Emissions Factors and Policy Applications Group (EFPAG)

Our Vision for the Emissions Factors Program

Emissions Factors Improvement Workshop

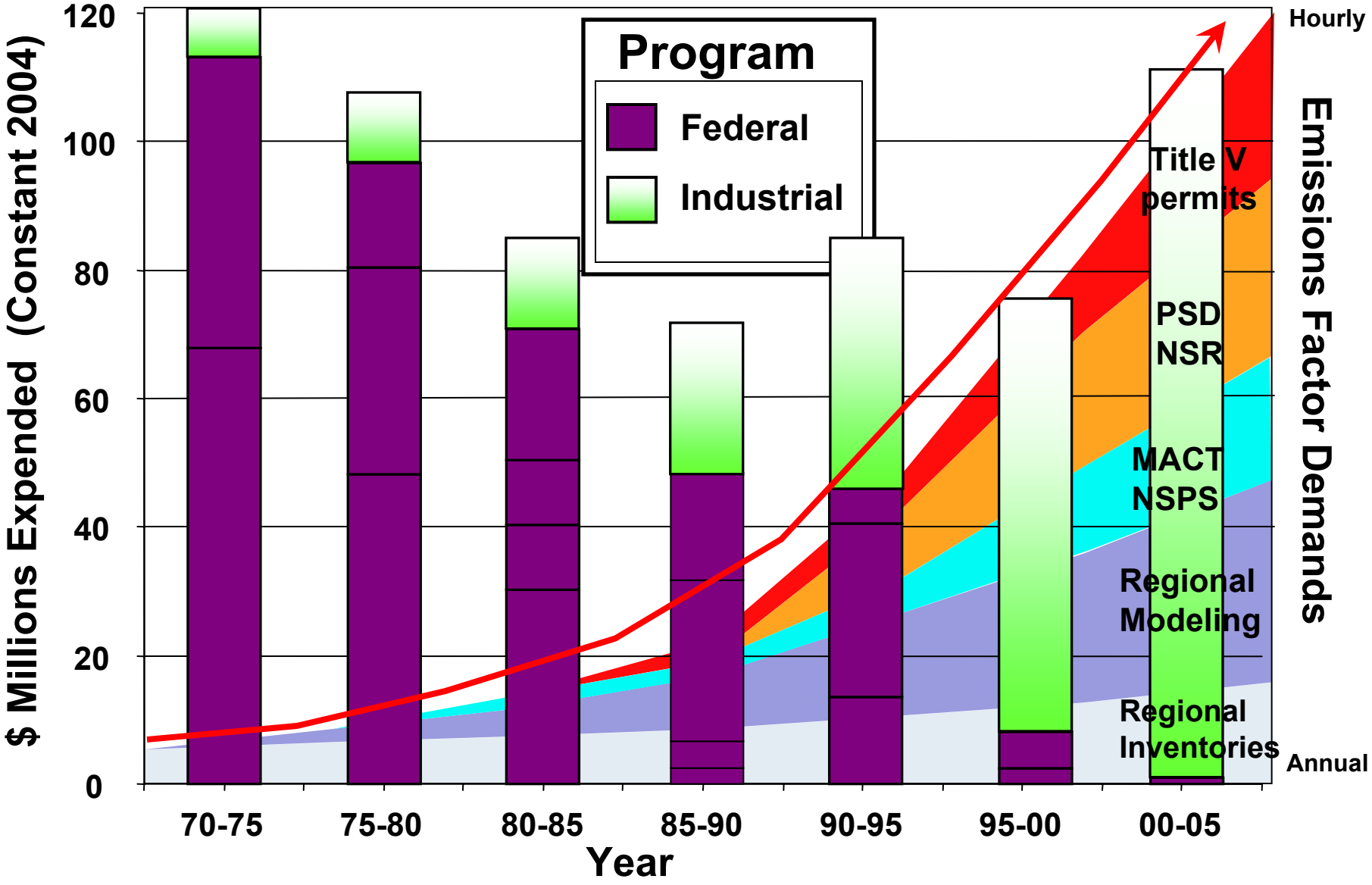
Clearwater, Florida

June 2004

Purposes for today's workshop

- Review current EF program
- Discuss problem areas and stakeholders concerns
- Link EF program goals with EFPAG mission
- Describe planned FY04 activities and products
- Group discussions of EF improvement goals and activities

What is the State of the EF Development Program?



What is the state of the current EF program?

- **Established >25 years ago to support criteria pollutant inventories and modeling efforts**
  - Historically in-house EF development focus
  - Modest improvements (e.g., electronic access)
  - Unchanged but fewer $
- **Has become fragmented and episodic**
  - Fewer resources for addressing new source categories and pollutants (e.g., HAPs)
- **Provides no guidance or technical support for non-inventory needs (e.g., permitting)**
- **Due for change**

What communications have we started with EF program?

A Fresh Start in FY03 and Continuing:

- Established EFPAG
- Interviewed (many) stakeholders
  - Collecting input from EF users and developers
  - Identifying critical needs
- Assessed current activities and resources
- Identified and evaluated potential project areas and partners

Who cares about the program?

- Inventory users
  - EPA, OAQPS (EMAD, ESD and AQSSD), ORD, OECA, OAP
  - State, local, and regional planning offices
- Permitting agencies and permitted sources
  - Federal, State and local permitting and enforcement offices
  - Companies subject to NSR decisions and EF-derived permit limits

What are the elements for leading change in FY04?

- Facilitate enhancement of current EF development process and strengthen evaluation criteria and analytical procedures
- Advance site-specific emissions quantification procedures for Title V, NSR, SIP implementation
- Champion development of new and enhanced emissions factors implementation tools

Presentations

- State Agency - Patrick Gaffney, CARB
- Fact finding – Tom Driscoll, EFPAG
- EF Development projects – Ron Myers, EFPAG
- Applications Issues – John Bosch, EFPAG
- Workshop sessions – Peter Westlin, EFPAG
- Wrap-up – Jamie Kaye Whitfield, EFPAG

Emissions Factors Program Fact Finding Survey

Emissions Factors Workshop

Clearwater, Florida

June 8, 2004

This box links to the final report "Summary of Emissions Factors Improvement Project Fact Finding Survey"

What?

- Meet the people who are implementing the emissions factors program
- Learn the program
- Get a snapshot of the emissions factors program
  - Learn how emissions factors are used
  - Find out what is working
  - Find out what is not working
  - Determine needs

Who?

- State (32), Local (16), and Tribal (1) air pollution control agencies
  - Emissions Inventory, permitting, source testing, enforcement, and policy staff and management
- Industry and Consultants (13)
- Environmental Advocacy Groups (6)
- Federal Agencies (3)
- EPA Offices and Regions (25)
- Others
  - Airport authorities
  - Marine terminal authorities

What did we hear?

- EPA appears to have disinvested from the emissions factors program
- Data from source testing are not submitted to EPA, or, sometimes are submitted to EPA, but don't get into AP-42
- Emissions factors are being misused
- Emissions factors and the associated information are sometimes difficult to find

What did we hear (cont.)?

- There are many sources with few, old, poor or unknown quality, or no emissions factors
- Emissions factors from other sources are used
- Emissions factors may need to be region-specific
- Takes too long to develop emissions factors

What did we hear (cont.)?

- State and Local Programs said that sometimes they don't trust industry or trade association emissions factors or data
- Some of the stakeholders said that they don't feel like they can contribute or their voices aren't heard in the emissions factors development

Opportunities for Collaboration

- Don’t have time to help
- Participate in workgroups
- Help develop specific emissions factors, e.g., HAPS, aircraft emissions
- Help develop process for submitting test info electronically
- Help develop and test the new protocol for establishing emissions factors

New EF Development Directions

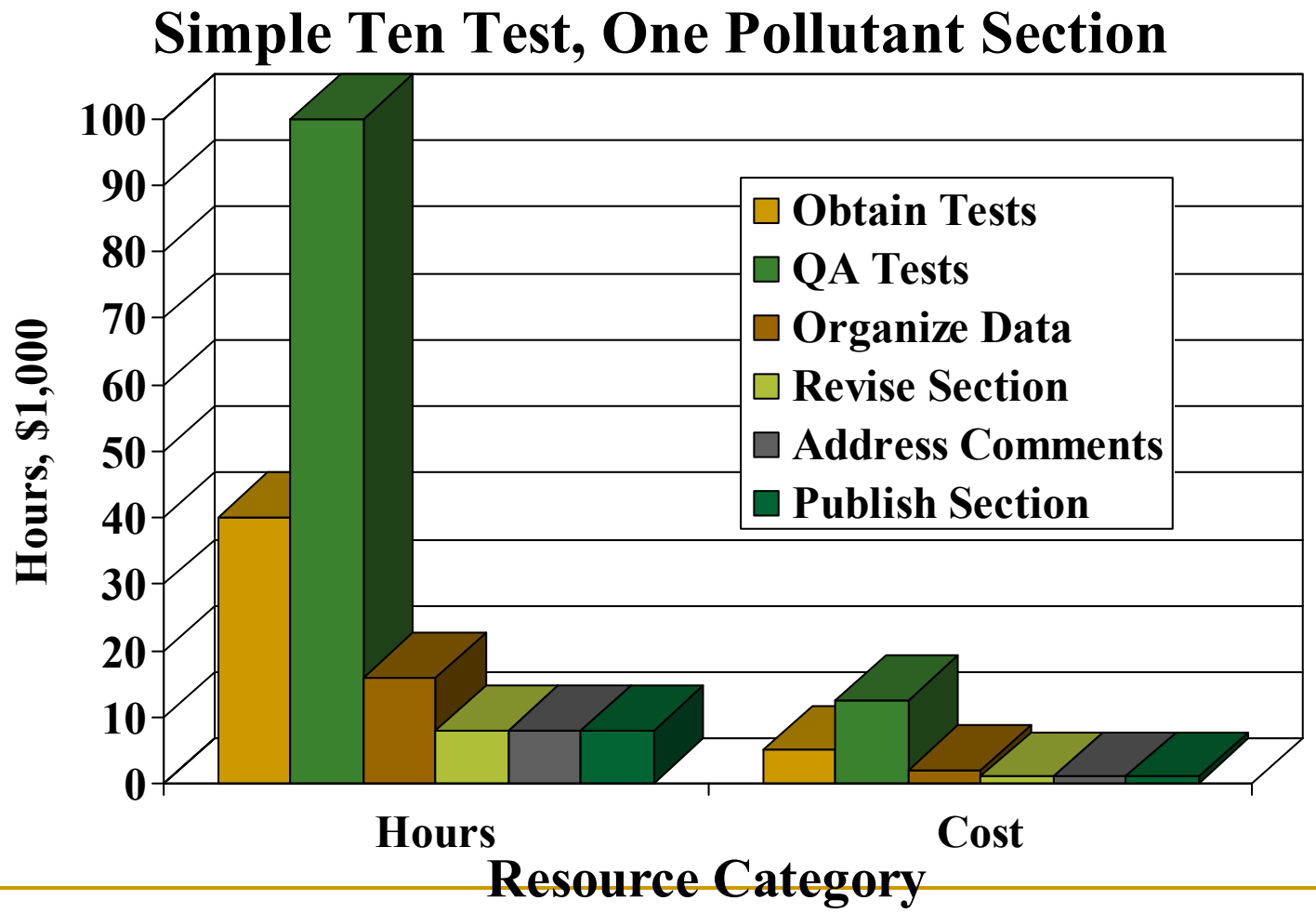
An Updated Program
for a New Century

Ron Myers
Emission Factors & Policy
Applications Group

Overview

- 20th Century Development Considerations
- Areas Ripe for Advancing Process
- Scope of Underutilized Programs
- Active Knowledge Development

Where do Current EF Development Resources Go?



Data Usage Considerations

- **Paper, Paper, Everywhere**
  - EF Development
    - Information in multiple locations
    - Underutilized information
    - Subjectively focus on bias issues
    - Duplicates State Assessments
    - Manual transcriptions
  - State Test Assessments
    - Multiple manual transcriptions
    - Some are very rigorous
    - No clear standard
    - Subjectively focus on bias and precision issues
    - Some bias acceptable
    - Focus on compliance

Opportunities to Improve System

- Expand/Revise Format of Source Tests
- Standardized Assessment Processes
- Use People with Most Knowledge
- Employ Standard Electronic Data Rules

Industry/State Resource Efforts *

- **Industry Source Testing**
  - Compliance Source Testing
  - Estimated 3,800 Tests per year
  - Estimated Cost of $45 million
- **State Resources**
  - Quality Assurance Oversight
    - Field Observations
    - Process Observations
    - Test Report Evaluation
  - Over 300 Full Time Equivalent People

*Extrapolated from STAPPA/ALAPCO Survey of by Dave Cline, Indiana DEM

Our Active Project Area Efforts

- **Source Test Assessment Processes**
  - Use existing state test report review processes
    - Several are more rigorous that EF process
    - All are at least comparable to EF process
    - Will need to adapt processes for new quantitative method
  - Incorporate Field Observations
    - Not presently used in EF work
    - Provides valuable information
    - Information not in test reports
  - Incorporate Process Variables
    - Most variables not used now
    - Some variables not used are critical
  - Generate Quantitative Quality Indicator

Our Active Project Area Efforts (cont)

- **Enhance Data Transfer Capabilities**
  - Reduce Data Transcription Time
  - Reduce Data Transcription Errors
  - Allow for Open Sharing of Data
  - Reduce Filing Space
  - Response Times Reduced
- **Explore Several Options**
  - Software used by companies & States
    - Word Processing
    - Spreadsheets
    - Data Base Programs
  - Prepare software for data extraction

Our Active Project Area Efforts (cont)

- **Factor Quality**
  - Develop Quantitative Options
  - Include Accuracy Estimate
  - Include Precision Estimate
  - Reduce Users Misinterpretation
  - Allows Uncertainty Propagation
    - Emission inventory applications
    - Non inventory applications

Our Active Project Area Efforts (cont)

- **Identifying non traditional EF Uses**
  - Excess Emissions Penalties
  - Emission Reductions
  - Trading and Banking
  - Regulatory Applicability
  - Many Others
  - Title V Permits
  - PSD/NSR Assessments
  - Applicable Limits
  - Compliance Demonstration
- **Develop Options to Modify or Validate Uses**

Target Dates for Products

- Document Presenting Options, Influencing Criteria and Potential Impacts
  - Nov 2004
- Decision on options for further development
  - April 2005

Emissions Factors Applications Issues

John Bosch, OAQPS

Emissions Factors Applied Beyond Inventories

- Emissions Factors developed for national emissions inventory
  - Represent average, not site-specific, values
- Despite AP-42 guidance, emissions factors used for
  - Program applicability determinations
  - Emissions standards and limits
  - Site-specific permit limits
  - Compliance determinations

Other Beyond Inventories Uses Include

- NSR / PSD modeling
- Some MACT rules
- Certain acid rain sources
- NSR Plantwide applicability limits
- Title V permit fee calculations

EFPAG to clarify appropriate use of Emissions Factors

- Create options paper for quantifying emissions at individual sites
- Partner with stakeholders to create enhanced emissions factor tools
- Conduct workshops to promote tools
- Develop guidance or rules for appropriate use

Partnerships & Collaborations

- Crushed Stone Processing
- Hot-Mix Asphalt
- Turbines and gas-fired Combustion (API)
- TANKS (API)
- Concrete Batching
- Firing Point Study (USArmy)
- PM2.5, Diesel Exhausts, Multi-Metals (DoD)
- Remote Optical Sensing (USAF)

Break for Workshop Sessions

- Tools, rules, and guidance for non-inventory applications
- Establishing, understanding, and using emissions factor data quality information
- Test report assessment and reporting for developing emissions factors
- Tapping into industry-sponsored emissions testing to build emissions factors database
- Authority for approving and criteria for using emissions factors

Looking for Answers in All the Right Places

An assessment of the national emissions factors program and where we are going.

National Emissions Inventory Conference 2004

Session purposes

- To assess challenges facing the emissions factor program over the next 3 to 5 years, and
- To develop action items that maintain your involvement in the future of the program

Session structure

- A forum for frank interchange with:
  - Small group discussions and
  - Combined group review and assessments
- Review at the end of the workshop and actions following the conference

More structure

- Each table has:
  - Facilitator to help the discussion (EFPAG person)
  - Recorder to record the results on flip chart (EMAD person)
  - Reporter to summarize the results for the larger group (group participant – need to identify/elect/volunteer)
  - Group participants to contribute ideas

Ground rules

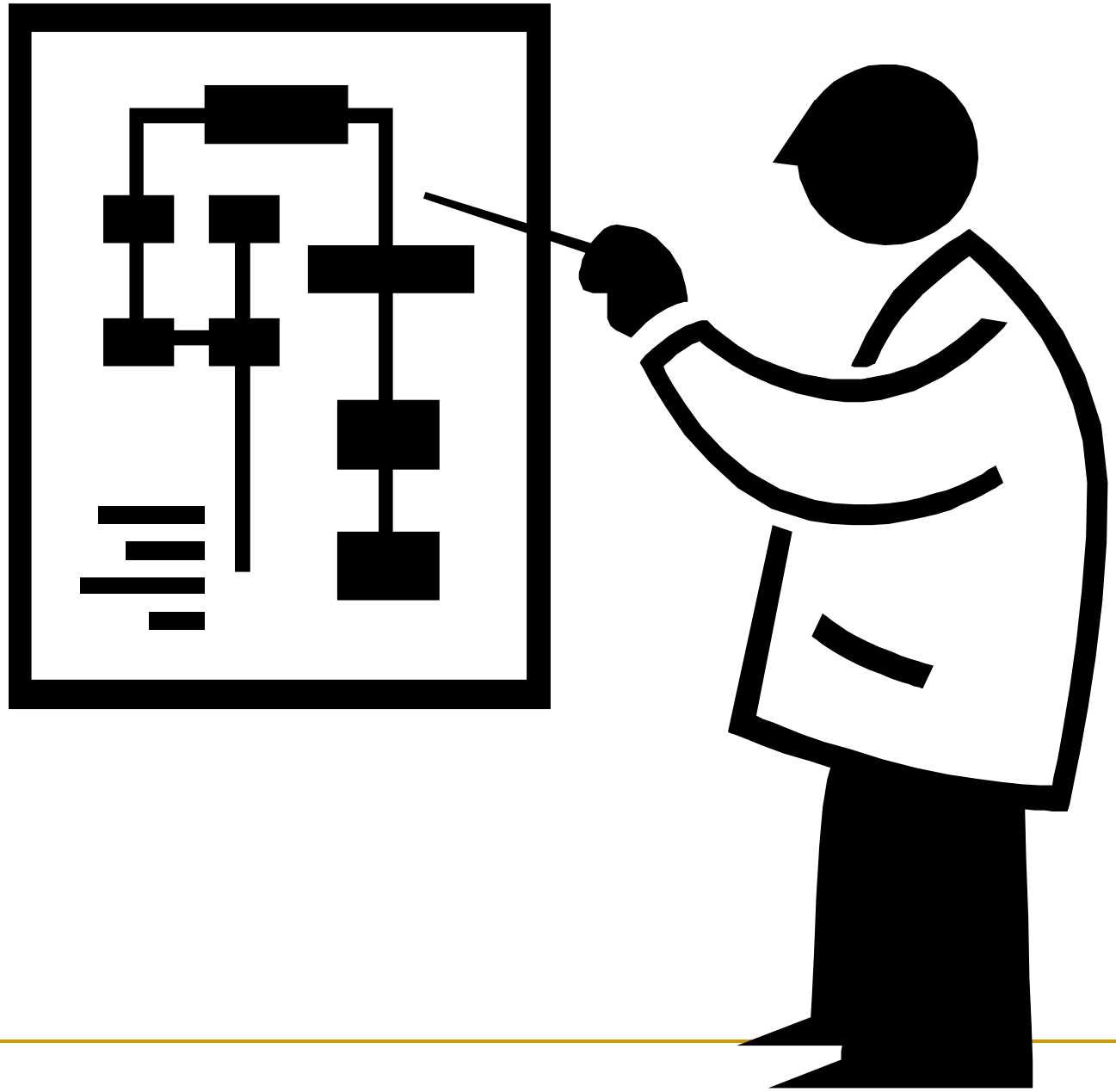
- Respect for each other and our opinions is inherent, act accordingly!
- All ideas are acceptable (see above)
- One voice at a time- let the facilitator facilitate
- Everyone will have opportunity to contribute
- Focus comments on interests, not positions (we are not here to bargain)

Starter

- Introduce yourselves to each other
- List as many as you can - products and applications involving the emissions factors program; examples:
  - National PM and PM_{fine} inventories
- Record on the flip chart paper at your table
- You have 4 minutes!

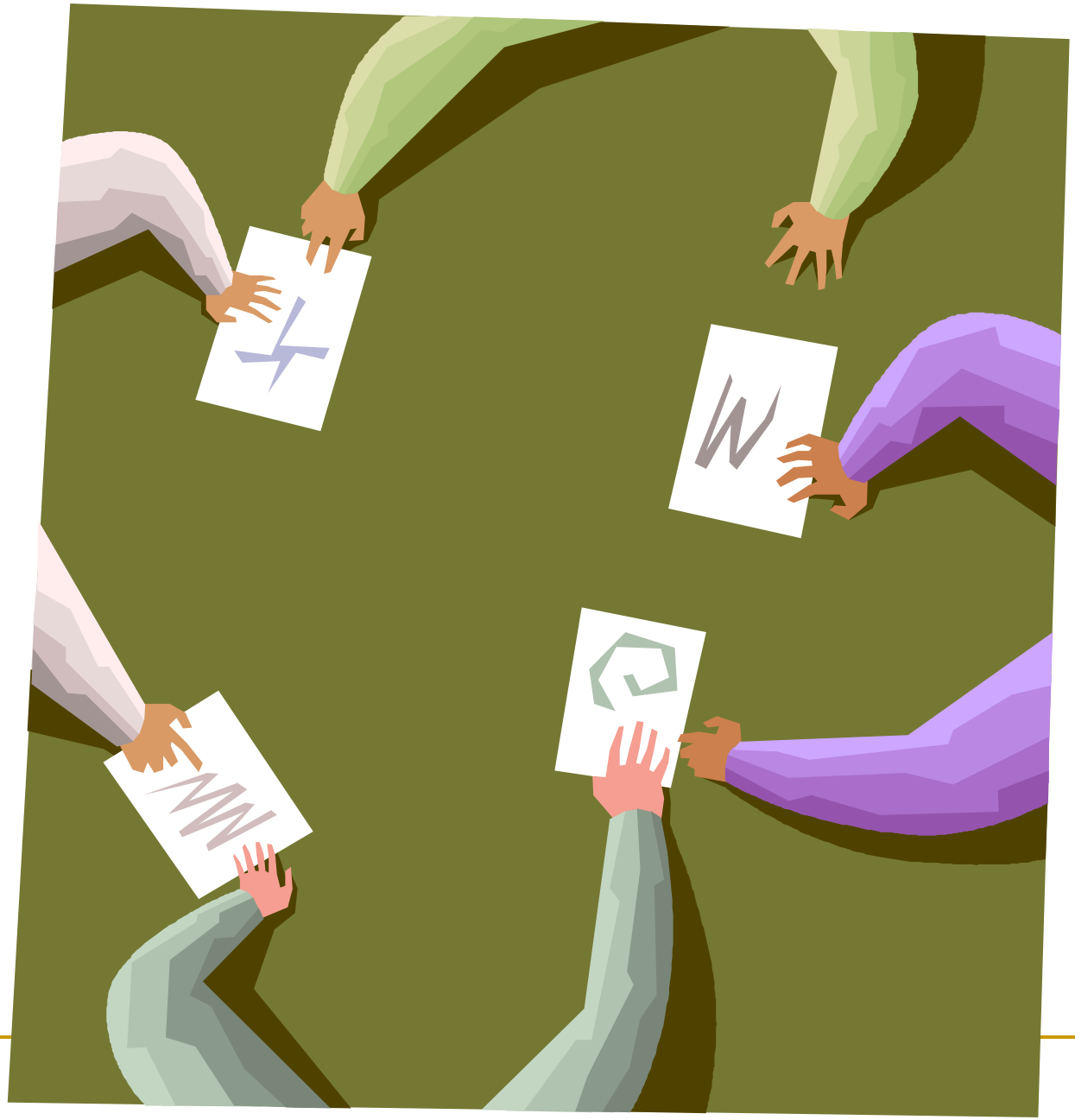
Step one

- Each table – Review the issue assigned to your table and identify possible actions for resolution (no more than 8 words each)
- Record on the flip chart paper at your table
- No judgment - just a list
- You have 7 minutes!



Step two

- Each table
  - Review the list and clarify activities where there are questions (e.g., expand to clarify goal or task, combine similar actions)
  - Decide which are most important to your group (no more than three, use any criteria or method)
  - Put the two top actions into clear proposal statements on a flipchart (e.g., collaboration between EPA, states, and specific industry sector to develop…)
- You have 12 minutes!



Step three

- Each table will report to whole group the two proposals statements and background (e.g., who, what, when, how)
- The entire group will discuss to clarify all of the proposals
- We will post all of the final proposals on the walls

Step four

- Break for 10 minutes
- During the break, use the markers at your table to check your top choices
  - Each person gets four votes/checks
  - Put your checks beside one, two, three, or four of the statements
- Get your participation gift when you return

Step five

- Review voting results – which are the top three?
- For top three proposals:
  - Who are affected by this task/product?
  - What conversations are necessary (e.g., lobby for action, seek resources, develop collaborations)?
  - What do you think will be different as a result? Negative (e.g., for your organization)? Positive (e.g. for program; for clients)?
- EFPAG will collect all charts and include in follow-up

Follow-up

- EFPAG will summarize and distribute results to conference participants via e-mail
- Your continued involvement encouraged (e.g., respond to summary report, propose collaborative projects)

Summary of Emissions Factors Improvement Project Fact Finding Survey

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Emissions Monitoring and Analysis Division
Emissions Factors and Policy Applications Group
Research Triangle Park, NC 27711

June 2004

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Summary of Emissions Factors Improvement Project
Fact Finding Survey

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Executive Summary

The Emissions Factors and Policy Applications Group (EFPAG) of EPA's Emissions Monitoring and Analysis Division (EMAD) is responsible for updating and improving the emissions factors program. To determine where the emissions factors program, in particular EPA's *Compilation of Air Pollutant Emission Factors* (AP-42), needs to be updated and improved, EFPAG interviewed and surveyed a variety of emissions factors users. This report summarizes the findings from this effort. Following are the major recommendations from the emissions factors users:

- A more open and less cumbersome process needs to be established that allows interested parties to assist in the improvement and development of emissions factors.

- The format of AP-42 should be updated along with the methods for accessing the factors and associated documentation.

- Guidance is needed to help users select the most appropriate factor; understand how to consider uncertainties when using factors; and gather data to estimate emissions when a factor is not available. Guidance is also needed on applying emissions factors in permitting and enforcement applications.

- Existing emissions factors should be updated and more factors are needed where gaps currently exist. In many cases, the new factors requested were related to more speciation (particle size for PM, specific chemicals for air toxics and VOCs). Attention also needs to be given to the development of regional factors and factors for unique events and circumstances.

The list of areas where the respondents recommend improvement is long. However, many individuals and groups providing input indicated a willingness to become stakeholders in efforts to improve the emissions factors program.

The primary next step in the renovation of the emissions factors program is to take advantage of the respondents' willingness to participate by organizing and carrying out a stakeholder engagement effort. In order to ensure the optimum short- and long-term cooperation and involvement, these stakeholders need to be involved early in the planning. In particular, it will be very important that these stakeholders provide input and accept responsibilities in outlining the new process for developing and improving emissions factors.

While a strong stakeholder involvement effort is the principal step that should be pursued, there were several suggestions made by the respondents that could be initiated immediately by EFPAG as stakeholder engagement activities are being planned. These include:

- Evaluate current software and internet tools.
- Develop an electronic test report submittal and review process.
- Develop draft methods for assessing and classifying the quality of emissions factors data.
- Conduct internal brainstorming of aspects of the program that can be streamlined.
- Evaluate the needs and issues associated with the use of emissions factors in permitting and enforcement.
- Assess the elements of the emissions factors program that are candidates for outsourcing or delegation to non-EMAD stakeholders.

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List of Tables

1.0 Introduction

This section provides an overview of the emissions factors survey project. It discusses the project history, the project rationale, and the analysis methodology.

Quantifying air emissions is a vital aspect of all air pollution programs. Regulatory authorities and others use emissions values in developing emissions inventories, identifying and evaluating control strategies, determining applicability of permit and regulatory requirements, assessing risks, and a variety of other applications. In an ideal situation, all emissions data users would derive values from emissions tests, continuous emissions monitoring data, or mass balances or other detailed engineering calculations. These methods are time- and resource-intensive, so users often do not have data sufficient to allow detailed site-specific emissions determinations. Without such data, emissions factors, which are representative annual average values that relate the quantity of a pollutant emitted with an activity associated with the release of that pollutant, are frequently the best or only method available for emissions determinations.

EPA's Office of Air Quality Planning and Standards (OAQPS) has long recognized the importance of emissions factors in implementing the air program. OAQPS has devoted energy and resources on developing and documenting emissions factors for use in applications focused almost entirely on emissions inventories and modeling. The primary emissions factors tool is the *Compilation of Air Pollutant Emission Factors*, or AP-42. There are two volumes of AP-42: Volume I contains emissions factors for stationary point and area sources and Volume II contains factors for mobile sources. The Emission Factor and Inventory Group (EFIG) of OAQPS's Emissions Monitoring and Analysis Division (EMAD) has historically been responsible for Volume I.

In 2003, EMAD undertook an assessment of groups and associated responsibilities. As a result of this assessment, the Emissions Factors and Policy Application Group (EFPAG) undertook the challenge of revamping the emissions factors program. This group formed a team to take a fresh look at the emissions factors program and the direction for its future. This team embarked on an

information gathering effort to obtain opinions, information, and suggestions on the status of the emissions factors program and how to improve it and AP-42. Another goal of this effort was to identify potential stakeholders who may be interested in participating in emissions factors program improvement projects.[1]

This document summarizes that effort. Following this introduction, Section 2 describes the information gathering process in more detail, and Section 3 summarizes the findings. Section 4 provides more information on the level of interest of those individuals and groups in future participation in the emissions factors program. Section 5 contains the major conclusions and next steps resulting from the recommendations of the emissions factors users.

[1]In a separate, independent effort, the State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officers (STAPPA/ALAPCO) conducted its own survey on emissions factors.

2.0 Information Gathering Approach

The members of the EFPAG emissions factors improvement team decided to gather information from AP-42 users to help guide EFPAG in focusing efforts to improve the program. Specifically, the goal of the information gathering effort was to learn the following from users of AP-42 and other emissions factors:

- How emissions factors are used generally;
- What's working and what's not working in using emissions factors;
- Major areas for further exploration;
- Who the major stakeholders are and what their issues are;
- The user community's view of the emissions factors development process;
- How the military and other government facilities' needs in permitting and source monitoring are being met by the emissions factors program; and
- What interest there is in improving and developing new emissions factors or developing alternative emissions quantification procedures.

The desire was to obtain input from as many different types of emissions factors users as possible. The team identified the following types of people and organizations from whom they wished to solicit input:

- Individuals or groups who actively use emissions factors and care about improving the program;
- Individuals or groups with whom the team already has relationships;
- Individuals or groups who are frustrated with the program and no longer use emissions factors;
- Individuals or groups who have gone above and beyond using emissions factors; and
- Individuals on the management level.

They also wanted to ensure that the individuals or groups represent a broad cross-section of types of emissions factors uses (e.g., permitting, emission inventories, enforcement).

Using the criteria defined, the team created a list of groups and individuals from whom they wanted to obtain information. In general, this list included representatives from other EMAD groups, the three other OAQPS divisions, EPA Regional offices, other (non-OAQPS) EPA offices, other Federal agencies, State agencies, local agencies, regional planning and other state/local organizations, industry and industry trade organizations, and environmental advocacy groups. Table 1 summarizes the individuals and groups contacted in this information gathering effort. In total, 94 interviews and surveys were conducted by EFPAG in this effort. Appendix A identifies the EFPAG staff who conducted the interviews or other surveying for the particular individuals or groups.

These interviews primarily consisted of face-to-face meetings and telephone conference calls. In some instances, an individual or organization contacted by EFPAG staff forwarded the survey and/or solicited input from other individuals and reported the responses back to EFPAG. Specific questions were used to start the conversation and engage the interviewees. The specific questions were the following:

1. How do you or your constituents use emissions factors (e.g., inventories, permit applicability, compliance)?

2. Are the emissions factors you or your constituents use derived from EPA's AP-42 or other data sources? What are those other sources?

3. Do you use emissions factors from sources other than AP-42 because AP-42 does not provide factors for your source type or for other reasons?

4. To what extent does the use of emissions factors satisfy the needs of the military or other government facilities in your area or constituency in obtaining and complying with operating, NSR, or other permits and in meeting emissions monitoring needs?

5. Do you or your constituents provide data to EPA for developing emissions factors? What about the process for developing EPA emissions factors enhances or inhibits your participation?

6. Have you, your constituents, or others proposed to use emissions quantification procedures other than emissions factors? If so, why and what were those procedures?

7. Have you, your constituents, or others imposed or had imposed on you the use of emissions factors when there may have been other procedures providing more representative results?

8. If EPA decided not to update AP-42 again, what would your reaction be?

9. Would you consider more direct involvement in an effort to improve emissions factors or in developing appropriate alternatives to emissions quantification by emissions factors? If so, what level of involvement would that be?

Responses from these interviews, along with written responses by some groups and individuals not interviewed, were entered into a Microsoft Access database that was generally organized according to the nine questions listed above. As these questions were only a guide and not always asked directly, the interviews also solicited opinions on other topics. Two such recurring themes were emissions factors data quality and applications guidance. Two categories were added to the database to house comments related to these areas. Miscellaneous comments that did not answer one of the questions or fit into these other two categories were entered into a general category. Appendix B lists and describes the fields in the database. Appendix C contains the detailed entries organized according to question/category. Appendix C also contains a complete list of the individual interviews/surveys conducted.

Table 1. Summary of Contacts to Gather Emissions Factors Information

Respondent Type	Number of Interviews/ Contacts[†]	Specific Agencies/Groups Contacted
U.S. Environmental Protection Agency	25	EMAD/AQMG, AQSSD, ESD, ITPID, Region 1, Region 5, Region 6, Region 9, Region 10, Office of Enforcement and Compliance Assurance, Clean Air Markets Division, Climate Protection Partnership Division
Other (non-EPA) Federal Agencies	3	Department of Defense, Department of Agriculture, Forest Service
State Agencies	32	South Carolina, Delaware, Pennsylvania, North Carolina, Minnesota, New Hampshire, Massachusetts, Maine, Vermont, Georgia, Florida, Washington, Oregon, Mississippi, Vermont, Virginia, Texas, Washington, New Jersey, Nebraska, Arizona, Colorado, Illinois, Indiana, California, Michigan, Wisconsin, Minnesota
Local Agencies	16	Monterrey Bay Unified Air Pollution Control District (CA), Seattle Port Authority (WA), Lane County Regional Air Pollution Authority (OR), Port of Portland Authority (OR), Portland International Airport (OR), City of Jacksonville (FL), Puget Sound Clean Air Agency (WA), Sacramento Metropolitan Air Quality Management District (CA), Ventura County Air Pollution Control District (CA), Polk County Air Quality (IA), Allegheny County Air Quality Program (PA), Air Management Division of the Environmental Protection Commission, Hillsborough County (FL), Lincoln-Lancaster County Health Department (NE), Bay Area Air Quality Management District (CA), South Coast Air Quality Management District (CA), City of Houston (TX), City of Philadelphia (PA)
Planning and Environmental Organizations	6	STAPPA/ALAPCO, Sierra Club, Earth Justice, NRDC, National Environmental Trust, Frederick Law, Galveston and Houston Association for Smog Control, NESCAUM, WESTAR, Institute for Tribal Environmental Professionals, Coke Oven Environmental Task Force

Table 1. Summary of Contacts to Gather Emissions Factors Information

Respondent Type	Number of Interviews/ Contacts†	Specific Agencies/Groups Contacted
Industry	13	American Coke and Coal Chemicals Institute, National Oilseed Processors Association, TRC, Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical), NEDA/CARP, Georgia Pacific, Bridgewater Group, Reliant Energy, DaimlerChrysler, Huntsman Oil, Texas Petrochemicals, Texas Eastman, Taconite Mining Industry
Unknown‡	2	
Total†‡	**94**	

† There is not a one-to-one correspondence between the number of interview/contacts and the number of agencies. In some instances, multiple individuals or groups from the same Agency were interviewed, resulting in more than one interview/contact. For instance, there were six different interviews with representatives of the Texas Commission on Environmental Quality. Two of these were with individual managers, one was with representatives from their Mobile Emissions Group, one with representatives from their Air Permits Group, one with representatives from their Emissions Inventory Division, and one with representatives from the Houston Regional Office. In other instances, one interview included numerous individuals from various organizations (see footnote †‡ below).

‡ Two interview summaries were received that did not identify the individual interviewed or the organization that the individual represented.

†‡ There were 94 separate interviews/contacts conducted. This included three conference call interviews with EPA Regional offices that also included individuals representing state and local agencies. For instance, the interview with EPA Region 1also included representatives from four Region 1 states. In the table, this interview was counted under both EPA and State Agency. Therefore, the sum of the numbers in the center column is greater than 94.

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3.0 Summary of Results

As discussed in Section 2, the responses to the interviews and surveys were originally organized according to the questions asked and other recurring topics. A more in-depth review of these responses showed that they could be grouped in the following basic topic areas:

- Stakeholder involvement;
- Emissions factors application guidance;
- Activity data issues;
- Specific emissions factors;
- The concept of AP-42;
- Prioritization of efforts and resources;
- Process for developing and improving factors;
- Format and accessibility;
- Emissions factors data quality; and
- Special emissions factors.

The remainder of this section provides summaries of the respondents' comments and opinions organized according to these topics. The first four topic areas listed are discussed in Sections 3.1 through 3.4, with each section being dedicated to one topic. Because there were fewer comments on the last six topic areas listed above than for the first four, they are combined in Section 3.5.

3.1 Stakeholder Involvement

One of the key goals of this effort was to identify potential stakeholders who would be willing to participate in the effort to improve the emissions factors program and AP-42. There was considerable interest by respondents with a wide variety of affiliations who indicated a willingness, even an eagerness, to participate with the EPA in such efforts. Section 4 provides a detailed discussion of the responses related to potential participation in future emissions factors improvement efforts.

3.2 Emissions Factors Guidance Needed

The respondents indicated a need for guidance related to emissions factors usage for inventory and non-inventory applications. The general types of guidance suggested were related to both selecting and using factors and to communicating emissions estimates calculated from factors. The following is a brief summary of the areas where the respondents indicated guidance is needed. See Table 2 for a detailed summary of their comments in this topic.

Three specific areas in which the respondents reported the desire to use emissions factors are in permitting, enforcement, and emissions inventory development. The respondents rely on emissions factors in these areas, but they were concerned that procedures for applying emissions factors are used inconsistently. Others noted the emissions factors are applied inappropriately in some instances. Therefore, several respondents requested that EPA develop guidance on the use of emissions factors for these three air pollution program areas.

The respondents also expressed uncertainty in how to select the most appropriate factor for a specific application and asked that guidance be developed to aid in this process. These requests also extended to what to do when an emissions factor is not available for a particular application. They would like guidance on how to ascertain the type and level of data needed to generate new emissions factors and how to obtain these data. This includes guidance on ordering and overseeing emissions tests designed to develop emissions factors.

The respondents recognized the uncertainties associated with emissions estimates generated through the use of emissions factors. They voiced a concern related to how to consider uncertainty data when applying emissions factors in certain situations and how to report emissions to reflect uncertainties. They asked for guidance to address the use of caveats, ranges, and other methods to recognize these uncertainties.

Table 2. Summary of Comments Related to Emissions Factors Guidance

Specific Comment	Respondent Type	Respondent
Guidance on what to do when there is no factor or when you want to use testing to develop or supplement a factor		
Guidance needed for what to do in absence of an emissions factor for a process or source category.	EPA	EPA Office of Enforcement and Compliance Assurance
It's very difficult for State or local agencies to order emissions tests to fill gaps in AP-42. Would like guidance from EPA for new emissions factors or for procedures for filling gaps.	State Agency Local Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3
Need guidance for test methods to use when data are not available.	EPA Industry	EPA Climate Protection Partnerships Division American Coke and Coal Chemicals Institute TRC
Would like guidance and criteria for using data from industry-derived testing.	Industry	TRC
Need guidance on which test methods should be used with the emissions factors or which test methods were used to derive it.	Industry	TRC
Would like to have better information on what is required to provide oversight of source tests (sight observation, QA evaluation, etc.). Also, tools that would help in the review and observation of source tests and monitoring.	Local Agency	City of Houston

Table 2. Summary of Comments Related to Emissions Factors Guidance

Specific Comment	Respondent Type	Respondent
Guidance on selecting the most appropriate factor or other data to use		
Need more explicit guidance on when methods that are better than emissions factors should be used, or when use of emissions factors is not appropriate.	State Agency EPA Industry Federal Government Environmental Advocacy Groups	Texas Commission on Environmental Quality Texas Commission on Environmental Quality – Emissions Inventory Division EPA Office of Enforcement and Compliance Assurance EPA Clean Air Markets Division EPA Region 10 Climate Protection Partnerships Division Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical) American Coke and Coal Chemicals Institute Department of Defense Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.)
There would not be a significant problem with having a different emissions factor (for different purposes) or a range for the emissions factors if there were adequate guidance on their uses.	State Agency	Texas Commission on Environmental Quality Texas Commission on Environmental Quality – Emissions Inventory Division
Emissions factors ranges set up diametric opposition between the regulated source and the regulating agency because the source selects the low end of the range and the agency would rather use the upper end of the range. There appears to be less acceptance of different emission factors for different purposes.	Local Agency	Bay Area Air Quality Management District
Need better instructions, disclaimers, and protocols.	State Agency EPA	State of Georgia State of Florida EPA Region 4
Need guidance on selection process.	State Agency EPA	State of Maine State of New Hampshire State of Vermont State of Massachusetts EPA Region 1

Table 2. Summary of Comments Related to Emissions Factors Guidance

Specific Comment	Respondent Type	Respondent
Would like more information on how the emissions factors were derived to help them evaluate emissions factors from trade associations.	State Agency	Texas Commission on Environmental Quality
Guidance on using emissions factors in inventory development		
Need guidance clarifying how emissions factors should be used for inventories (in associated data, such as activity data and fuel use).	EPA Planning and Environmental Organization	EPA Region 5 NESCAUM
Need to coordinate guidance for inventory development with inventory development schedule.	State Agency Local Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3
Guidance on using emissions factors for permitting and enforcement		
Need guidance as to when it is appropriate to base or enforce permit and enforcement limits with emissions factors.	Federal Government Environmental Advocacy Groups Industry	Department of Defense Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.) Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)
Guidance needed for use of QA/QC data in site-specific applicability determinations.	Industry	American Coke and Coal Chemicals Institute
Need guidance on how to interpret permit and enforcement limits and compliance if an AP-42 emissions factor changes.	Industry	NEDA/CARP Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)
Need general guidance for using emissions factors for site-specific applications.	Industry	American Coke and Coal Chemicals Institute
Emissions factors are averages, but permitting authorities do not want emissions from one source at any one time above the industry average.	Industry	Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)

Table 2. Summary of Comments Related to Emissions Factors Guidance

Specific Comment	Respondent Type	Respondent
Permitting authorities ignore guidance on emissions factors ratings.	Industry	TRC
Emissions factors as they are now should not be used to establish short term (e.g., 1 hour) emission limits.	Planning and Environmental Organization	Coke Oven Environmental Task Force
Need an incentive to limit the use of emissions factors for site-specific applicability and compliance.	EPA Industry	EPA Office of Enforcement and Compliance Assurance TRC
Guidance on taking into account uncertainty in emissions factors		
AP-42 should include some guidance on using emissions factors uncertainty values (taking into account imprecision and emissions variability) for inventories, permit and enforcement fee calculations, applicability, and compliance.	State Agency Local Agency EPA Planning and Environmental Organization Industry	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3 NESCAUM TRC
Guidance to help the public understand emissions factors		
Need guidance for the public on understanding the process for establishing permit and enforcement limits, demonstrating compliance, and emissions quantification procedures so they may make informed comments.	Planning and Environmental Organization	Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.)
Need guidance for quantifying site-specific emissions for reporting purposes.	Planning and Environmental Organization	Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.)

Finally, the respondents expressed a need for guidance to help inform and educate the public on how emissions factors are used and how to understand and interpret emission estimates generated with emissions factors. This guidance should particularly address emissions estimates that the public may see in permits, enforcement actions, and site-specific emissions estimates.

3.3 Activity Data Issues

The respondents raised issues related to activity data. They stated that some emissions factors are in units for which the activity data needed cannot be easily measured, or for which the activity data is very costly to obtain. The respondents requested that the activity data and equations used to develop emissions factors be in practicable, usable units. Also, the respondents commented that EPA did not provide enough information to allow them to improve activity data. For example, some of the respondents stated that the emissions inventory data they received from the EPA were not clear on the origin of the activity data and how they could obtain more detailed information to improve the activity data supplied in the National Emissions Inventory. The respondents requested that EPA research ways to generate more activity data. Lastly, the respondents noted a lack of access to activity data. They suggested that EPA develop a clear method of communication related to activity data via the internet and through specific contacts. Table 3 provides a detailed summary of the respondents' comments on this topic.

3.4 Specific Emissions Factors

Overall, the respondents proposed over 130 emissions factors or groups of emissions factors that they believe need to be developed or revised. Many respondents provided specific suggestions (e.g., a specific chemical/group of chemicals from a specific type of source); however, many of the emissions factors suggested were more general. For example, some respondents requested creating emissions factors for a specific chemical across all source types while others want EPA to create emissions factors for a specific source type across all chemicals produced by that source type. Table 4 lists the emissions factors (by chemical/group of chemical and source) that were identified as needing to be improved or developed.

Table 3. Summary of Comments Related to Activity Data

Emissions Factor	Issue	Respondent Type	Respondent
Residential wood burning	Need activity data.	Local Agency EPA	Puget Sound Clean Air Agency EPA Region 5
Chrome plating	Equation needs to be adjusted to be more practical.	Local Agency	South Coast Air Quality Management District (California)
Chrome plating	Equation, cannot get intensity number (power/surface area). Use plating efficiency instead of intensity.	Local Agency	South Coast Air Quality Management District (California)
General	Need to know a contact for activity data.	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
General	Need to know if a website is available for activity data.	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
General	Consistency of the units used in AP-42 is a problem.	State Agency	Michigan Department of Environmental Quality
General	Units used in AP-42 are sometimes not commonly-used or useful units.	State Agency	Wisconsin Department of Natural Resources Oregon Department of Environmental Quality
General	Obtaining good activity data is a problem.	State Agency	Michigan Department of Environmental Quality

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
PM_{10}	Cooling towers	State Agency	Texas Commission on Environmental Quality – General
PM_{10}	Paved and unpaved roads	Federal Agency Industry	Department of Defense Department of Defense Contractors
PM_{10}	Livestock	Federal Agency	USDA
PM_{10}	Chemical fertilizers	Federal Agency	USDA
PM_{10}	Seasonal	EPA	Air Quality Strategies and Standards Division (AQSSD)
$PM_{2.5}$	Combustion	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
$PM_{2.5}$	Paved and unpaved roads	Federal Agency Industry	Department of Defense Department of Defense Contractors
$PM_{2.5}$	Livestock	Federal Agency	USDA
$PM_{2.5}$	Chemical fertilizers	Federal Agency	USDA
$PM_{2.5}$	Direct emissions for inventories	EPA	Air Quality Strategies and Standards Division (AQSSD)
PM	Material handling operations	Industry	TRC
PM	Ammonia and Organics contribution	EPA	Air Quality Strategies and Standards Division (AQSSD)
PM	Burning of tires (rates)	State Agency	California Air Resources Board
PM	All sources	EPA Planning and Environmental Organization Industry	EPA Region 10 NESCAUM TRC

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
Road dust	Paved roads	Local Agency Federal Government Industry	Bay Area Air Quality Management District (California) Department of Defense Department of Defense Contractors
Heavy metals	Mobile sources	State Agency	Oregon Department of Environmental Quality
Heavy metals	Natural gas combustion	State Agency Local Agency EPA Planning and Environmental Organization	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County Puget Sound Clean Air Agency EPA Region 3 NESCAUM
Mercury	Pulp and paper sources	State Agency	Oregon Department of Environmental Quality – General staff, special projects
Mercury	Compressor stations	State Agency	Oregon Department of Environmental Quality – General staff, special projects
Mercury	Steel mills	State Agency Planning and Environmental Organization	Oregon Department of Environmental Quality – General staff, special projects NESCAUM
Mercury	Solid waste incinerators	State Agency	Oregon Department of Environmental Quality – General staff, special projects
Mercury	Mobile sources (need consistency)	State Agency EPA	Oregon Department of Environmental Quality – General staff, special projects EPA Clean Air Markets Division
Mercury	Fire	State Agency	Oregon Department of Environmental Quality – General staff, special projects
Mercury	Crematoriums	State Agency	Oregon Department of Environmental Quality – General staff, special projects

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
Mercury	Combustion	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
Mercury	Electric arc furnaces	State Agency	Michigan Department of Environmental Quality
Mercury	All sources	State Agency	Oregon Department of Environmental Quality
Lead	All sources	State Agency	Oregon Department of Environmental Quality
Nickel	All sources	EPA	EPA Air Quality Modeling Group
Toxic metals	Combustion	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
Toxic metals	Plating (non-chromium)	Federal Government Industry	Department of Defense Department of Defense contractors TRC
Toxic metals	General	EPA	Emission Standards Division (Sally Shaver and Penny Lassiter) EPA Region I Permitting Office
Formaldehyde	Combustion sources	State Agency Industry EPA	Oregon Environmental Council TRC EPA Region 1 Permitting Office
Chlorine	Cooling towers	State Agency	Texas Commission on Environmental Quality – General
Chloroform	Cooling towers	State Agency	Texas Commission on Environmental Quality – General
Hypochloride	Cooling towers	State Agency	Texas Commission on Environmental Quality – General
Ammonia	Animal feed operations	EPA Federal Government	EPA Emission Standards Division (Sally Shaver and Penny Lassiter) USDA

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
Ammonia slip	Livestock and Concentrated Animal Feedlots (CAFOs)	EPA	EPA Air Quality Modeling Group
Ammonia slip	Selective catalytic reduction	EPA	EPA Air Quality Modeling Group
Ammonia slip	Startup & Shutdown, all sources	Industry	Reliant Energy
Ammonia slip	All sources	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1 EPA Region 5
Formaldehyde	Turbines	Planning and Environmental Organization Industry	Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.) Reliant Energy
Dioxins	All sources	State Agency EPA	Oregon Environmental Council EPA Air Quality Modeling Group
Furans	All sources	EPA	EPA Emission Standards Division
PBTs	All sources	State Agency	Oregon Environmental Council
Hexane	Turbines	Planning and Environmental Organization Industry	Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.) Reliant Energy
Benzene	All sources	State Agency	Oregon Environmental Council
Acrolein	All sources	State Agency Industry	Oregon Environmental Council TRC
Polyaromatic hydrocarbons (PAHs)	All sources	EPA	EPA Air Quality Modeling Group
Speciated HAP	Refineries	EPA	EPA Region 6
HAP	Aircraft engines	Industry	Department of Defense Contractors

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
HAP	Speciation for area sources	EPA	EPA Region 6
Toxics	Landfill combustion	Local Agency	South Coast Air Quality Management District
Toxics	Burn rates for tools	State Agency	California Air Resources Board
Toxics	Burn rates for tires	State Agency	California Air Resources Board
Solvents	All sources	EPA	EPA Air Quality Modeling Group
Epoxies and resins	Boat building	EPA	EPA Region 1
Low sulfur diesel emissions	Commercial sea vessels	Local Agency	Puget Sound Clean Air Agency
NO_x	Diesel	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
NO_x	Combined cycle turbines	EPA	EPA Region 1
SO_x	Startup & Shutdown, all sources	Industry	Reliant Energy
VOC	Startup and shutdown	Industry	Reliant Energy
VOC	Fugitive emissions from oil and gas fields	EPA	EPA Climate Protection Partnerships Division
VOC	Aerospace Applications	EPA	EPA Region 1
VOC	Pesticide production	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
VOC	Herbicide production	State Agency	Texas Commission on Environmental Quality

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
VOC	Stage 2 operations (gasoline vapor recovery)	EPA	EPA Air Quality Strategies and Standards Division
VOC	Non-attainment areas	State Agency	Texas Commission on Environmental Quality
VOC	Area sources	State Agency EPA Planning and Environmental Organization	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1 NESCAUM
Speciated VOC	Percolation through soil	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
Speciated VOC	Internal combustion engines	State Agency	Texas Commission on Environmental Quality
Speciated VOC	External combustion engines	State Agency	Texas Commission on Environmental Quality
Speciated VOC	Coal (Lignite, sub-bituminous and petroleum coke) combustion	State Agency	Texas Commission on Environmental Quality
Speciated VOC	Coal-fired power plants	State Agency	Texas Commission on Environmental Quality – Emissions Inventory Division
Condensible emissions	Asphalt plants	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
All pollutants	Paved roads	Local Agency	Lane County Regional Air Pollution Authority
All pollutants	Alternative fuels	Local Agency Federal Agency Industry	Lane County Regional Air Pollution Authority Department of Defense Department of Defense Contractors

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
All pollutants	Use of alternative fuels at wood product facilities	Local Agency	Lane County Regional Air Pollution Authority
All pollutants	Wood products	EPA	EPA Region 10
All pollutants	Cement plants	State Agency Planning and Environmental Organization	Texas Commission on Environmental Quality NESCAUM
All pollutants	Coke ovens	State Agency Local Agency EPA Industry	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3 American Coke and Coal Chemicals Institute
All pollutants	Ore transfer	Industry	Taconite Mining Industry
All pollutants	Coal slag piles	State Agency	Texas Commission on Environmental Quality
All pollutants	Limestone from nonmetallic mining	State Agency	Wisconsin Department of Natural Resources – Bureau of Air Management
All pollutants	Regional values for rock crushing	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
All pollutants	Silt loading	State Agency	Oregon Department of Environmental Quality – General Staff
All pollutants	Materials handling	State Agency EPA Local Agency	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1 Air Management Division of Environmental Protection Commission, Hillsborough County (Tampa), Florida

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
All pollutants	Foundries (casting lines)	EPA	EPA Region 5
All pollutants	Foundries testing	State Agency	State of Minnesota
All pollutants	Silicon smelters	Local Agency	Lane Regional Air Pollution Authority
All pollutants	Steel mills	State Agency	Texas Commission on Environmental Quality
All pollutants	Fossil-fueled (coal) power plants	State Agency Local Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3
All pollutants	Oil and gas transport from wells	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Loading/Unloading	State Agency	Texas Commission on Environmental Quality – Emissions Inventory Division
All pollutants	Offshore oil and gas production	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Gasoline service stations that also distribute diesel fuel	Planning and Environmental Organization	Institute for Tribal Environmental Professionals
All pollutants	Reformulated gas	EPA	EPA Air Quality Modeling Group
All pollutants	Commercial aircraft	Local Agency	Puget Sound Clean Air Agency Port of Portland Authority
All pollutants	Ocean-going vessels	Local Agency	Puget Sound Clean Air Agency
All pollutants	Non-road vehicles	Planning and Environmental Organization	NESCAUM
All pollutants	Aggregate industries	Local Agency	Lane Regional Air Pollution Authority
All pollutants	Wastewater emissions	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
All pollutants	Digester gas from landfills	Local Agency	South Coast Air Quality Management District (California)
All pollutants	Municipal waste incinerators	State Agency	State of Minnesota
All pollutants	Animal carcass combustion	State Agency	Minnesota Pollution Control Authority
All pollutants	Animal feeding operations	State Agency EPA Federal Agency	Minnesota Pollution Control Authority EPA Region 10 EPA Climate Protection Partnerships Division USDA
All pollutants	Agriculture sources	State Agency EPA	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1
All pollutants	Pesticides	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Herbicides	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Manufactured logs	Local Agency	Puget Sound Clean Air Agency
All pollutants	Agricultural burning	EPA	EPA Region 10
All pollutants	Open burning	Federal Government Industry	Department of Defense Department of Defense Contractors
All pollutants	Forest fires	Local Agency	Puget Sound Clean Air Agency
All pollutants	Fires	State Agency Local Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3
All pollutants	Indoor burning	Local Agency	Puget Sound Clean Air Agency

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
All pollutants	Detonation	Federal Government Industry	Department of Defense Department of Defense Contractors
All pollutants	Munitions usage, storage, and destruction	Federal Government Industry	Department of Defense Department of Defense Contractors
All pollutants	Wafer and chip manufacturing	State Agency	Texas Commission on Environmental Quality – Air Permits
All pollutants	Bakeries	Local Agency	Lane Regional Air Pollution Authority
All pollutants	New flare technologies (i.e., multipoint smaller flare fields)	Planning and Environmental Organization	Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.)
All pollutants	Flares	State Agency	Texas Commission on Environmental Quality
All pollutants	Light and heavy liquids	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Small combustion units	EPA	EPA Clean Air Markets Division
All pollutants	Small and large boilers and turbines that take differences between types into account	Industry	Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)
All pollutants	Wood-fired boilers	Local Agency	Puget Sound Clean Air Agency
All pollutants	Small engines	State Agency EPA Federal Agency Industry	Oregon Department of Environmental Quality Texas Commission on Environmental Quality – Mobile Emissions Group State of New Hampshire State of Vermont State of Massachusetts State of Maine EPA Region 1 Department of Defense Department of Defense Contractors

Table 4. Summary of Specific Emissions Factors That Respondents Indicated Need to be Improved or Updated

Emissions Factor		Respondent Type	Respondent
Chemical/ Group of Chemicals	Source		
All pollutants	Compressors	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Cooling towers	State Agency Local Agency Industry	Texas Commission on Environmental Quality City of Houston Huntsman Oil
All pollutants	Cooling towers – controlled emissions	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
All pollutants	Tanks	State Agency	Texas Commission on Environmental Quality – Emissions Inventory Division
All pollutants	Fugitive emissions	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group Texas Commission on Environmental Quality – Emissions Inventory Division
All MACT/HAP pollutants	All MACT/HAP sources	State Agency Local Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3

3.5 Miscellaneous Comments

The respondents to the emissions factors survey commented on the AP-42 program in general. These comments included: (1) the concept of AP-42, (2) prioritization efforts and resources, (3) the process for developing or improving factors, (4) AP-42 format and access, (5) emissions factors data quality, and (6) special emissions factors. Table 5 provides a summary of these comments, and they are discussed in the subsections below.

3.5.1 Concept of AP-42

Many respondents had comments related to the overall concept of AP-42. Some respondents (Federal, State, and local agencies) stressed the importance of keeping all emissions factors data available through one source. One of the respondents stated that the EPA needs to reexamine the purpose of AP-42 and whether its purpose would allow it to recognize (and link to) other emissions factors that are available.

3.5.2 Prioritization of Efforts and Resources

Several respondents suggested that EPA both update and improve the AP-42 program. While they seemed to agree that a shift in the prioritization of efforts and resources is needed, they did not necessarily agree on exactly what those shifts and prioritizations should be. Some suggested "filling in the blanks" related to emissions factors by creating emissions factors for new sources and/or chemicals that currently do not have emissions factors. Some respondents proposed prioritizing the new emissions factors by focusing on high-risk pollutants first. Instead of applying resources to AP-42, others suggested shifting them toward projects that reduce emissions and/or create better measurement techniques.

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Concept of AP-42		
It is important to keep all emissions factors data available through one source (e.g., AP-42) and continue to build new sections addressing the permitting applications.	State Agency Local Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3
EPA needs to re-examine the purpose of AP-42 and decide whether to recognize other emissions factors that are available; centralizing all emissions factors in one database would be a mistake and too complex.	EPA	EPA Region 5
The emissions factors program is overdue for reevaluation.	Local Agency	City of Houston
Would like AP-42 to be more current and accurate.	Local Agency	Lane County Regional Air Pollution Authority (Oregon) Monterey Bay Unified Air Pollution Control District (California)
Likes the idea of taking steps to improve AP-42, but not sure if it would be possible to add new source information in AP-42 rather than update old sources.	Local Agency	Bay Area Air Quality Management District (California)
Prioritization of Effort and Resources in the Emissions factors Program		
Pay more attention to filling blanks in emissions factors before improving existing emissions factors.	Planning and Environmental Organization	NESCAUM
For HAPs, start with high-risk pollutants.	Local Agency State Agency EPA	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3
OAQPS's priorities should be put toward projects that will reduce emissions rather than developing new or revised emissions factors.	EPA	EPA Air Quality Strategies and Standards Division

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Emissions factors to be developed or updated should be prioritized based on risk or emissions.	EPA	EPA Air Quality Modeling Group
EPA should shift resources to better measurement.	EPA	EPA Region 6 Air Permits Staff
Identify and provide emissions factors for new kinds of sources or changes in control technologies or new pollutant-specific needs. Do not focus so much effort on "traditional" source types.	State Agency	Oregon Department of Environmental Quality
Revise emissions factors by going through hierarchy of data. Find best data and use it for all applications. Involves looking at source inventory, activity level and emissions factors, including impact of control/no control.	Local Agency	Bay Area Air Quality Management District (California)
Process for Developing or Improving Emissions factors		
An open, transparent process for emissions factors development and issue resolution is needed, with reasonable criteria for evaluating and assessing data quality.	State Agency EPA Industry Planning and Environmental Organization	State of New Hampshire State of Massachusetts State of Maine State of Vermont EPA Region 1 EPA Clean Air Markets Division EPA Emission Standards Division (Sally Shaver and Penny Lassiter) American Coke and Coal Chemicals Institute Coke Oven Environmental Task Force NESCAUM
Want a standardized process for development and incorporation of new or revised emissions factors into AP-42.	EPA Industry	EPA Air Quality Modeling Group EPA Region I Department of Defense contractors
Need a faster process for adding and revising AP-42 emissions factors.	Industry	American Coke and Coal Chemicals Institute NEDA/CARP Bridgewater Group Inc. Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Need procedure to include source test data when updating and creating emissions factors and include the source test data in background information associated with the emissions factor.	Industry Planning and Environmental Organization EPA	Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical) Reliant Energy Several environmental advocacy groups (Sierra Club, Earth Justice, NRDC, et al.) EPA Region I EPA Region 10
Envision an internet system with information such as (1) Who are you? (2) Where are you located? (3) Type of facility/process? (4) Test data? (5) Input data?	Local Agency	Bay Area Air Quality Management District (California)
Could use a specified format so that source tests could be entered by State/local agencies from their own databases into read-only public servers which could be accessed by others as needed for information.	State Agency EPA	State of Georgia State of Florida EPA Region 4
Would like to see EPA acknowledge or give approval for use of other sources of emissions factors (such as those used in Europe).	Local Agency EPA	Lane County Regional Air Pollution Authority (Oregon) EPA Region 10
Use data from government agencies, States, regions, districts, etc., but not from sources.	State Agency	California Air Resources Board
There is no clear connection between EIIP, which is dynamic and flexible and AP-42, which is static.	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group
FIRE has not been updated when AP-42 has been updated. Both need to be updated at the same time.	State Agency	Minnesota Pollution Control Authority – Emissions Inventory Group Wisconsin Department of Natural Resources – Bureau of Air Management
Would like EPA to keep AP-42 current. EPA should review the emissions factors periodically.	State Agency Industry	Michigan Department of Environmental Quality NEDA/CARP
Format and Access		

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Would like AP-42 to be modernized to provide other types of data such as links to new emissions factors.	State Agency	Texas Commission on Environmental Quality
Use a hierarchy system, with facility-specific source test data at the top, then AP-42 and other information next.	Local Agency	South Coast Air Quality Management District (California)
Direct links from AP-42 to actual emissions factors developed by Europe, Texas Commission on Environmental Quality, California Air Resources Board, etc. would be helpful.	State Agency	Minnesota Air Pollution Control Authority – Emissions Inventory Group
Could have two sets of emissions factors: (1) a static set of emissions factors based on a lot of data and (2) another newer, less scrutinized set of emissions factors and/or source testing data. Users could then choose between established emissions factors and newer data/emissions factors.	Local Agency	Lane County Regional Air Pollution Authority
It would be very helpful for updates to be comprehensive so emissions inventory staff would not need to look through older editions of AP-42 for some emissions factors.	State Agency	Minnesota Pollution Control Authority – Emissions Inventory Group
Emissions inventory folks do not get the AP-42 CDs.	State Agency	Michigan Department of Environmental Quality
Background documents, error bounds, and other information on emissions factors are extensively accessed and used by State and local agencies to make their own decisions. Keep that accessibility.	State Agency EPA	State of Georgia State of Florida EPA Region 4
Collect source tests into a central repository for access and use by State and local agencies.	State Agency EPA Planning and Environmental Organization	State of Georgia State of Florida EPA Region 4 WESTAR
Sometimes have difficulty finding emissions factors or data because they are not on all websites, or they are not clearly linked to all websites.	State Agency	Texas Commission on Environmental Quality – Mobile Emissions Group

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Suggest scanning AP-42 basic documents and link them to AP-42 so users could access and use all available data from which a single emissions factor is developed.	State Agency	California Air Resources Board
Would like to see the format of AP-42 change so that other programs can use the data	EPA	EPA Region VI RCRA staff
Emissions Factors Data Quality		
EPA could add the new emissions factors or data to AP-42 and give it a "U" rating for unknown until the factor or data can be reviewed.	State Agency	Oregon Department of Environmental Quality
Would like more "A" and "B" and fewer "E" and "F" emissions factors. "A" and "B" are more defensible.	Local Agency	Lane County Regional Air Pollution Authority (Oregon)
Make AP-42 more robust and improve the "D" and "E" rated factors so they become "A" and "B".	Local Agency	Port of Portland Authority – Portland International Airport
Recommend that EPA continue evaluating more reliable data so that the ratings of many of the factors can be improved.	State Agency	Mississippi Department of Environmental Quality
Include test method information and how it affects the emissions factor in the background information.	Industry	Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)
Need to provide more critical insight into emissions variability.	Industry	NEDA/CARP
Evaluate data but at a more cursory level – caveat it.	State Agency	California Air Resources Board

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Would like to have "error bounds," "standard deviation," or ranges of emissions factors, as this would help in several programs.	State Agency Federal Government Industry EPA	Texas Commission on Environmental Quality Texas Commission on Environmental Quality – Emissions Inventory Division Texas Commission on Environmental Quality – Mobile Emissions Group Department of Defense Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical) Department of Defense contractors EPA Emission Standards Division (Sally Shaver and Penny Lassiter) EPA Region I Permitting Group
Need confidence values for emissions factors for test methods and field applications.	EPA	EPA Region I
High numbers or ranges in AP-42 are helpful.	State Agency	Wisconsin Department of Natural Resources – Bureau of Air Management
Would like to have integrated and speciated databases as well as the addition of data age in AP-42.	State Agency	California Air Resources Board
People see EPA estimates versus California estimates, and the estimates do not match. That is a visibility problem for them. They feel California's data are better than EPA's data.	State Agency	California Air Resource Board
It is okay to have draft documents and factors in AP-42 instead of only final emissions factors so long as the user understands the difference.	State Agency	Oregon Department of Environmental Quality
Caveats are not usually paid attention to, so more care should be taken with draft emissions factors.	Industry	American Coke and Coal Chemicals Institute
Special Emissions Factors		
Area source emissions factors were developed for urban counties and may not apply to rural counties.	State Agency	Michigan Department of Environmental Quality

Table 5. Summary of Other Miscellaneous Comments on Emissions Factors and the Emissions Factors Program

Comment	Respondent Type	Respondent
Should include more data to account for local and regional differences in all emissions factors (humidity specifically mentioned).	Planning and Environmental Organization State Agency	NESCAUM California Air Resources Board TCEQ - Mobile Emissions Group
Need emissions factors with confidence levels that represent short time periods for micro-scale inventories.	EPA	EPA Emission Standards Division
Need to develop emissions factors to account for start-ups, shutdowns, or malfunctions, which may represent 2% to 5% of annual operation.	EPA Local Agency Planning and Environmental Organization	EPA Air Quality Strategies and Standards Division Air Management Division of the Environmental Protection Commission – Hillsborough County (Tampa), Florida NESCAUM
Every new regulation promulgated by the EPA should have a corresponding new source category in AP-42 and associated emissions factors for the pollutant(s) regulated.	State Agency	Florida Department of Environmental Protection
EPA needs to develop capture efficiencies or assumptions for calculating capture efficiencies instead of assuming 100% capture.	Local Agency	Air Management Division of the Environmental Protection Commission – Hillsborough County (Tampa), Florida
Would like to have emissions factors information that is more representative of typical operations.	State Agency	Texas Commission on Environmental Quality
Explore the use of simple surrogates in providing $PM_{2.5}$ emissions factors.	State Agency EPA	State of Georgia State of Florida EPA Region 4
Believe that TANKS, SPECIATE, the wastewater software, and landfill software all need to be updated.	Local Agency	Lane County Regional Air Pollution Authority (Oregon)
Emissions factors should not overestimate emissions. To do so puts American companies at a disadvantage in the world marketplace.	Industry	Taconite Mining Industry Representatives

3.5.3 Process for Developing or Improving Factors

The respondents stated that EPA needs to re-design and then maintain the process for developing and improving emissions factors in four different ways. First, they believed that the EPA should use a transparent process to develop emissions factors and resolve associated issues.

Also, they suggested that EPA standardize and streamline not only the development and improvement of emissions factors but also the improvement of the program as a whole. EPA should improve the format and access for AP-42. This includes organizing the emissions factors program and associated documentation, providing links to emissions factors developed outside of EPA, and collecting source test data into a central repository.

Next, the respondents proposed that EPA determine a way to provide more accurate emissions factors information to users more quickly. EPA should provide an avenue for users to submit data and other information more directly to the AP-42 program. Lastly, the respondents stressed a need for the AP-42 program to accept data and emissions factors from other sources into the AP-42 program.

3.5.4 Format and Accessibility

The respondents made suggestions related to the format and accessibility of emissions factors. Respondents indicated they do not believe AP-42 emissions factors, as well as background documentation, are currently very accessible to users. Also, they stated that EPA has used emissions factors that were not in AP-42, making it difficult to find the emissions factor used as well as its background documentation. They suggested that the AP-42 program should be re-organized in a more easily accessible format and should include accessibility to non-AP-42 emissions factors. Likewise, they believe that EPA needs to improve the accessibility of emissions factors and related documentation and that this information should be available via the Internet.

3.5.5 Emissions Factors Data Quality

Several respondents also raised concerns related to the data quality of emissions factors. The respondents suggested that the EPA make the emissions factors more defensible both by improving their ratings (e.g., improving "E" and "F" emissions factors to "A" and "B" emissions factors) and by adding more information related to error bounds and standard deviations. Moreover, some respondents would like EPA to caveat data so that users can understand the limitations associated with each emissions factor. Lastly, some respondents would like more background data on emissions factors such as test method information so that users would gain a better understanding of the emissions factors quality.

3.5.6 Special Emissions Factors

Since different regions of the country have different features that may influence emissions such as meteorology, topography, and population density, some respondents expressed a desire to have emissions factors that are tailored to specific regions. The believed that the EPA should develop emissions factors not just for the macroscale level (e.g., nationwide) but on the microscale level (e.g., statewide) as well. Also, several respondents suggested creating emissions factors for special events such as start-ups, shutdowns, and malfunctions, which may result in sources emitting large amounts of pollutants.

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4.0 Detailed Discussion of Potential Stakeholder Involvement

The previous section showed that respondents identified a large number of emissions factors and areas of the emissions factors program that they believe need to be improved. As discussed in Section 1, one of the questions asked was whether the individuals or groups being interviewed would consider more direct involvement in an effort to improve emissions factors or in developing appropriate alternatives to emissions quantification by emissions factors, and, if yes, what that level of involvement would be. Overall, most respondents stated a basic willingness to participate in such an effort. Table 6 shows a breakdown of types of respondents and their stated willingness to participate.

Table 6. Summary of Potential Participation in Emissions Factors Development and Improvement

Respondent Type	Total Responding to Question†	Number Indicating They Would Consider Direct Involvement	Number Indicating They Did Not Believe They Would Be Able to Be Directly Involved
State Agencies or Agency Groups	26	15	11
Local Agencies	9	8	1
EPA	7	7	0
Industry	11	9	2
Planning and Environmental Organizations	2	2	0
Total	**55**	**41**	**14**

† The question asked was - "Would you consider more direct involvement in an effort to improve emissions factors or in developing appropriate alternatives to emissions quantification by emissions factors? If so, what level of involvement would that be?"

As shown in Table 6, of the 55 participants who responded to the question, 41 stated that they would consider providing direct involvement in an effort to improve emissions factors and the emissions factors program. The respondents willing to participate includes a mix of State agencies, local agencies, EPA, industry, and environmental organizations. Table 7 specifically lists the 41 agencies that answered in the affirmative to the question about future involvement.

The level of interest in participating in the AP-42 update and improvement process ranged from a general willingness to be involved to specific interest in data collection and emissions factors development. Table 8 summarizes the specific manners in which respondents indicated a willingness to participate.

A quarter of the respondents, largely State Agencies or groups within State agencies, indicated that they did not anticipate they would be able to participate in any efforts to improve emissions factors or the overall program. This opinion was primarily due to the lack of resources in both funds and manpower. Also, some respondents were concerned about a possible lack of support from upper management. A few respondents showed a general disinterest.

Several respondents provided suggestions on how to involve stakeholders in the emissions factors improvement process. Many suggested that the AP-42 update and improvement process should be one in which the EPA involves stakeholders as well as other organizations such as Regional Planning Organizations (RPOs) where emissions factors data may be collected. Also, respondents proposed that, when bringing together stakeholders to develop and improve emissions factors, the EPA should consider the capabilities, interests, and workload of those involved. Lastly, the EPA should provide incentives to encourage participants to submit better data for the emissions factors program. Table 9 lists these recommendations.

Table 7. Stakeholders Indicating They Would Consider Direct Involvement in an Emissions Factors Program Improvement Process

Respondent Type	Respondent Name
State Agencies and Agency Groups	Arizona Department of Environmental Protection
	Florida Department of Environmental Protection
	Georgia Environmental Protection Division
	Illinois Environmental Protection Agency
	Indiana Department of Environmental Management
	State of Maine
	State of Massachusetts
	Michigan Department of Environmental Quality
	Minnesota Pollution Control Authority
	Minnesota Pollution Control Authority – Air Permitting Group
	State of New Hampshire
	New Jersey Department of Environmental Protection
	Oregon Department of Environmental Quality
	State of Vermont
	Wisconsin Department of Natural Resources – Bureau of Air Management
Local Agencies	Air Management Division of the Environmental Protection Commission, Hillsborough County (Florida)
	Lane County Regional Air Pollution Authority (Oregon)
	Monterey Bay Unified Air Pollution Control District (California)
	Polk County Health Department (Iowa)
	Port of Portland Authority – Portland International Airport (Oregon)
	Puget Sound Clean Air Agency (Washington)
	Sacramento Metropolitan Air Quality Management District (California)
	Ventura County Air Pollution Control District (California)
EPA	Climate Protection Partnerships Division
	Emission Standards Division
	Office of Enforcement and Compliance Assurance

Table 7. Stakeholders Indicating They Would Consider Direct Involvement in an Emissions Factors Program Improvement Process

Respondent Type	Respondent Name
	Risk and Exposure Assessment Group
	Region 5
	Region 6
	Region 10
Industry	DaimlerChrysler
	Department of Defense Contractors
	Georgia-Pacific Corporation
	NEDA/CARP
	Taconite Mining Industry
	Texas Petrochemicals
	Texas Eastman
	TRC
	Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)
Planning and Environmental Organizations	Coke Oven Environmental Task Force
	WESTAR

Table 8. Summary of Level of Involvement Offered by Respondents

Respondent Type	Respondent	Level of Involvement Offered
EPA	EPA Region 10	General willingness to be involved
EPA	EPA Region 6	Would consider submitting source testing data to EPA
EPA	EPA Office of Enforcement and Compliance Assurance	Could add requirement for data submission to consent and settlement agreements Could use section 114 authority to collect annual emissions report Could develop an AP-42 chapter to provide an effective State data submission process with State agency responsibilities and testing data submission procedures for emissions factors development
EPA	EPA Region 5	Would direct sources to send source test data to EPA
EPA	EPA Emission Standards Division	Would collaborate with EPA in developing or updating emissions factors
EPA	EPA Climate Protection Partnerships Division	Could provide data and identify data sources to expand AP-42 for greenhouse gases When finished, can provide emissions factors for landfill operations
EPA	EPA Office of Enforcement and Compliance Assurance	Could encourage State agencies to provide compliance test and monitoring data
EPA	EPA Risk and Exposure Assessment Division	Has data for gas and oil-fired turbines that could be used to develop emissions factors with confidence levels Has grant to evaluate emissions of 18 HAPs that presents an opportunity to collaborate to develop emissions factors for them
Industry	Clean Air Implementation Project (Procter and Gamble, El Paso Corporation, ExxonMobil, Dow Chemical)	Would collaborate with EPA in developing or updating emissions factors
Industry	NEDA/CARP	Could assist with general information and legal thinking about the use and applicability of emissions estimates and reliance on emissions factors, but trade associations are best source for technical assistance
Industry	Taconite Mining Industry TRC Texas Eastman Georgia-Pacific Corporation Department of Defense contractors DaimlerChrysler Texas Petrochemicals	Might participate in a workgroup as a stakeholder to develop new/improved emissions factors

Table 8. Summary of Level of Involvement Offered by Respondents

Respondent Type	Respondent	Level of Involvement Offered
Local Agency	Polk County Air Quality (Iowa)	Depends on what type of involvement is necessary, the resources it would require, and the resources available
Local Agency	Lane County Regional Air Pollution Authority (Oregon) Sacramento Metropolitan Air Quality Management District (California) Monterey Bay Unified Air Pollution Control District (California)	Would consider submitting source testing data to EPA
Local Agency	Puget Sound Clean Air Agency (Washington) Wisconsin Department of Natural Resources Bureau of Air Management	Currently participate on EIIP subcommittees
Local Agency	Port of Portland Authority – Portland International Airport (Oregon)	Might participate in a workgroup as a stakeholder to develop new/improved emissions factors
Local Agency	Air Management Division of the Environmental Protection Commission, Hillsborough County (Tampa), Florida	Would participate if certain sections were targeted for comment and revision
Local Agency	Ventura County Air Pollution Control District (California)	The level of involvement would depend on how critical the emissions factors under development would be to the VCAPCD. If participation involved frequent travel to the East Coast, participation would be more limited. If EPA is seeking assistance in this area, suggest having a discussion with the CAPCOA Engineering Managers Committee
Local Agency	Monterey Bay Unified Air Pollution Control District (California)	Could review factors to the extent resources are available
Planning and Environmental Organization	WESTAR	Depends on what type of involvement is necessary, the resources it would require, and the resources available
Planning and Environmental Organization	Coke Oven Environmental Task Force	Can provide source test data where available
Planning and Environmental Organization	Coke Oven Environmental Task Force	Might participate in a workgroup as a stakeholder to develop new/improved emissions factors

Table 8. Summary of Level of Involvement Offered by Respondents

Respondent Type	Respondent	Level of Involvement Offered
State Agency	Wisconsin Department of Natural Resources Bureau of Air Management	Would like to work on a better source test data delivery system for State data Would like to have a State workshop for emissions factors development
State Agency	Indiana Department of Environmental Management	Due to resource constraints, involvement likely would be limited to developing/validating emissions factors testing protocols, observing field testing, and reviewing test report in order to quality assure and validate the data Would also be willing to help develop a protocol for getting this data to the appropriate people at EPA for compilation
State Agency	Florida Department of Environmental Protection	If asked, fairly certain we would participate in the development and/or improvement of an AP-42 emissions factor for a source category, if that source category existed in Florida. Believe that all State air agencies would participate in studies and the development of emissions factors for an affected source category that exists in their State but is not covered in AP-42
State Agency	Arizona Department of Environmental Protection	Interested in the technical review, analyses of the data use Can provide input relating to the specific sources operating in Arizona
State Agency	New Jersey Department of Environmental Protection	Could provide stack test summarization package including the outcome of approximately 1,200 stack tests and has an associated 4,000 to 5,000 individual contaminant test results of the highest quality available NJ is looking to develop a format for future data compilation and wishes to ensure that all relevant information is included in the package. We welcome EPA input.
State Agency	Minnesota Pollution Control Authority	They would also be interested in ensuring data from source testing in Minnesota gets into AP-42
State Agency	Michigan Department of Environmental Quality Minnesota Pollution Control Authority Minnesota Pollution Control Authority – Air Permitting Group	Might participate in a workgroup as a stakeholder to develop new/improved emissions factors

Table 8. Summary of Level of Involvement Offered by Respondents

Respondent Type	Respondent	Level of Involvement Offered
State Agency	Illinois Environmental Protection Agency	Results from previous emissions factors development study, "Adopt-a-Factor," did not have the oversight to make sure the money was spent on developing emissions factors
State Agency	State of New Hampshire State of Massachusetts State of Maine State of Vermont	New England states are interested in helping to collect emissions data for emissions factors development and a standardized process for data submittals
State Agency	Georgia Environmental Protection Division Oregon Department of Environmental Quality Illinois Environmental Protection Agency	Depends on what type of involvement is necessary, the resources it would require, and the resources available

Table 9. Summary of Respondents' Suggestions for Stakeholder Involvement in Emissions Factors Improvement Effort

Comment	Respondent Type	Respondent
The EPA should consider the capabilities, abilities, and workload of State/local agencies [when updating AP-42].	Local Agency	City of Houston
EPA should be able to provide incentives to get better data to be used in the AP-42 program.	Industry	Huntsman Oil
Full stakeholder involvement in emissions factors is a good idea.	State Agency Local Agency EPA Industry Planning and Environmental Organization	State of South Carolina State of Delaware State of Pennsylvania State of North Carolina State of Minnesota City of Philadelphia Allegheny County EPA Region 3 EPA Region 1 NEDA/CARP Coke Oven Environmental Task Force
Need to work closer with RPOs on emissions factors development.	State Agency	Minnesota Air Pollution Control Authority – Emissions Inventory Group
EPA should work with FAA to come up with better emissions factors [for aircraft].	Local Agency	Port of Portland Authority – Portland International Airport
Should include resources from other organizations.	EPA Industry	EPA Clean Air Markets Division National Oilseed Processors Association

5.0 Conclusions and Next Steps

There are several conclusions that can be drawn from this effort. First and foremost, AP-42 continues to be a tool upon which many groups and agencies rely heavily in their efforts to develop, implement, and comply with air pollution regulations. There are a number of areas where emissions factors users believe the program can be improved. These areas include:

- The process for developing and improving emissions factors
- Methods for providing emissions factors data and other information to users
- Guidance on selecting and using emissions factors
- The number and quality of emissions factors

Section 5.1 presents major suggestions made by the respondents in each of these four areas. Not only did respondents have numerous suggestions, they also indicated a willingness to become stakeholders in efforts to improve the emissions factors program. Section 5.2 provides an outline of a stakeholder engagement strategy for a large emissions factors improvement effort. Finally, Section 5.3 summarizes a basic plan of action from the suggestions made by the commenter.

5.1 Suggestions for Improvement

The following sections present the major suggestions made by the emissions factors users that were interviewed and those that provided voluntary responses to the survey. The four sections correspond to the four areas listed above. Under each area, the major suggestions/ recommendations are listed. For some suggestions, the following points are for additional clarification.

5.1.1 Process for emissions factors development and improvement

- Develop a system where interested parties can participate in the improvement and development of emissions factors.
  - It needs to be much more open and transparent than in the past.
  - It should be designed for the long-term, meaning that it needs to deal with the continuing development and improvement of factors rather than a large one-time effort to address the current needs.
  - It should streamline the EPA approval process.

- Provide a mechanism (preferably electronic) for electronic test report submittal and review.

5.1.2 Methods for providing emissions factors data and other information to users

- Conduct additional data gathering to identify specific problems with current methods (CHIEF website, CDs, etc.) used to make AP-42 emissions factors and background data available and develop options to improve accessibility.

- Provide complete and easy access to all available test data.
  - Background test data used to develop EPA emissions factors.
  - Other test data.

- Provide a listing of, and links to, emissions factors developed by other organizations (State and local agencies, Europe, etc.).

Note: While respondents clearly would like more information and data available, there are concerns regarding how this information would be used. Therefore, making raw test data and other emissions factors available should be accompanied by guidance on how to select and use this information (see Section 5.1.3.). Such guidance will likely be application-specific.

5.1.3 Guidance on selecting and using emissions factors

- Develop guidance on the selection of the most appropriate emissions factor. This would include the selection of the AP-42 factor that best applies and the consideration and selection of emissions factors developed by other agencies or groups. This would also include guidance on interpreting caveats and data quality ratings.

- Develop guidance on developing emissions factors from available test data or other information. This should include guidance on how to order emissions tests to facilitate the development of emissions factors. This would also include guidance on evaluating and considering data quality.

- Develop guidance on using emissions factors for non-inventory applications (permitting, enforcement, etc.).

5.1.4 New and improved emissions factors

- Prioritize emissions factors needs.
- Identify special emissions factors that are appropriate to be developed on the national level.
- Develop or improve emissions factors.

5.2 Stakeholder Engagement

As discussed in Section 4.0, many emissions factors users indicated a willingness to participate, assist, and even partner with OAQPS in improving the emissions factors program. Since it has been expressed that this program needs to be more open and inclusive, and since the desire is that the program be less centralized, it is critical to engage stakeholders early and often in the process. This section outlines an approach for this stakeholder engagement effort.

Stakeholders should be involved in the entire emissions factors improvement effort. This effort should not only involve these stakeholders as information providers, but should also identify areas of responsibility that can be delegated to them.

The initial step in this effort needs to be the identification and recruitment of willing stakeholders. The first and most obvious group to contact should be those respondents who indicated a desire to partner with EFPAG in this emissions factors improvement effort. While the number of groups contacted in this information gathering was substantial, EFPAG should consider additional effort expanding the

Appendix D contains an example of a major multi-year stakeholder engagement effort conducted by the PIRG of ITPID to develop implementation materials for several coating NESHAPs. The pilot for this approach was the Paper and Other Web Coating NESHAP. PIRG engaged over 50 partners in an effort to develop implementation materials for this rule. The partners agreed upon a process for identifying the most needed implementation materials and for sharing in the development of these materials. To date, over 25 different implementation materials have been developed, most by non-EPA partners. This could serve as a model for the emissions factors stakeholder engagement.

search to other emissions factors users who may have an interest in partnering with EPA. For example, EFPAG could make use of materials (brochures, mini-CDs, web pages, notifications in publications, etc.) to distribute to potential stakeholders to explain the purpose of EFPAG's upcoming efforts, the opportunities for stakeholders to be involved, and the expectations of these stakeholders (see the Attachment to Appendix D for an example). Such materials would help recruit and educate stakeholders on the process.

After stakeholders have been identified, EFPAG could host a kick-off stakeholder meeting to introduce the project and decide on the process for proceeding. The results of EFPAG's information gathering effort should be made available to all prior to this meeting.

While EFPAG should maintain the leadership role in this effort, they should be open to involving partners as much as possible, provided that the partners are willing to accept responsibility and contribute. Given the past concerns about the openness of the program, it is important that EFPAG enter this partnering effort with as few pre-conceived notions as possible. The more effort EFPAG invests in soliciting and considering ideas of the partners, the less likely the process will slip into the more traditional "EPA proposes and stakeholders criticize" mode.

One discussion that would likely be helpful in setting this tone of shared ownership early would be to discuss the different possible levels of involvement for emissions factors improvement partners. These roles could range from minimal efforts such as providing or quality assuring emissions test data to participating in, and even chairing committees charged with addressing particular issues associated with the program. This will encourage stakeholders to think of their possible roles rather than their pet issues.

As noted above and discussed in Section 3.4, a large number of specific emissions factors were identified as needing to be improved or developed. In addition, the activity data issues discussed in Section 3.3, the data quality issues discussed in Section 3.5.5, and the special factors discussed in Section 3.5.6 are all related to the improvement of existing factors or the development of new ones. While addressing these concerns will ultimately provide the products needed by emissions

factors users, the initial phases of this stakeholder engagement effort should focus more on the process-related issues raised by the respondents (Section 3.5.3). If the process for improving or developing an emissions factor is defined, along with a clear understanding of how responsibilities of this process will be assigned and shared, then the development or improvement of the factor should be much smoother.

Committees could be formed to address issues not directly associated with specific emissions factors. This would include the guidance issues raised in Section 3.2 and the format and accessibility issues raised in Section 3.5.4.

5.3 Next Steps

The primary next step that is needed is to organize and carry out a stakeholder engagement effort that will take advantage of the opportunity to partner with emissions factors users. To ensure the optimum short- and long-term cooperation and involvement, these stakeholders need to be involved early in the planning. In particular, it will be very important that these stakeholders provide input and accept responsibilities in outlining the new process for developing and improving emissions factors.

While a strong stakeholder involvement effort is the principal step that should be pursued, there are several suggestions made by the respondents that could be initiated immediately by EFPAG as stakeholder engagement activities are being planned. These include:

- Evaluate current software and internet tools.
- Develop an electronic test report submittal and review process.
- Develop draft methods for assessing and classifying the quality of emissions factors data.
- Conduct internal brainstorming of aspects of the program that can be streamlined.
- Evaluate the needs and issues associated with the use of emissions factors in permitting and enforcement.

- Assess the elements of the emissions factors program that are candidates for outsourcing or delegation to non-EMAD stakeholders.

The ultimate outcome of this effort to improve the emissions factors program should be not only a system that will result in addressing the current needs of emissions factors program, but one that can anticipate and react to future needs of emissions factors users. EMAD can maintain their role as the experts and coordinators in emissions quantification, yet share the responsibilities and resource burdens with emissions factors users.

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