



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

AGENDA: 5

Draft Amendments to Regulation 8: Organic Compounds, Rule 8: Wastewater Collection and Separation Systems

**Stationary Source & Climate Impacts
Committee Meeting
September 19, 2022**

**David Joe
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Presentation Outcome



- Provide information and updates on the development of Draft Amendments to Regulation 8: Organic Compounds, Rule 8: Wastewater Collection and Separation Systems (Rule 8-8).

Presentation Outline



- Background
- Recent Rule Development History
- Draft Amendments
- Next Steps

Presentation Requested Action



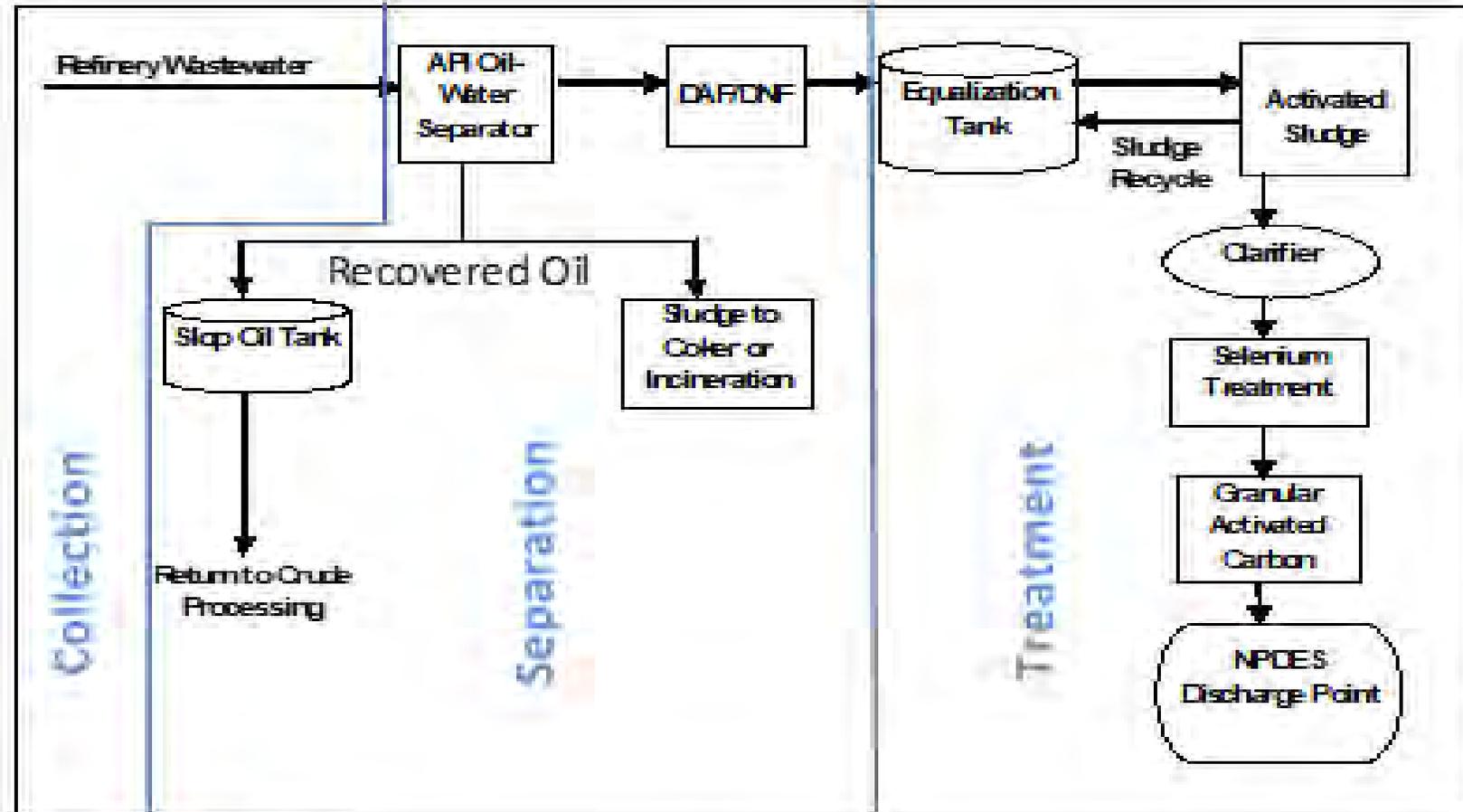
- None; informational item.

Background



- Assembly Bill (AB) 617 Expedited Best Available Retrofit Control Technology (BARCT) Implementation Schedule – Identified potential rule development efforts to evaluate and implement BARCT at refinery wastewater treatment systems.
- Potential source of substantial reductions of organic compound emissions, as well as methane and toxic air contaminants.
- Rule 8-8 last amended over 16 years ago.
- Developing amendments to reduce volatile organic compound and methane emissions (total organic compound emissions) from these systems.

Simplified Wastewater Treatment System



Source: U.S. EPA

Emissions from Wastewater Collection and Treatment Systems



Two primary sources of emissions — volatilization and air entrainment.

1. Volatilization: When wastewater is exposed to the atmosphere it allows compounds to biodegrade and volatilize into the air.
2. Air Entrainment: When liquid containing VOCs is transmitted in the presence of air, that air can be entrained in the liquid, which can be emitted later in the process.

Recent Rule Development History



- January 2020 – Early stakeholder outreach through Refinery Rules Technical Working Group meeting
- March 2021 – Knowledge assessment phase of the Air District's internal Organic Emission Estimation Project completed
- April 2022 – Data requests sent to refineries to solicit information to ensure consideration of the best available source information and emissions estimates
- June 2022 – Responses to the data requests received from the refineries

Findings from the Knowledge Assessment



- Total VOC emission rates may be significantly larger than reported in recent refinery emission inventories
- High emissions likely from secondary treatment systems (backend) can fluctuate and may be highly episodic
- Measurement and characterization of emissions during episodic events can be challenging
- Further study needed to better estimate emissions and understand control potential for these secondary treatment sources

Draft Amendments



Improve Leak Detection and Repair Requirements

- Limit leak emissions of total organic compounds (methane and other organics) from wastewater collection and separation systems
- Vapor tight emissions standard of 500 parts per million by volume
- Strengthen monitoring protocol for repairing leak excesses
- Expand reporting requirements for major leaks

Draft Amendments (cont.)



Improve Enforceability

- Strengthen identification coding requirements for wastewater collection and separation components

Prohibit Discharges to Treatment System

- Prohibit discharge of free phase organic liquid streams into wastewater system

Draft Amendments (cont.)



Update Testing and Detection Methods

- Update requirements to reflect most updated technology and methods for total organics detection

Expand Sampling and Monitoring Requirements

- Require sampling and monitoring to improve characterization of emissions related to secondary treatment system (backend)

Next Steps



- Fourth Quarter 2022
 - Release of Draft Amendments to Rule 8-8 and supporting materials for public comment
- Second Quarter 2023
 - Release of Proposed Amendments to Rule 8-8 and supporting materials for public comment
 - Public hearing for consideration by Board of Directors

Feedback Requested/Prompt



- Questions and comments?



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AGENDA: 6

Air Monitoring during Incidents: Limitations of Current Air District Programs

Stationary Source and Climate Impacts
Committee Meeting
September 19, 2022

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Presentation Outline



- Definition of Incidents
- Proposed Discussion Plan
 - Considering an Incident Monitoring Program
- Goals and Challenges for Measurements During Incidents
- Limitations of Current Measurement Capabilities
- Next Steps

Presentation Requested Action



- None. Informational only.

Definition of Incidents



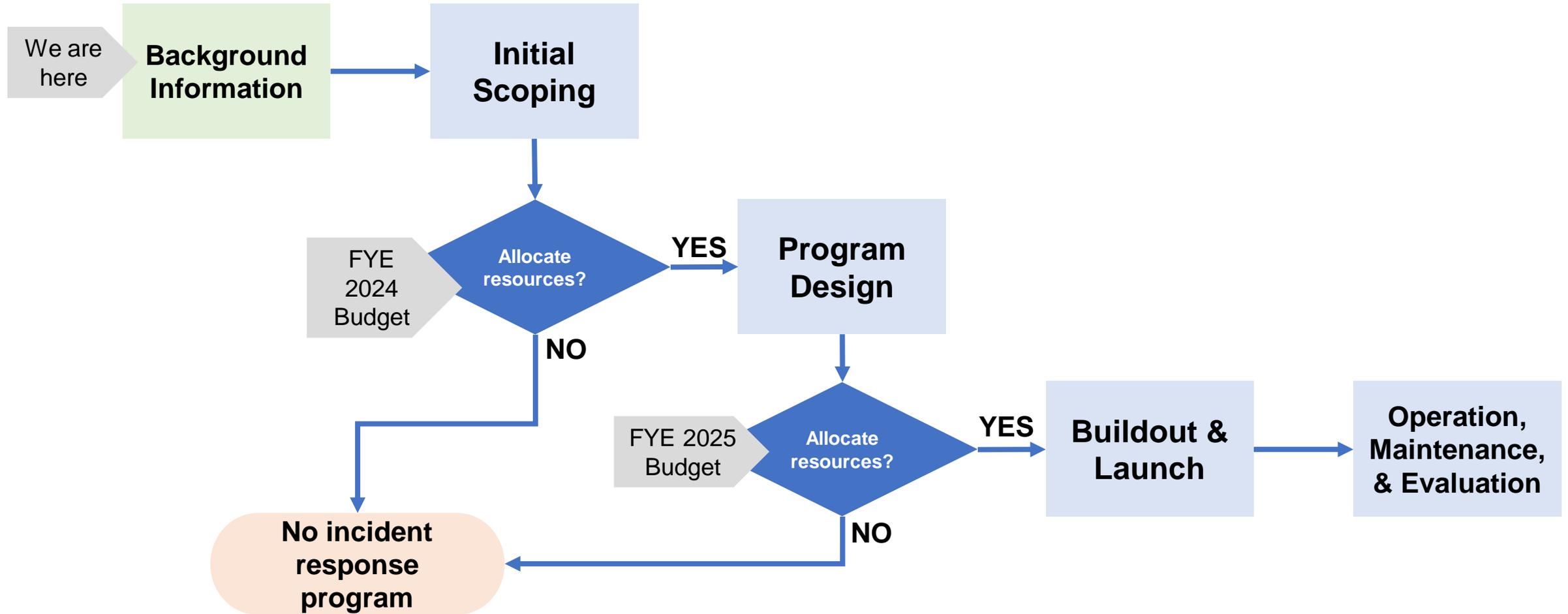
- Non-routine release of an air contaminant that may cause adverse health consequences, cause a public nuisance, or environmental damage (Regulation 3, Fees).
- Examples: Facility fire, unplanned upset or flaring, hazardous materials release, odors, wildfire.
- Air District Role:
 - Not an emergency response agency; not staffed with first responders.
 - Emergency Operations Plan, includes advising first responders and incident managers.

Current Measurement Capabilities are Insufficient for Incidents



- During incidents, Air District often gets requests for air monitoring from the public
- Air District does not have an incident monitoring program
- Consider an incident monitoring program?
 - Understand community concerns and current capabilities
 - Evaluate the costs and benefits of an incident monitoring program, including relative to current backlogged work and other priorities
 - Decide whether to dedicate resources to plan and build out a program

Proposed Discussion Plan: Considering an Incident Monitoring Program



Challenges with Monitoring Air Pollution during Incidents (Slide 1 of 2)



Possible Concerns

1. What should I do to protect my health?
2. What are health impacts during an incident?
3. What are longer term health impacts?
4. Strong enforcement
5. Incident prevention

- Current monitoring programs designed for other goals
- Lack of health research studies on long-term impacts and mixtures of pollutants
- Requires more than monitoring (root cause analyses, process safety management, strengthened regulations, coordination with other agencies)

Challenges with Monitoring Air Pollution during Incidents (Slide 2 of 2)



- Unanticipated timing and location
- Different types of incidents
- Different and/or unknown pollutants
- Meteorology



Types of Measurement Approaches: Source Testing



Measurements of emissions from sources at facilities (e.g. stacks)



Purpose

- Supports permitting, enforcement, emissions inventories

Limitations

- Measurements cannot be taken during an active incident
- Not suited for emissions with unknown composition and from unanticipated locations

Relevance for Incidents

Not relevant

Types of Measurement Approaches: Ground Level and Fenceline Monitoring



Air quality monitoring systems installed inside and around facilities at the ground-level



Purpose

- Can detect unexpected facility emissions released near the ground that may impact communities

Limitations

- Only measures a small number of pollutants
- Unlikely to detect emissions that are released higher from the ground
- Measurements are not taken in communities

Relevance for Incidents

If the incident releases specific pollutants near the ground

Types of Measurement Approaches: Grab Sampling



Air is pulled into a container, sealed, and tested in a lab



Purpose

- Can be taken in communities to understand what's in the air

Limitations

- Difficult to catch plume (measures small number of locations near ground)
- Laboratory analysis of samples can take several days
- Different pollutants require different sampling and analysis methods
- Safety of personnel taking samples

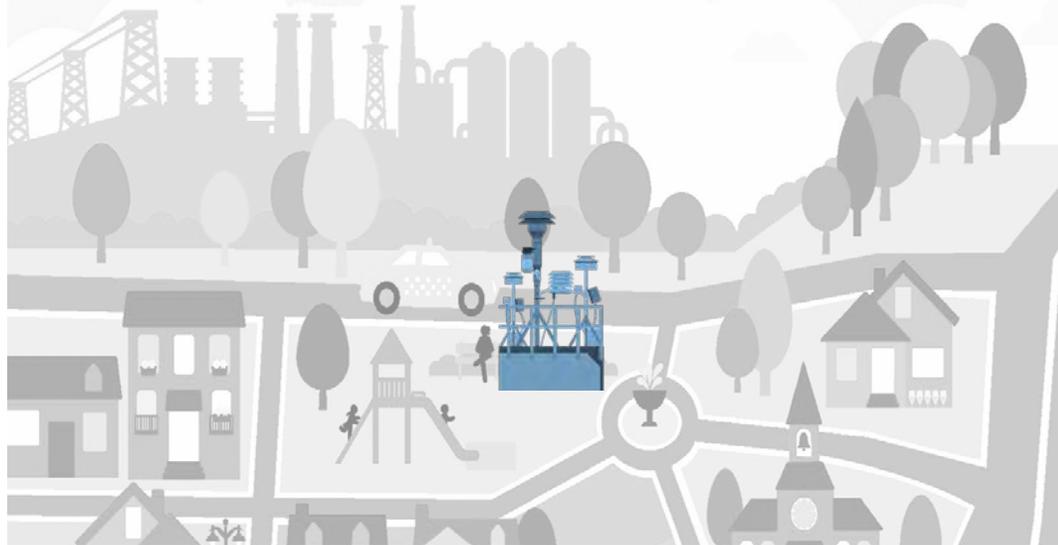
Relevance for Incidents

Provides some information after the incident may be over, but likely to miss pollutants

Types of Measurement Approaches: Long-term Stations



Regulatory stations and facility-operated community stations provide continuous, hourly, or daily air quality information for multiple pollutants



Purpose

- Comparison to health-based air quality standards
- Air quality trends over time
- Support strategies to improve air quality
- Provide data to the public

Limitations

- Limited locations
- Different sets of pollutants measured at each location
- Unlikely to detect emissions that are released higher from the ground

Relevance for Incidents

If the pollution impacts a monitoring station location

Types of Measurement Approaches: Mobile Monitoring



Instruments on a vehicle to collect air quality data in targeted areas while in motion



Purpose

- Screening for potential air quality issues
- Multiple locations, can focus on communities with disproportionate impacts

Limitations

- Requires multiple days of data processing and review (not real-time)
- Measurements cover multiple locations, but still limited to one location at a time on the ground
- Requires advanced planning and preparation
- Safety and availability of staff

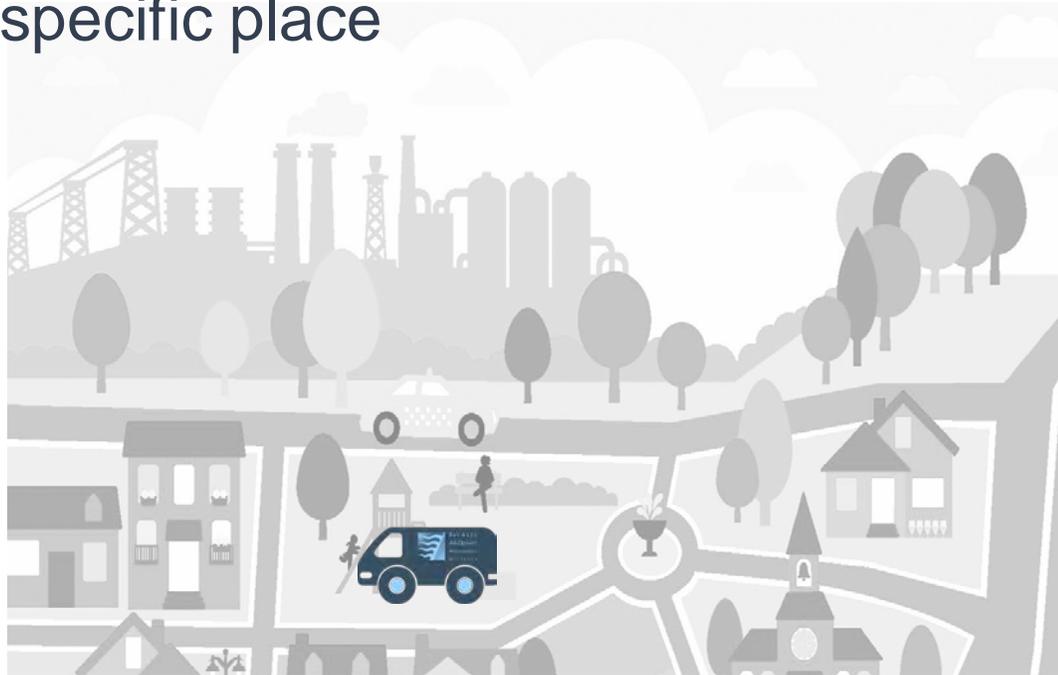
Relevance for Incidents

Not relevant

Types of Measurement Approaches: Portable Monitoring



Instruments on a vehicle or trailer to collect stationary air quality data at a specific place



Purpose

- Assess short-term trends or verify air quality issues at a specific location
- Many pollutants possible

Limitations

- Limited duration without source of shore power
- Requires multiple days of lab analysis, data processing and review (not real-time)
- Measurements in one location at a time on the ground
- Requires advanced planning and preparation for deployment
- Safety and availability of staff

Relevance for Incidents

Marginal relevance

Types of Measurement Approaches: Sensor Networks



Lower-cost, real-time sensors



Purpose

- Real time data to compare locations or over time
- Higher density data
- community-led science

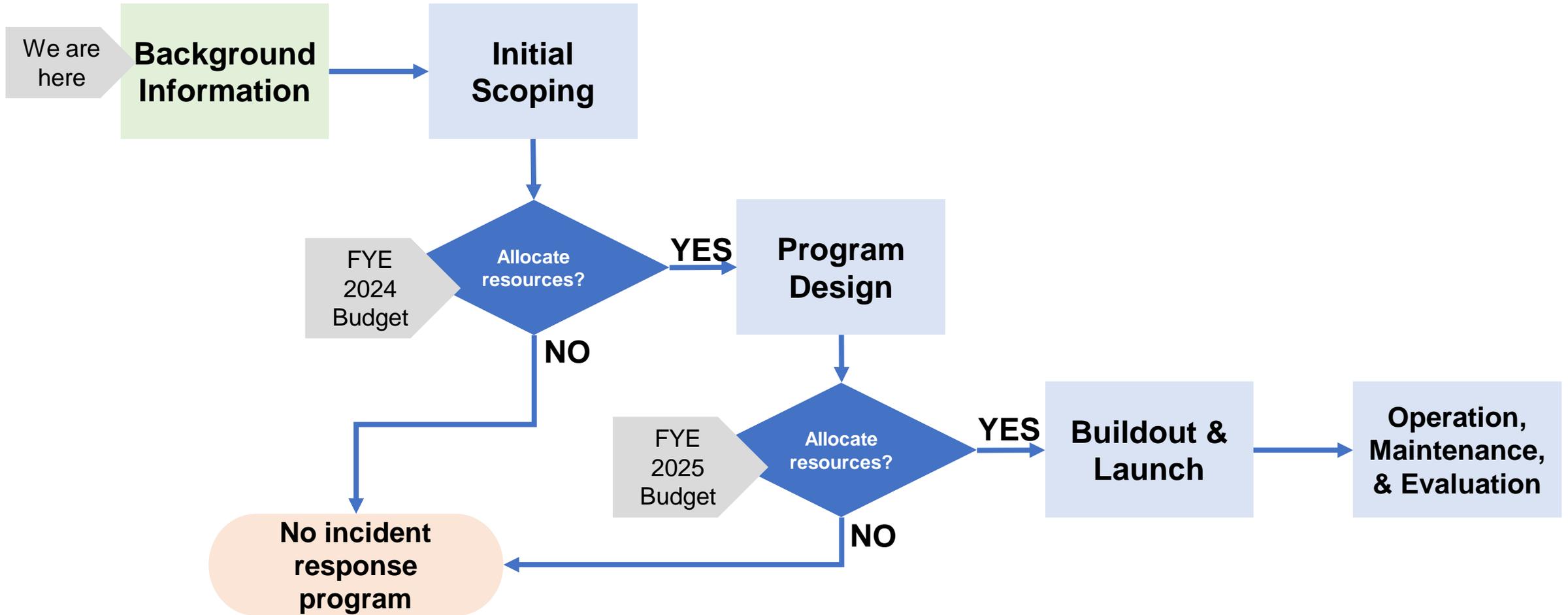
Limitations

- Only includes fine particulate matter (PM_{2.5})
- Less coverage in some communities
- Less confidence in exact numbers
- Unlikely to detect emissions that are released higher from the ground

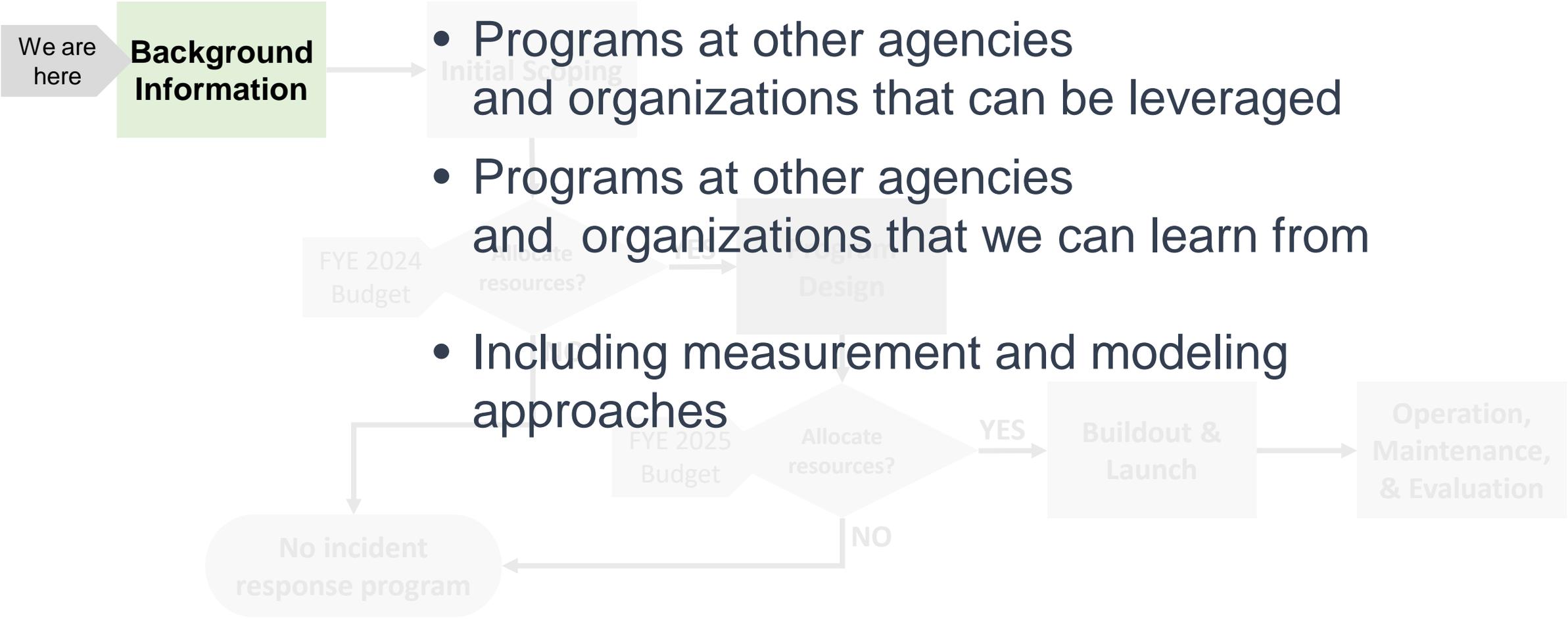
Relevance for Incidents

If the incident involves a fire, and only addresses concerns about PM_{2.5}

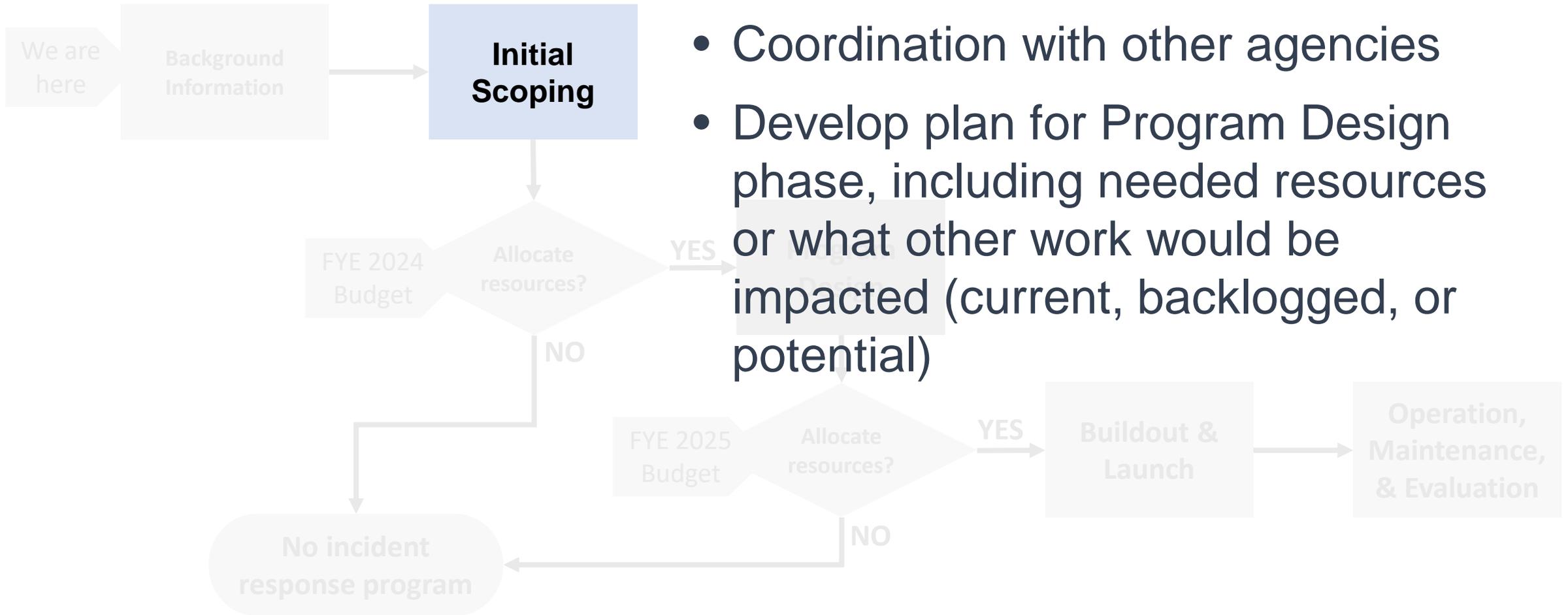
Proposed Discussion Plan: Next Steps



Next Steps: Background Information



Next Steps: Background Information Cont'd



- Coordination with other agencies
- Develop plan for Program Design phase, including needed resources or what other work would be impacted (current, backlogged, or potential)