air monitors may be used in the “clear causal relationship” portion of an exceptional events demonstration.
    - Apply the “clear causal relationship” criterion to develop the appropriate support for an exceptional events demonstration.
    - Describe the demonstration needed to show that an event was “not reasonably controllable.”
    - Describe the demonstration needed to show that an event was “not reasonably preventable.”
    - Identify examples for which a full analysis of the “not reasonably controllable and not reasonably preventable” criterion may not be necessary.
    - Apply the “not reasonably controllable and not reasonably preventable” criterion in an exceptional events demonstration.
    - Generally define the causes of events that may be considered to be exceptional events.
    - Identify examples of events caused by human activity that is unlikely to recur at a particular location.
    - Identify examples of natural events.
    - Apply the “human activity that is unlikely to recur at a particular location or a natural event” criterion in an exceptional events demonstration.
    - Define key terms that specifically relate to exceptional events demonstrations for fire events.

- Explain the consideration that are unique to wildfires for the "clear causal relationship," "not reasonably controllable and not reasonably preventable," and "human activity that is unlikely to recur at a particular location or a natural event" criteria.
- Apply the considerations that are unique to wildfires for the "clear causal relationship," "not reasonably controllable and not reasonably preventable," and "human activity that is unlikely to recur at a particular location or a natural event" criteria.
- Describe the public comment requirements that must be met during exceptional events demonstration development.
- Identify deadlines that apply to the development of an exceptional events demonstration.
- Describe the types of areas that must develop Exceptional Events Rule mitigation plans.
- Locate information on the exceptional events demonstrations that have received EPA concurrence since the Exceptional Events Rule was revised in 2016.
- Identify the example demonstrations that relate to new events for which exceptional events demonstrations are being developed.

Electrostatic Precipitators (e-learning module)

This module would be bundled with two others (Fabric Filters (Baghouses), scheduled for completion in FY 2023, and Cyclones, scheduled for completion in FY 2025) and an exam to form an e-learning course on Examples of Stationary Source Particulate Matter Control Technologies in FY 2025.

- Curriculum: Air Quality Planning
- Curriculum Learning Objective (intermediate):
  - Evaluate control measures and their cost effectiveness
- Delivery Method: e-learning
- Need for Content Expressed By: MJOs, instructors
- Course Learning Objectives:
  - Describe electrostatic precipitators
  - Explain how electrostatic precipitators operate
  - Identify industry trends related to electrostatic precipitators
  - Identify the uses for electrostatic precipitators
  - Determine when to use an ESP
  - Determine how to select an ESP
  - Develop a checklist of maintenance steps to ensure an ESP functions efficiently
  - Explain how to operate the monitoring equipment on an ESP

Air Toxics Rule Development and Implementation

Air Toxics Regulation (in person instructor-led delivery)

This course would replace the now-retired legacy course TOXC102-CI: Maximum Achievable Control Technology (MACT) General Background (formerly NACT 290).

- Curriculum: Air Toxics Rule Development and Implementation
- Curriculum Learning Objectives (foundational):
  - Air Pollution Basics
    - Define the air toxics control program: MACT, GACT, residual risk
  - Air Toxics Rule Development and Implementation
    - Describe how and why air toxics are regulated
- Delivery method: in person instructor-led
- Need for Content Expressed By: MJOs, instructors

- Module Learning Objectives:
    - Explain the regulatory framework for air toxics under the Clean Air Act
        - Describe the listing and delisting of hazardous air pollutants
        - Explain the types of sources regulated under the Clean Air Act
        - Explain how source categories are identified for regulatory purposes
    - Explain the standards for area and major sources under the NESHAP program
        - Describe key components of the NESHAP program
        - Explain technology-based standards for major sources under MACT
        - Explain standards for area sources under GACT
        - Explain residual risk evaluation of standards
    - Explain what other provisions in the Clean Air Act relate to hazardous air pollutants
        - Describe the EPA's regulatory program to address these provisions.
        - Generally identify the categories of sources affected by these provisions.
        - Explain the relationship between the air toxics regulatory program and the NSPS and Title V programs

Permitting

Promoting Environmental Justice and Equity in Air Permitting Programs (e-learning module)

In FY 2024, this module would be bundled with a module on Environmental Justice and an exam to form a course on Environmental Justice and Air Permitting.

- Curriculum: Permitting
- Curriculum Learning Objective (foundational):
    - Explain environmental justice issues related to Clean Air Act permitting programs
- Delivery method: e-learning
- Need for Content Expressed By: EPA OAQPS and OEJECR, MJOs
- Module Learning Objectives:
    - Explain the application of environmental justice considerations in the context of EPA air quality permitting programs
    - Describe opportunities in the permitting process for community engagement

Air Permitting History (e-learning module)

This module will potentially be bundled with additional modules (such as Title V Permitting Program, available now, Process for Issuing a Title V Permit and Building an Effective Title V Permit Record, both expected in FY 2024) and an exam to form a Title V course in FY 2024.

- Curriculum: Permitting
- Curriculum Learning Objectives (foundational):
    - Describe the major aspects of NSR Program history
    - Describe the statutory history of the operating permits program, from its inception
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Regional Offices, MJOs
- Module Learning Objectives:
    - Statutory and regulatory requirements
    - Key guidance documents and policy memos

Process for Issuing a Title V Permit (e-learning module)

This module will potentially be bundled with additional modules (such as Title V Permitting Program, available now, Air Permitting History and Building an Effective Title V Permit Record, both expected in FY 2024) and an exam to form a Title V course in FY 2024.

- Curriculum: Permitting
- Curriculum Learning Objective (foundational):
  - Outline the Title V permitting process
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Regional Offices, MJOs
- Module Learning Objectives:
  - Explain how permitting applicability is determined, in general
  - Explain what a permit application is
  - Describe the roles of state and local air agencies, EPA Regional Offices, and EPA Headquarters with respect to the Title V process
  - Identify preapplication activities (e.g., meetings, protocols, consultations)
  - List what is typically included in an application submittal
  - Describe general practices for writing a Title V permit
  - Explain the statement of basis
  - Identify opportunities for public participation in the permitting process
    - Explain how the permitting authority decides whether to hold a public hearing
    - Outline how the public is notified of a draft permit
    - Identify opportunities to comment and/or request a public hearing, including e-notice/e-access
  - Describe EPA review of a permit (under 40 CFR Part 70)
    - Describe EPA objection
    - Describe a petition for EPA objection
  - Identify how and when a permitting authority issues a permit
  - Outline the process for how the public can appeal a permit decision
  - Explain how the EPA may reopen a permit for cause (under 40 CFR Part 70)

Building an Effective Title V Permit Record (e-learning module/course)

This module will potentially be bundled with additional modules (such as Title V Permitting Program, available now, Air Permitting History and Process for Issuing a Title V Permit, both expected in FY 2024) and an exam to form a Title V course in FY 2024.

- Curriculum: Permitting
- Curriculum Learning Objective (intermediate):
  - Define best practices for writing Title V permits
    - Writing clear, unambiguous permit conditions
    - Enforceability
    - Statement of basis preparation
    - Public participation
    - Response to comments (RTC) preparation
    - Record keeping and reporting
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regional Offices, MJOs
- Module/Course Learning Objectives:
  - Respond to public comments effectively
  - Develop a statement of basis for a Title V permit Technical Support Document

Source Emissions Testing and Source Emissions Monitoring

Stack Testing Across Clean Air Act Programs (e-learning module)

- Curriculum: Source Emissions Testing and Source Emissions Monitoring
- Curriculum Learning Objective (foundational):
  - Describe the sections of the Clean Air Act and the Code of Federal Regulations that include emission test methods and monitoring requirements for stationary sources
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Inspector General, OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
  - Describe where stack testing is included in Clean Air Act programs
  - Explain how stack testing relates to Clean Air Act programs

EPA Review of Training Materials Developed or Updated by MJOs: The AirKnowledge team also anticipates coordinating the EPA review of a training product developed by MJOs in FY 2024. EPA review will depend on factors such as whether the focus of the material is largely within the scope of the AirKnowledge curricula and subject matter expert availability.

FY 2025

Air Pollution Basics

Air Quality Management Under the Clean Air Act course (for in person instructor-led delivery)

This course would replace the legacy course APTI 452: Principles and Practice of Air Pollution Control, which was retired in FY 2023.

- Curriculum: Air Pollution Basics
- Curriculum Learning Objectives:
  - Generally describe the principal components of the air quality management cycle.
  - Identify key historic episodes and events that led to the passage of air pollution control legislation.
  - Describe air pollution control successes since the 1970 passage of the CAA.
  - Generally describe the types of air pollutants.
  - Generally describe the sources of air pollutants.
  - Explain the health and environmental effects of air pollutants.
  - Explain basic concepts in environmental sciences related to air pollution.
  - Describe common engineering practices and technologies used to control or minimize air pollution.
  - Outline relevant information in the CAA.
  - Identify basic issues related to environmental justice.
  - Explain the National Ambient Air Quality Standards (NAAQS).
  - Explain implementation of the NAAQS.
  - Define the operating permit and New Source Review permitting programs.
  - Describe the basic principles for ambient air monitoring.
  - Describe the basic principles for emissions inventories.
  - Distinguish between ambient air monitoring and source emissions testing and monitoring
  - Define the air toxics control program.
  - Explain the process of compliance and enforcement.
- Delivery Method: In person instructor-led delivery
  - Students will take the self-instructional (e-learning) course BASC198-SI: Introduction to Air Quality Management Under the Clean Air Act prior to attending this in person or virtual instructor-led course. The self-instructional and instructor-led courses will be centered on the topics in the following e-learning modules:
    - Air Quality Management Cycle (available now)
    - The History of Air Pollution Control Legislation (available now)
    - Clean Air Act Progress (available now)
    - Structure and Key Provisions of the Clean Air Act (available now)
    - What are Criteria Pollutants? (available now)
    - What are Air Toxics? (available now)
    - What are Greenhouse Gases? (available now)
    - Health Effects of Air Pollutants (available now)
    - Environmental Effects of Air Pollutants (available now)
    - Health and Environmental Effects of Criteria Pollutants (available now)
    - Health and Environmental Effects of Air Toxics (available now)
    - Sources of Air Pollution (available now)
    - What is an Emissions Inventory? (available now)
    - Purposes and Types of Emissions Inventories (available now)
    - National Emissions Inventory (available now)
    - What is Ambient Air Monitoring? (available now)
    - Transport and Fate of Air Pollutants (available now)
    - Introduction to the National Ambient Air Quality Standards (available now)

        - What are Area Designations? (available now)
        - What is a State or Tribal Implementation Plan? (available now)
        - Timeline and Roles for SIP/TIP Submittal and Review (available now)
        - Controlling Air Pollution (available now)
        - New Source Review Program (available now)
        - Title V Permitting Program (available now)
        - Air Toxics Regulatory Program (available now)
        - Tribal Air Quality (expected in FY 2024)
        - Environmental Justice (expected in FY 2024)
        - Compliance and Enforcement (legacy training material from APTI SI-105)
- Need for Updated Content Expressed By: EPA OAQPS, MJOs, instructors
- Course Learning Objectives:
    - Explain the key stages of the air quality management cycle.
    - Explain the key historic events that led to air pollution control legislation.
    - Describe the progress made with air pollution control since the 1970 passage of the Clean Air Act (CAA).
    - Generally describe the major areas of focus in the CAA including criteria pollutants and NAAQS, designation, NAAQS implementation, conformity, transport, Regional haze, air toxics programs, acid rain, permitting, NSPS.
    - Define and describe criteria pollutants, air toxics, and greenhouse gases.
    - Explain the health and environmental effects of air pollutants.
    - Define and provide examples of anthropogenic, biogenic, and geogenic sources.
    - Identify point, nonpoint, onroad/nonroad sources as well as events (wildfires, prescribed fires, agricultural sources).
    - Generally explain the goals, purposes, types, and uses of air emissions inventories, including the National Emissions Inventory.
    - Generally explain ambient air monitoring, including what is measured in the ambient air and where monitors are located.
    - Explain basic concepts in environmental science related to air pollution.
    - Outline the steps in the NAAQS-setting process.
    - Explain implementation of the NAAQS.
    - Identify stationary source controls that are commonly used to reduce air pollution.
    - Describe the Title V and New Source Review permitting programs.
    - Explain the air toxics regulatory program under the CAA.
    - Describe the roles and responsibilities under the Clean Air Act associated with tribes.
    - Explain the importance of identifying and meaningfully engaging with communities with environmental justice concerns.
    - Generally explain the role of compliance and enforcement in CAA programs.

Working with Tribes course (delivery method TBD)

- Curriculum: Air Pollution Basics and Air Quality Planning
- Curriculum Learning Objectives:
    - Air Pollution Basics
        - Explain implementation of the NAAQS
            - Roles of state, local and tribal air agencies
            - State and Tribal Implementation Plans (SIPs and TIPs)
            - The Tribal Air Rule and Treatment As a State for tribes
        - List ways the public can participate in the regulatory process
            - Opportunities for public comment at the federal, state and local levels
            - Tribal outreach and consultation

    - Air Quality Planning
        - Describe NAAQS implementation (in general)
            - Roles of states, tribes, local air agencies and EPA
        - Describe the requirements and process to designate areas as attainment, nonattainment, or attainment/unclassifiable following promulgation of a new or revised NAAQS
            - Federal/state/tribal relationship in area designations
                - Tribal policy for designation as a separate area
- Delivery method: TBD, possibly in person instructor-led
- Need for Content Expressed By: EPA OAQPS and Regional Offices
- Course Learning Objectives:
    - Explain key Federal Indian law concepts: Understanding Jurisdiction, the Federal Trust Responsibility, Tribal Treaty Rights and Legal Issues Regarding Implementation of EPA Programs in Indian Country
    - Explain the importance of respect for cultural identity and tribal sovereignty
    - Identify opportunities for tribes to participate in the regulatory process
        - Outreach
        - Consultation – overview of EPA's consultation policy
        - Public comments and hearings

Air Quality Planning

Control of Stationary Source Particulate Emissions (in person instructor-led course)

This course would replace the legacy course PLAN360-CI: Control of Particulate Emissions (formerly APTI 413).

- Curriculum: Air Quality Planning
- Curriculum Learning Objective (intermediate):
    - Evaluate control measures and their cost effectiveness
- Delivery Method: in person instructor-led; may include a site visit
- Need for Content Expressed By: EPA OAQPS, MJOs, instructors
- Course Learning Objectives:
    - Describe basic concepts of gases
    - Describe particle dynamics
    - Explain particle sizing
    - Describe cyclone types and performance
    - Describe electrostatic precipitator types, performance, efficiency, applications
    - Describe fabric filtration material, cleaning, design variables
    - Describe wet scrubber theories and systems
    - Describe other stationary source particulate controls
    - Select an appropriate particulate control
    - Operate particulate controls
    - Maintain particulate controls

Cyclones (e-learning module)

This module would be bundled with two others (Fabric Filters (Baghouses), scheduled for completion in FY 2023, and Electrostatic Precipitators, scheduled for completion in FY 2024) and an exam to form an e-learning course on Examples of Stationary Source Particulate Matter Control Technologies in FY 2025.

- Curriculum: Air Quality Planning
- Curriculum Learning Objective (intermediate):
    - Evaluate control measures and their cost effectiveness

- Delivery method: e-learning
- Need for Content Expressed By: EPA OAQPS, MJOs, states
- Course Learning Objectives:
    - Identify the pollutants that are controlled by cyclones
    - Describe typical industries that use cyclones to reduce air pollution
    - Distinguish between the different types of cyclones
    - Explain how the right type of cyclone is selected for a given use
    - Describe, in detail, the components of cyclones
    - Explain how cyclones operate
    - Examine cyclones to detect maintenance issues
    - Explain the operation of monitoring equipment on cyclones
    - Interpret data from monitoring equipment to resolve issues

Permitting

Best Available Control Technology (e-learning course)

- Curriculum: Permitting
- Curriculum Learning Objective (intermediate):
    - Define major NSR permit requirements
        - PSD permit requirements
            - Top down BACT
- Delivery method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
    - List the key elements of BACT
    - Explain considerations for the BACT review process
    - Define the top down BACT process
    - List the 5 steps of the BACT process
    - Describe the scope of a BACT analysis
    - List the other pollutant specific consideration for BACT with respect to greenhouse gases
    - Demonstrate the steps required in the process for BACT for greenhouse gas controls
    - Apply the 5 steps of the BACT process
        - Identify all available control technologies
        - Eliminate technically infeasible options
        - Rank remaining control technologies
        - Evaluate most effective control technologies & document results
        - Select BACT

Outer Continental Shelf New Source Review Permitting (e-learning course)

- Curriculum: Permitting
- Curriculum Learning Objective (foundational):
    - Describe regulatory authorities for issuing permits
        - EPA authority: issued by EPA regional office
            - Outer Continental Shelf (OCS) jurisdiction
- Delivery method: e-learning
- Need for Content Expressed By: EPA OAQPS
- Module Learning Objectives:
    - Define key terms associated with OCS air quality-related permitting
    - Explain the history of the OCS permitting program

- Identify the statutory and regulatory requirements that apply to the air quality-related permitting of OCS sources
- Describe the types of sources that are subject to OCS air quality permitting
- Identify who issues OCS air quality permits
- Generally describe the OCS air quality permitting process
- Explain how to comment on OCS permits
- Explain how OCS projects are considered under other federal initiatives such as Title 41 of the Fixing America's Surface Transportation Act (FAST-41)

Types of New Source Review Permits (e-learning module)

Several modules will be bundled with an exam in FY 2026 to form a foundational-level NSR course. The following modules may be included in the course: New Source Review Program (available now), Air Permitting History (available in FY 2024), Types of New Source Review Permits (available in FY 2025), New Source Review Permitting Process (available in FY 2026), and New Source Review Guidance and Resources (available in FY 2026).

- Curriculum: Permitting
- Curriculum Learning Objective (foundational):
  - Outline the types of NSR permits and the basic requirements for each
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
  - Define Key NSR terms
  - Describe the types of NSR permits, including major source (PSA and nonattainment NSR), minor source (synthetic minor sources, true minor sources, tribal NSR), and other permitting options (general permits, permit by rule, and plantwide applicability limitations)
  - Generally explain the requirements for each types of NSR permit
  - Generally outline the contents of NSR permits

Source Emissions Testing and Source Emissions Monitoring

Stack Testing: Test Method Key Concepts (e-learning module)

- Curriculum: Source Emissions Testing and Source Emissions Monitoring
- Curriculum Learning Objective (foundational):
  - Explain key concepts related to emission test methods
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Inspector General, OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
  - Explain how measurement methods work, including how one arrives at an emission concentration or rate.
  - Explain detection limits and whether compliance can be determined without a "real" number.
  - Describe how emission test methods interface with the regulations for source emission testing and source emission monitoring, including an introduction to alternative test methods and their use
  - Identify different types of stack testing equipment (e.g., sampling train)
  - Locate general performance testing requirements

  - Explain the difference between source testing, source monitoring, and test methods (isokinetic, non-isokinetic and instrumental)
  - Explain the difference between types of testing: engineering testing, performance testing and performance evaluations (also known as relative accuracy test audits).
  - Explain accreditation.

Stack Testing: Pre-Test Planning (e-learning module)

- Curriculum: Source Emissions Testing and Source Emissions Monitoring
- Curriculum Learning Objective (foundational):
  - Describe pre-test planning
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Inspector General, OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
  - Generally describe how test plans/protocols are reviewed.
  - Describe the considerations related to responding to a test plan/protocol submittal.
  - Explain a typical audit sample program, including why audit samples are important and when they are required.
  - Identify safety training and devices that are required for observers.
  - Indicate source responsibilities during a source test.
  - Generally explain what the source tester is expected to do during a test (e.g., field notes and data, lab data and reports, example calculations, QA/QC, explanations for deviations, data outliers, modifications and omissions).

EPA Review of Training Materials Developed or Updated by MJOs: The AirKnowledge team also anticipates coordinating the EPA review of a training product developed by MJOs in FY 2025. EPA review will depend on factors such as whether the focus of the material is largely within the scope of the AirKnowledge curricula and subject matter expert availability.

FY 2026

Air Pollution Basics

Air Quality Management Under the Clean Air Act course (for virtual instructor-led delivery)

This course would replace the legacy course APTI 452: Principles and Practice of Air Pollution Control, which was retired in FY 2023.

- Curriculum: Air Pollution Basics
- Curriculum Learning Objectives:
  - Generally describe the principal components of the air quality management cycle.
  - Identify key historic episodes and events that led to the passage of air pollution control legislation.
  - Describe air pollution control successes since the 1970 passage of the CAA.
  - Generally describe the types of air pollutants.
  - Generally describe the sources of air pollutants.
  - Explain the health and environmental effects of air pollutants.
  - Explain basic concepts in environmental sciences related to air pollution.
  - Describe common engineering practices and technologies used to control or minimize air pollution.
  - Outline relevant information in the CAA.
  - Identify basic issues related to environmental justice.
  - Explain the National Ambient Air Quality Standards (NAAQS).
  - Explain implementation of the NAAQS.
  - Define the operating permit and New Source Review permitting programs.
  - Describe the basic principles for ambient air monitoring.
  - Describe the basic principles for emissions inventories.
  - Distinguish between ambient air monitoring and source emissions testing and monitoring
  - Define the air toxics control program.
  - Explain the process of compliance and enforcement.
- Delivery Method: Virtual instructor-led delivery
  - Students will take the self-instructional (e-learning) course BASC198-SI: Introduction to Air Quality Management Under the Clean Air Act prior to attending this in person or virtual instructor-led course. The self-instructional and instructor-led courses will be centered on the topics in the following e-learning modules:
    - Air Quality Management Cycle (available now)
    - The History of Air Pollution Control Legislation (available now)
    - Clean Air Act Progress (available now)
    - Structure and Key Provisions of the Clean Air Act (available now)
    - What are Criteria Pollutants? (available now)
    - What are Air Toxics? (available now)
    - What are Greenhouse Gases? (available now)
    - Health Effects of Air Pollutants (available now)
    - Environmental Effects of Air Pollutants (available now)
    - Health and Environmental Effects of Criteria Pollutants (available now)
    - Health and Environmental Effects of Air Toxics (available now)
    - Sources of Air Pollution (available now)
    - What is an Emissions Inventory? (available now)
    - Purposes and Types of Emissions Inventories (available now)
    - National Emissions Inventory (available now)
    - What is Ambient Air Monitoring? (available now)
    - Transport and Fate of Air Pollutants (available now)
    - Introduction to the National Ambient Air Quality Standards (available now)

        - What are Area Designations? (available now)
        - What is a State or Tribal Implementation Plan? (available now)
        - Timeline and Roles for SIP/TIP Submittal and Review (available now)
        - Controlling Air Pollution (available now)
        - New Source Review Program (available now)
        - Title V Permitting Program (available now)
        - Air Toxics Regulatory Program (available now)
        - Tribal Air Quality (expected in FY 2024)
        - Environmental Justice (expected in FY 2024)
        - Compliance and Enforcement (legacy training material from APTI SI-105)
- Need for Updated Content Expressed By: EPA OAQPS, MJOs, instructors
- Course Learning Objectives:
    - Explain the key stages of the air quality management cycle.
    - Explain the key historic events that led to air pollution control legislation.
    - Describe the progress made with air pollution control since the 1970 passage of the Clean Air Act (CAA).
    - Generally describe the major areas of focus in the CAA including criteria pollutants and NAAQS, designation, NAAQS implementation, conformity, transport, Regional haze, air toxics programs, acid rain, permitting, NSPS.
    - Define and describe criteria pollutants, air toxics, and greenhouse gases.
    - Explain the health and environmental effects of air pollutants.
    - Define and provide examples of anthropogenic, biogenic, and geogenic sources.
    - Identify point, nonpoint, onroad/nonroad sources as well as events (wildfires, prescribed fires, agricultural sources).
    - Generally explain the goals, purposes, types, and uses of air emissions inventories, including the National Emissions Inventory.
    - Generally explain ambient air monitoring, including what is measured in the ambient air and where monitors are located.
    - Explain basic concepts in environmental science related to air pollution.
    - Outline the steps in the NAAQS-setting process.
    - Explain implementation of the NAAQS.
    - Identify stationary source controls that are commonly used to reduce air pollution.
    - Describe the Title V and New Source Review permitting programs.
    - Explain the air toxics regulatory program under the CAA.
    - Describe the roles and responsibilities under the Clean Air Act associated with tribes.
    - Explain the importance of identifying and meaningfully engaging with communities with environmental justice concerns.
    - Generally explain the role of compliance and enforcement in CAA programs.

What is Regional Haze and How is it Measured? (e-learning module)

- Curriculum: Air Pollution Basics
- Curriculum Learning Objective (foundational):
    - Define air pollution transport and Regional Haze
        - Describe the processes and pollutants that cause Regional Haze
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Regional Offices

- Module Learning Objectives:
  - Define key terms related to Regional Haze, including visibility, Class I area, etc.
  - Identify the Clean Air Act requirements related to visibility
  - Describe the IMPROVE monitoring network
  - Describe the metrics that are used to measure visibility impairment

Public Participation in the Clean Air Act Regulatory Process (e-learning module)

- Curriculum: Air Pollution Basics
- Curriculum Learning Objective (foundational);
  - List ways the public can participate in the regulatory process
- Delivery Method: e-learning
- Need for Content Expressed By: EPA OAQPS
- Course Learning Objectives:
  - Describe opportunities for public comment
  - Describe public hearings
  - Explain informal coordination
  - Describe petitions (e.g., Title V)
  - Compare tribal outreach and formal consultation

Air Quality Planning

Fabric Filters (Baghouses) (in person instructor-led course)

This course would replace the legacy course TOXC241-CI/VI: Fabric Filters (Baghouses) (formerly NACT 282).

- Curriculum: Air Quality Planning
- Curriculum Learning Objective (intermediate):
  - Evaluate control measures and their cost effectiveness
- Delivery Method: in person instructor-led
- Need for Content Expressed By: MJOs, instructors
- Course Learning Objectives:
  - Describe fabric filters
  - Explain how fabric filters operate
  - Identify the uses for fabric filters
  - Select the appropriate fabric filter depending on the particular process needs
  - Operate a fabric filter
  - Monitor a fabric filter
  - Maintain a fabric filter

Permitting

New Source Review Permitting Process (e-learning module)

Several modules will be bundled with an exam in FY 2026 to form a foundational-level NSR course. The following modules may be included in the course: New Source Review Program (available now), Air Permitting History (available in FY 2024), Types of New Source Review Permits (available in FY 2025), New Source Review Permitting Process (available in FY 2026), and New Source Review Guidance and Resources (available in FY 2026).

- Curriculum: Permitting
- Curriculum Learning Objective (foundational):
  - Outline the NSR permitting processes
- Delivery method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regional Offices, MJOs

- Module Learning Objectives:
    - Explain what a permit application is.
    - Identify preapplication activities including meetings, protocols, consultations.
    - List what is included in an application submittal.
    - List actions involved in the permitting authority's review of an NSR application.
    - Identify opportunities available for public participation in the permitting process.
    - Explain how the permitting authority decides whether to hold a public hearing.
    - Outline how the public is notified of a draft permit.
    - Identify opportunities for public comment and to request a public hearing.
    - Identify how and when a permitting authority issues a permit.
    - Outline the process for how the public can appeal a permit decision.

New Source Review Guidance and Resources (e-learning module)

Several modules will be bundled with an exam in FY 2026 to form a foundational-level NSR course. The following modules may be included in the course: New Source Review Program (available now), Air Permitting History (available in FY 2024), Types of New Source Review Permits (available in FY 2025), New Source Review Permitting Process (available in FY 2026), and New Source Review Guidance and Resources (available in FY 2026).

- Curriculum: Permitting
- Curriculum Learning Objective (foundational):
    - Navigate the EPA website to access NSR websites, guidance documents, and other tools (including EPS and RACT/BACT/LAER Clearinghouse)
- Delivery method: e-learning
- Need for Content Expressed By: EPA OAQPS and Regional Offices, MJOs
- Module Learning Objectives:
    - Identify where EPA policies and guidance documents are located.
    - Identify where information on EPA NSR regulations can be found.
    - Identify how the Electronic Permit System (EPS) can be accessed.
    - Describe the RACT/BACT/LAER Clearinghouse and where it is located.
    - Identify where the NSR Policy & Guidance Document Index is located.
    - Identify where other EPA NSR-related resources can be found.

Source Emissions Testing and Source Emissions Monitoring

Stack Testing: Observing Tests and Conducting Audits (e-learning module)

- Curriculum: Source Emissions Testing and Source Emissions Monitoring
- Curriculum Learning Objective (foundational):
    - Apply the basic principles for observing stack tests/conducting audits
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Inspector General, EPA OAQPS, states, MJOs
- Module Learning Objectives:
    - Explain basic considerations associated with the observation of a stack test.
    - Identify check lists that can be used to facilitate source test observation.
    - Explain how to conduct audits of continuous emission monitoring systems (CEMS) and for a stack test, based on the particular test method or procedure.
    - Identify key parameters to watch on the source side during a stack test to ensure the operating conditions of the source re representative and to ensure the emissions can be translated into proper emission factors or operating limits.

Stack Testing: Reviewing Test Reports (e-learning module)

- Curriculum: Source Emissions Testing and Source Emissions Monitoring
- Curriculum Learning Objective (foundational):
  - Review completed source test reports
- Delivery Method: e-learning
- Need for Content Expressed By: EPA Inspector General, EPA OAQPS, states, MJOs
- Course Learning Objectives:
  - Explain how to review a test report to detect deviations, modifications, and omissions.
  - Explain how to use consistency to identify testing problems.
  - Identify example equations and verifying calculations
  - Explain the types of laboratory data that are typically found in a source test report.
  - Explain how the EPA's electronic reporting tool (ERT) should be used to review and enter data from a test report.
  - Identify common errors that are typically found in test reports.
  - Describe SLT/EPA/Inspector General identified deficiencies and enforcement cases.
  - Explain when test results are "good enough" for compliance.

EPA Review of Training Materials Developed or Updated by MJOs: The AirKnowledge team also anticipates coordinating the EPA review of a training product developed by MJOs in FY 2026. EPA review will depend on factors such as whether the focus of the material is largely within the scope of the AirKnowledge curricula and subject matter expert availability.

Share Your Ideas!

Suggestions for training content the AirKnowledge team should consider developing are always welcome and can be sent to AirKnowledge@epa.gov. Suggested topics should be within the scope of the AirKnowledge air quality curricula:

Air Pollution Basics
Air Quality Planning
Permitting
Air Quality Modeling
Ambient Air Monitoring
Emissions Inventories
Air Toxics Rule Development and Implementation
Source Emissions Testing and Source Emissions Monitoring

Attachment 1

AirKnowledge FY 2022 Completed Training Materials

Air Pollution Basics Curriculum:

- E-learning course – BASC102-SI: History of the Clean Air Act and Progress Since Its Enactment
- E-learning course – BASC103-SI: Types of Air Pollutants
- E-learning course – BASC198-SI: Air Quality Management Under the Clean Air Act
- E-learning modules:
    - Health Effects of Air Pollutants
    - Health and Environmental Effects of Criteria Pollutants
    - Transport and Fate of Air Pollutants
    - What is an Emissions Inventory?
    - Purposes and Types of Emissions Inventories
    - Air Quality Management Cycle
    - What is Ambient Air Monitoring?

Air Quality Planning Curriculum:

- E-learning course – PLAN111-SI: What are the Components of Attainment SIPs and TIPs?
- E-learning course – PLAN201-SI: Applying Technical Factors for Area Designations
- E-learning module: Exceptional Events Core Concepts

Ambient Air Monitoring Curriculum:

- E-learning course – AMBM104-SI: Introduction to Ambient Air Toxics Monitoring

Emissions Inventories Curriculum:

- E-learning module - The National Emissions Inventory

In addition to the listed content development efforts completed by AirKnowledge in FY 2022, the AirKnowledge team also worked with EPA OAQPS Divisions to support their efforts to make instructional materials available on the AirKnowledge LMS and website. These included:

(1) Air Quality Assessment Division materials related to the 2022 National Emissions Inventory (NEI) reporting cycle. These materials relate to learning objectives in the AirKnowledge Emissions Inventories curriculum and include modules titled:
    - Data Completeness
    - Nonpoint Survey
    - Oil and Gas 101
    - Oil and Gas Estimation Tool

(2) Health and Environmental Effects Division materials related to the Megacities Partnership. These materials relate to a learning objective in the AirKnowledge Air Pollution Basics curriculum and include a module titled:
    - The Megacities Partnership: A Framework for Air Quality Management

Attachment 2

AirKnowledge FY 2023 Completed Training Materials

Air Pollution Basics Curriculum:

- New e-learning course – BASC106-SI: Health and Environmental Effects of Air Pollutants
- New e-learning course - BASC114-SI: Core Principles of the EPA's Air Permitting Programs

Air Quality Planning Curriculum:

- New e-learning module – Fabric Filters (Baghouses)

Air Toxics Rule Development and Implementation Curriculum:

- New e-learning course - TOXC101-SI: Introduction to Air Toxics
- New e-learning course - TOXC105-SI: Air Toxics Risk Assessment Framework

Emissions Inventories Curriculum:

- New e-learning course - EMIS101-SI: Fundamentals of Emissions Inventories

Permitting Curriculum:

- New e-learning course - PERM210-SI: EPA Air Pollution Control Cost Manual

Source Emissions Testing and Source Emissions Monitoring Curriculum:

- Updated instructor-led course - SRCE103-CI: Introduction to Continuous Monitoring Systems (formerly NACT 221)
- Updated instructor-led course - SRCE104-CI: Continuous Monitoring Systems (formerly APTI 474)

Training Resources on AirKnowledge Learning Management System (LMS) and Website:

- New tool to assist with decisions regarding the selection of a training delivery method
- New instructions for how LMS users can create and share their own learning plan (playlist) compilation of AirKnowledge courses/modules

Attachment 3
Summary of FY 2024-2026
Anticipated New Content Deliverables

[See attached spreadsheet]