APPENDIX G

MEETING MINUTES FOR THE AUGUST 26, 2004, EMISSIONS FACTORS PROGRAM IMPROVEMENTS WORKSHOP

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MACTEC

DATE: September 30, 2004

TO: Mr. Ron Myers
U.S. EPA/EMAD/EFPAG

FROM: Mr. Sean Mulligan
MACTEC Federal Programs, Inc.

CONTRACT: Contract No. 68-D-01-003, Work Assignment No. 4-03

SUBJECT: Meeting Minutes for the August 26, 2004, Emissions Factors Program Improvements Workshop

WORKSHOP SCHEDULE AND LOCATION

A stakeholders' workshop was held on August 26, 2004, in conference room 1153 of the EPA East building, Washington, D.C. The workshop commenced at 9:00 am and lasted until 4:30 pm.

WORKSHOP PURPOSE

The workshop was held to assess challenges facing the emissions factor program over the next 3 to 5 years and to develop action items that maintain attendees' involvement in the future of the program. It was organized and led by the Emission Factors and Policy Applications Group (EFPAG) of the Office of Air Quality Planning and Standards (OAQPS).

ATTENDEES

Thirty-three individuals attended the workshop. Attendees included personnel from EPA, state governments and local agencies, trade organizations, industry, consulting firms, and universities. A complete list of attendees is included as Attachment 1.

WORKSHOP SUMMARY

The workshop commenced with a presentation by the workshop chairman, Mr. Peter Westlin (OAQPS, EFPAG) regarding the purpose of the workshop and the status of the emission factor development program. Mr. Westlin's presentation was followed by presentations from the keynote speaker, Mr. John Hayden of the National Stone, Sand and Gravel Association. Mr. Hayden's presentation is included as Attachment 2.

Presentations by Messrs. Tom Driscoll, Ron Myers, and Barrett Parker, all of OAQPS, followed the keynote presentation. Copies of the presentations made by Messrs. Westlin, Driscoll, Myers, and Parker are included as Attachment 3.

Following a break for lunch, the attendees broke into three groups of approximately equal size. A facilitator and recorder were assigned to each group. Each group was assigned one of the following discussion topics:

1. Information Transfer and Sharing
2. Emissions Factor Data Uncertainty
3. Non-Inventory Applications of Emissions Factor

Approximately three hours were devoted to group discussions. At the conclusion of the individual break out sessions, each group presented all of the attendees with a summary of the topic discussed, issues identified, and at least one proposal to improve management of emission factors in the area discussed. Each attendee was then allowed to vote on the proposals to determine which proposals were most important to the group as a whole. Mr. Tom Driscoll facilitated a group discussion on these proposals and gave closing remarks to end the meeting.

PROPOSALS FROM THE GROUP BREAK OUT SESSIONS

The key points and proposals made by each group are discussed below. Additional points made by the groups and issues discussed during the group break out sessions are included as Attachment 4.

Topic 1: Information Transfer and Sharing

The group discussion focused on the need to develop a standardized methodology for collecting and reporting emission factor data. The group felt that this could be best accomplished by a centralized emission factor authority, and that this authority should develop a standardized electronic format for test reports, including a template for stack sampling. The authority should also develop and manage mechanisms for approval and certification of testers and test data, develop a clearing house for source test data, and organize the clearing house so that it can be searched by SCC or SIC. It was also recommended that the authority develop a strategy for outreach to small business and ensure that training is available to small businesses.

The group made two proposals:

Proposal 1A: With stakeholder collaboration, develop a data model and interface to standardize certifiable electronic reporting and submittal formats.

Proposal 1B: Make the development and use of emission factors small business friendly. Identify small business needs and develop training and outreach to ensure that small businesses are awareness of emission factors and their applicability.

Topic 2: Emission Factor Data Uncertainty

The group discussion focused on the need to evaluate and improve the emission factor development process and to incorporate uncertainty data into emission factor development. The recommended actions included standardization of the process of collecting and reporting uncertainty data, acquisition of uncertainty data relative to emission factors, and the incorporation of accuracy and precision in published emission factors. These actions would be supported by performing outreach to stakeholders and by studying the effect of emission factor uncertainty on compliance.

The group made one proposal:

Proposal 2: Collaboratively standardize the emission factor development process by: defining uses of emission factors, establishing quality-affecting standards for data collection, and collecting additional information associated with tests to ensure that the data collected

are of sufficient quality. Also establish outreach programs and ensure that emission factors will meet the needs of stakeholders.

Topic 3: Non-Inventory Applications of Emission Factors

The group discussion focused on the need to streamline the process of updating emissions factors and the need to develop better characterization of uncertainty in emissions factors. Additionally it was recommended that the algorithm used to estimate road dust emissions for both paved and unpaved roads be revised.

The group made two proposals:

Proposal 3A: Streamline the emission factor development process by: involving partners who are willing to commit resources, developing objective criteria for emission factor rating tests, developing a standard testing protocol, and forming a group to certify tests.

Proposal 3B: Reduce the uncertainty in emission factors by: using only A or B rated test data in emission factor development, providing both a range and a median value for emission factors, establishing criteria for quantifying uncertainty, and explaining uncertainty in AP-42.

WRAP UP

When the group reconvened, all attendees voted on the proposals. This helped to identify which issues and proposals were most relevant to the majority of attendees. A tally of the votes garnered by each proposal is included as Table 1.

The voting summarized in Table 1 indicates that the stakeholders found it most important that a standardized electronic submittal format for emissions factors be developed. It was felt that a standardized data model and interface should be developed by collaboration between EPA and stakeholders. This would ensure that EPA can collect and use data more efficiently and that stakeholders would gain the maximum benefit from their contributions. Stakeholders were also concerned that the development and use of emissions factor should not harm small businesses. For this reason, they recommended that EPA continue to explore ways to make the program small business-friendly.

TABLE 1. SUMMARY OF PROPOSALS MADE ON AUGUST 26

Proposal Number	Proposal	Number of Votes
1A	With stakeholder collaboration, develop a data model and interface to standardize certifiable electronic reporting and submittal formats.	23
1B	Make the development and use of emission factors small business friendly. Identify small business needs and develop training and outreach to ensure that small businesses are awareness of emission factors and their applicability.	18
2	Collaboratively standardize the emission factor development process by: defining uses of emission factors, establishing quality-affecting standards for data collection, and collecting additional information associated with tests to ensure that the data collected are of sufficient quality. Also establish outreach programs and ensure that emission factors will meet the needs of stakeholders.	13
3A	Streamline the emission factor development process by: involving partners who are willing to commit resources, developing objective criteria for emission factor rating tests, developing a standard testing protocol, and forming a group to certify tests.	8
3B	Reduce the uncertainty in emission factors by: using only A or B rated test data in emission factor development, providing both a range and a median value for emission factors, establishing criteria for quantifying uncertainty, and explaining uncertainty in AP-42.	14

ATTACHMENT 1
ATTENDEES TO THE AUGUST 26, 2004, EMISSION FACTOR IMPROVEMENT WORKSHOP

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WORKSHOP ATTENDEES - AUGUST 26, 2004

Name	Organization
	US EPA
Elsa Bishop	Small Business Division
Daniel Eddinger	OPEI/OBCI/SBD
Frank Martinsky	Office of the Inspector General
John Schakenbach	CAMD
Mohamed Serageldin	OAQPS
Catherine Tunis	Small Business Division
	Industry
Dave Ailor	ACCCI/NOPA
Eric Byrd	Kentucky Business Environmental Assistance Program
John Dege	E.I. Dupont
Lorraine Gershwin	American Chemistry Council
John Hayden	National Stone, Sand & Gravel Association
Ed Herbert	National Ready Mixed Concrete Association
Keith Holman	SBA Advocacy
Frank Lobb	Clean Air Engineering
Carrie MacDougall	CH2MHill
Marie Martinko	The Society of the Plastics Industry
Laurie Miller	American Chemistry Council
Theresa Pugh	American Public Power Association
John Richards	Air Control Technologies, P.C.
Doug Scheffler	American Waterways Operators
Christopher Sidney	DaimlerChrysler Corporation
Piyush Srivastav	Nebraska Public Power District
Susan Stone	National Center for Environmental Economics
Steve Whitt	Martin Marietta Materials
	State/Local/Tribal Agency
Jonathan Atkins	CO Department of Public Health and Environment

WORKSHOP ATTENDEES - AUGUST 26, 2004 (CONT.)

Name	Organization
Bob Betterton	SC Department of Health and Environmental Control
Deirdre Elivis-Peterson	DC Department of Health/Air Quality
Dan Hoyt	City of Houston, Bureau of Air Quality Control
John Nwoke	DC Department of Health/Air Quality
Jim Southerland	NC DENR/Division of Air Quality
Olaniyan Tajudeen	DC Department of Health/Air Quality
Bob Wooten	NC DENR/Division of Air Quality
	University
Herb Eckerlin	CIBO and North Carolina State University

ATTACHMENT 2
KEYNOTE PRESENTATION FROM THE AUGUST 26, 2004, EMISSION FACTOR IMPROVEMENT WORKSHOP

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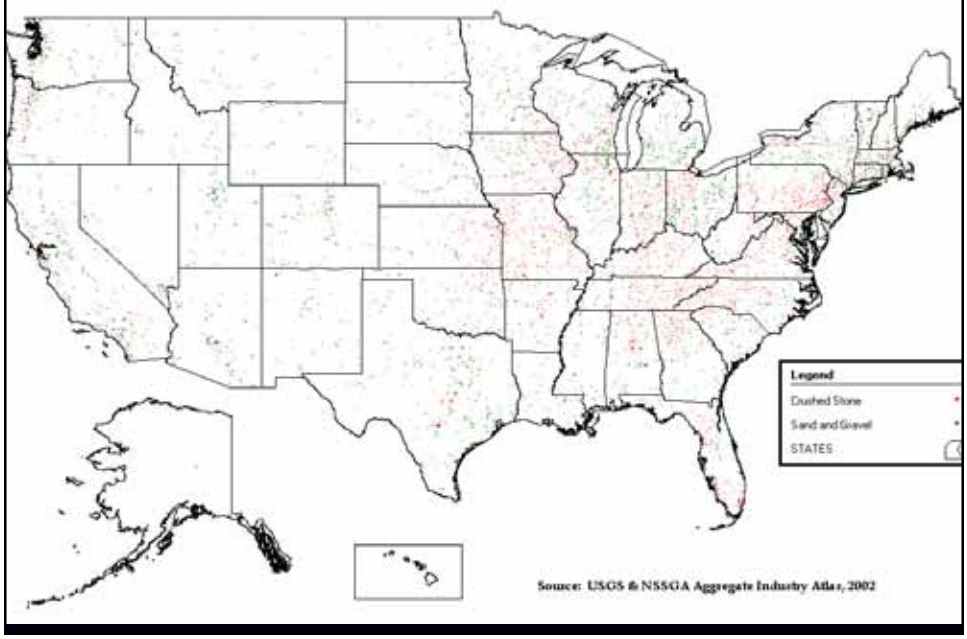
Air Emission Factor Testing and Ambient Air Monitoring at Aggregate Facilities

John Hayden, P.G., REM
National Stone, Sand and Gravel Association

Steve Whitt, P.E.
Martin Marietta Materials

Dr. John Richards, P.E.
Air Control Techniques, PC

NATIONAL STONE, SAND & GRAVEL ASSOCIATION



Importance of Emission Factors

- Prior to 1990, emission factors were used simply for general air quality planning.
- Prior to 1990, emission factor data applicable to Aggregates Industry plants were very limited.
- After 1990, emission factors were used for determining the applicability of specific plants to Title V permit requirements.
- After 1990, emission factors were used as the basis for operating permit fees.

Characteristics of the EPA and NSSGA Emission Factor Tests

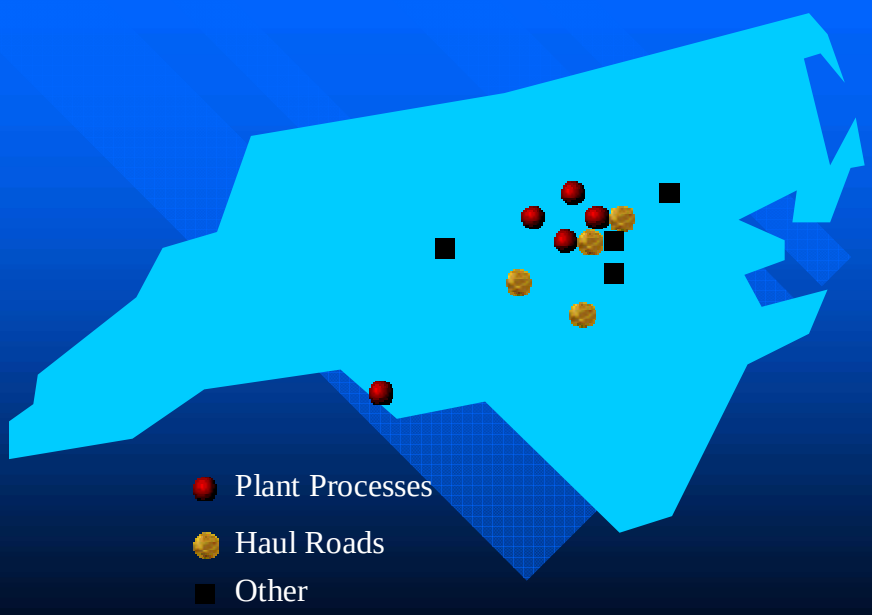
- Initially, the program was jointly funded by EPA and NSSGA.
- NSSGA maintained cooperative nature of the test program after EPA could not participate financially.
- EPA reviewed test protocols, observed the field tests, and reviewed the test reports.
- NSSGA has expanded the scope of the testing to include pulverized mineral operations not previously addressed in AP42.

Emission Factor Studies

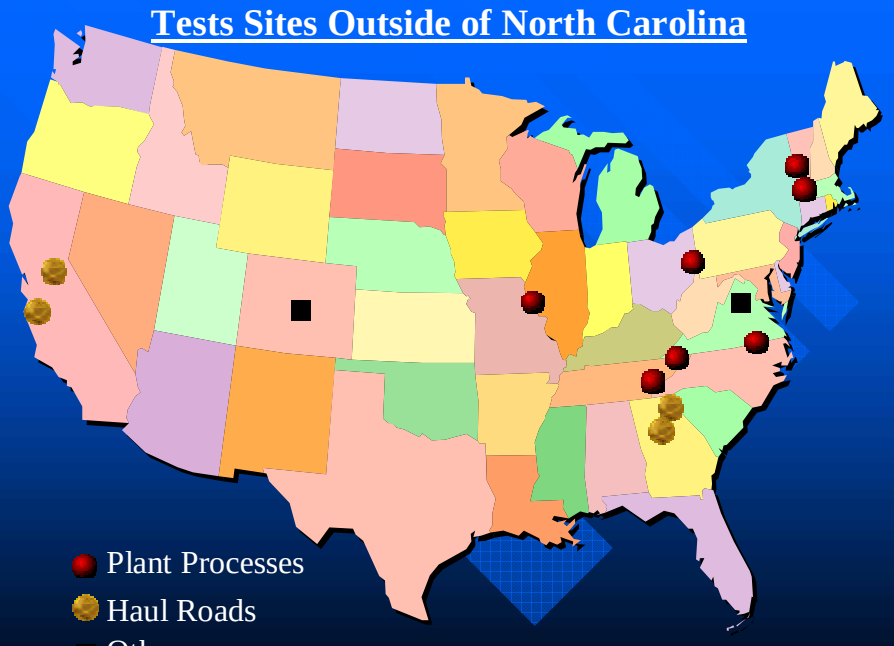
- Purpose: Compile accurate and defensible PM10 and PM2.5 emission factors for aggregate operations.
- Test Locations:

Raleigh, NC (4 locations)	Skippers, VA
Bristol, TN	Marysville, TN
Pineville, NC	Lemon Springs, NC
North Adams, MA	Florence, VT
Quincy, IL	Wellsville, OH
Denver, CO	Tracy, CA
Bradshaw, CA	Leesburg, VA
Cumming, GA (2 locations)	Benson, NC
Fountain, NC	Buchanan, NC

Test Sites in North Carolina



Tests Sites Outside of North Carolina



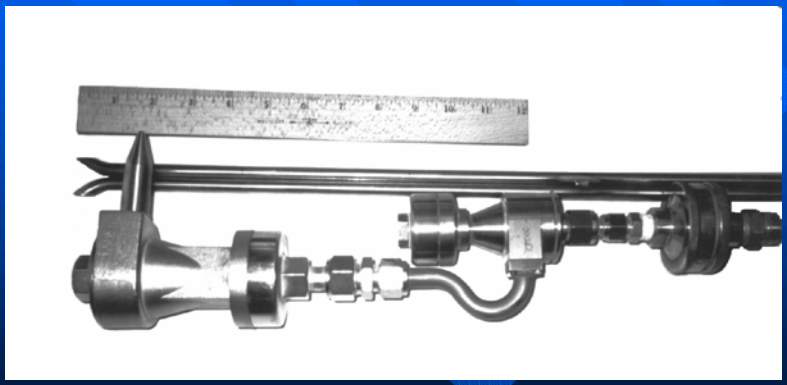
Characteristics of the EPA and NSSGA Emission Factor Tests

- All emission tests were conducted using EPA reference methods and full quality assurance procedures.
- All fugitive emission capture systems were consistent with published and established techniques.
- Plants representative of the Aggregates Industry were selected for testing.

Method 201A for PM10

EPA Method Preliminary 4 for Combined PM10 and PM2.5

(Previously termed Method 201B)



Tapered Electrode Oscillating Microbalance Monitors

Screen Testing

(Method 5D Traversing Hood Emission Capture;
Method 201A and Preliminary 4 Emission Testing)

Tertiary Crushers

(Quasi-Stack Enclosure Emission Capture;
Methods 201A and Preliminary 4 Emission Testing)

Conveyor Transfer Point

(Quasi-Stack Enclosure Emission Capture;
Methods 5, 201A, and Preliminary 4 Emission Testing)

Haul Road Tests

(Upwind – Downwind Profiling with Method 201A and TEOM Emission Testing)

Four PM10 TEOMs and One PM2.5 TEOM in Downwind Sampling Location

Emission Factor Results PM10

- Crushers
  - Controlled 0.00054 pounds PM10/ton
  - Uncontrolled 0.00240 pounds PM10/ton
- Screens
  - Controlled 0.00074 pounds PM10/ton
  - Uncontrolled 0.0087 pounds PM10/ton
- Conveyor Transfer Points
  - Controlled 0.000046 pounds PM10/ton
  - Uncontrolled 0.0011 pounds PM10/ton

Changes in Crushing Emission Factors

Tertiary Crushing Emission Factors and Ratings					
Year	Total PM, Lbs./Ton Uncontrolled	Total PM, Lbs./Ton Controlled	PM_{10}, Lbs./Ton Uncontrolled	PM_{10}, Lbs./Ton Controlled	References
1985	1.85-E	No Data	No Data	No Data	1985 - 4 and 5
1988	1.85-E	No Data	No Data	No Data	1988 - 4 and 5
1994	0.036-C	0.0016-C	0.0024-C	0.00059-C	1994-10, 11, 15, and 16
1995	0.0050[1]-C	0.00124[1]-C	0.0024-C	0.00059-C	1995-10, 11, 15, and 16
2004	0.0054-E	0.00120-E	0.0024-C	0.00054-E	2004-3, 7, 8, 2, 15

Note 1. Emission factors were calculated based on 2.1 times the PM_{10} value as specified in footnote "c"

Previous Crushing Emission Factor

Emissions Data Used to Calculate the 1.85 Lbs/Ton Emission Factor						
Reference	Company	Type of Material	Production Rate, (TPH)	Average Moisture, (%)	Emission Factor, (Lbs./ton)	AP-42 Report Rating
80-MET-6	New Jersey Zinc	Zinc Oxide (METALLIC)	19	0.2	2.76	A
Monsanto-TRC	No Data	Traprock	No Data	No Data	0.00160	B
Monsanto-TRC	No Data	Limestone	No Data	No Data	0.00700	B
Average (2 x 2.76 + 0.00160+0.00700)/3 =					1.85	N/A
Average without metallic zinc ore (0.00160+0.00700)/2 =					0.0043	N/A

PM2.5 Emission Factor Results

- Crushers
  0.00010 Lbs. PM2.5/ton
- Fines Crushers
  0.00007 Lbs. PM2.5/ton
- Screening Operations
  0.00005 Lbs. PM2.5/ton
- Conveyor Transfer Points
  0.000013 Lbs. PM2.5/ton

Emission Factor Study Conclusions

- PM10 emissions from aggregate operations are substantially lower than indicated by the pre-1990 EPA emission factors.
- The changes are not surprising considering that:
  - Very little data were available prior to 1990.
  - The crusher emission factor was based almost entirely on a zinc ore dryer that was incorrectly categorized as a stone crushing process unit.
- PM2.5 emissions from aggregate operations are low.

Emission Factor Studies, Further Information

- Emission factor tests results obtained during the EPA-NSSGA tests are consistent with plant upwind-downwind monitoring using PM10 and PM2.5 ambient monitors.
- The upwind-downwind ambient air monitoring studies have been conducted in eastern North Carolina, northern Virginia, and Colorado.

Emission Factor Studies

- The EPA-NSSGA emission factor compilation program has demonstrated that EPA, state and local agencies, and industry can work together effectively to develop accurate emission factor data.
- The ability of agencies and industry to develop new emission factors is especially important as EPA develops new ambient air quality standards and emission limits.

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ATTACHMENT 3
EFPAG PRESENTATIONS FROM THE AUGUST 26, 2004, EMISSION FACTOR IMPROVEMENT WORKSHOP

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Emissions Factors Improvement Workshop

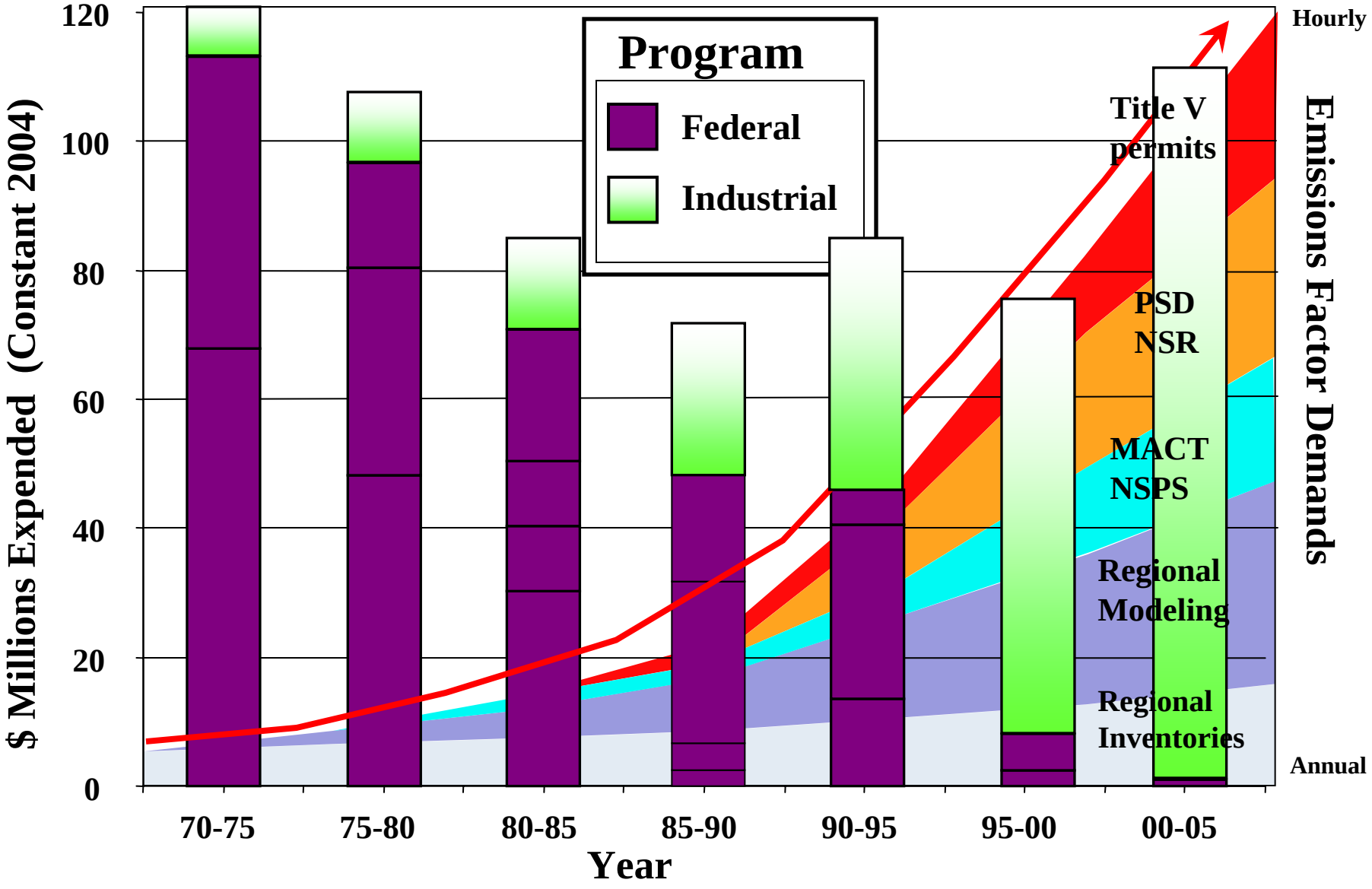
A Vision for the Emissions Factors Program

Emissions Factors and Policy Applications Group (EFPAG)
Washington, DC
August 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 sessions to develop proposals for EF improvements and other 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 EPA in-house EF development focus
  - Modest technology improvements (e.g., electronic access)
  - Demand is increasing but fewer $
- **EPA support 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 changes in EPA for EF program?

A Fresh Start in FY03 and Continuing:

- Reassign EF responsibility to EFPAG, refocus EMAD group role
- Establish a baseline
  - Assess current activities and resources
  - Collect input from EF users and developers
  - Identify critical needs
- Identify and evaluate potential project areas and partners (why we are talking with you)

Who cares about the program?

Two primary user groups:

- Inventory developers and regulators
  - 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 to develop EFs of known data quality
- Champion development of new and enhanced tools for applying emissions factors
- Advance site-specific emissions quantification procedures for Title V, NSR, SIP applications

Presentations

- Keynote - TBD
- Fact finding – Tom Driscoll, EFPAG
- EF Development projects – Ron Myers, EFPAG
- Applications Issues – Barrett Parker, EFPAG
- Workshop sessions – Peter Westlin, EFPAG
- Wrap-up – Tom Driscoll, EFPAG

Presentations

- State Agency - TBD
- Fact finding – Tom Driscoll, EFPAG
- EF Development projects – Ron Myers, EFPAG
- Applications Issues – Barrett Parker, EFPAG
- Workshop sessions – Facilitators, EFPAG staff
  - Tom Driscoll
  - Robin Langdon
  - Ron Myers
  - Barrett Parker
- Wrap-up – Tom Driscoll , EFPAG

Discussion?

Emissions Factors Program Fact Finding Survey

Tom Driscoll
Emissions Factors and Policy Applications Group (D243-02)
Emissions Monitoring and Analysis Division
Office of Air Quality Planning and Standard

Emissions Factors Workshop
Washington, DC
August 25 and 26, 2004

Why did we undertake the survey?

- 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

Whom did we survey?

- 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

How did we survey?

- How do you use emissions factors?
- Are the emissions factors you use derived from EPA's AP-42 or other data sources?
- If EPA decided not to update AP-42 again, what would your reaction be?
- Do you provide data to EPA for developing emissions factors?
- Have you proposed to use emissions quantification procedures other than emissions factors?
- Have you imposed or had imposed on you the use of emissions factors when there may have been other procedures providing more representative results?
- Would you consider more direct involvement in the emissions factors program?

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 & the associated information are sometimes difficult to find

What Did We Hear (continued)?

- 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 (continued)?

- AP-42 is used extensively, is needed, and EPA must be involved
- State and Local Programs lack trust industry or trade association in emissions factors or data
- Some of the stakeholders feel omitted from the emissions factors development process
- Transparent development process needed

What Did We Hear (continued)?

- Guidance is needed:
  - Which emissions factors to use for a source category or process when there are none in AP-42
  - Procedures for S/Ls to fill gaps in AP-42
  - Using industry-derived source testing
  - Which test methods to use when developing emissions factors

What Did We Hear (continued)?

- Guidance is needed (continued):
  - When use of emissions factors is appropriate and when not to use them
  - When there is a range of emissions factors
  - With better disclaimers, instructions, and protocols
  - For using emissions factors from other sources

What Did We Hear (continued)?

- Guidance is needed (continued):
  - For using emissions factors to base permit or enforcement limits
  - For using emissions factors for applicability determinations
  - To interpret permit and enforcement limits when the emissions factors are amended
  - When permitting authorities ignore guidance on emissions factors' ratings

Can others collaborate with EPA?

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

Fact Finding Report

- Results are compiled in “Summary of Emissions Factors Improvement Project Fact Finding Survey” report
- Copies of all responses and summary of comments included
- The website for this report is:

http://www.epa.gov/ttn/chief/efdocs/efimproverproject.pdf

June Clearwater EF Workshop

- Discuss survey report findings and propose ideas to address shortcomings
- Presentations:
  - Patrick Gaffney of CARB, highlights
    - When are there enough data for EFs?
    - EPA should decide sources to be studied
    - Emissions studies for dairies conducted in 1938

June Clearwater EF Workshop (cont.)

- Groups addressed specific issues
- Group proposals or products:
  - Develop tools, rules, and guidance for non-inventory applications
  - Establish, understand, and use EF data quality and uncertainty information
  - Tap into industry-sponsored testing
  - Develop electronic clearinghouse for source test data and QA information
  - Standardize, streamline, and develop a checklist for overall EF development process

Wrap Up

- Although we have plans to address our findings, we still want to hear your thoughts, ideas, and comments
- My contact info:

(919) 541-5135

driscoll.tom@epa.gov

New EF Development Directions

An Updated Program
for a New Century

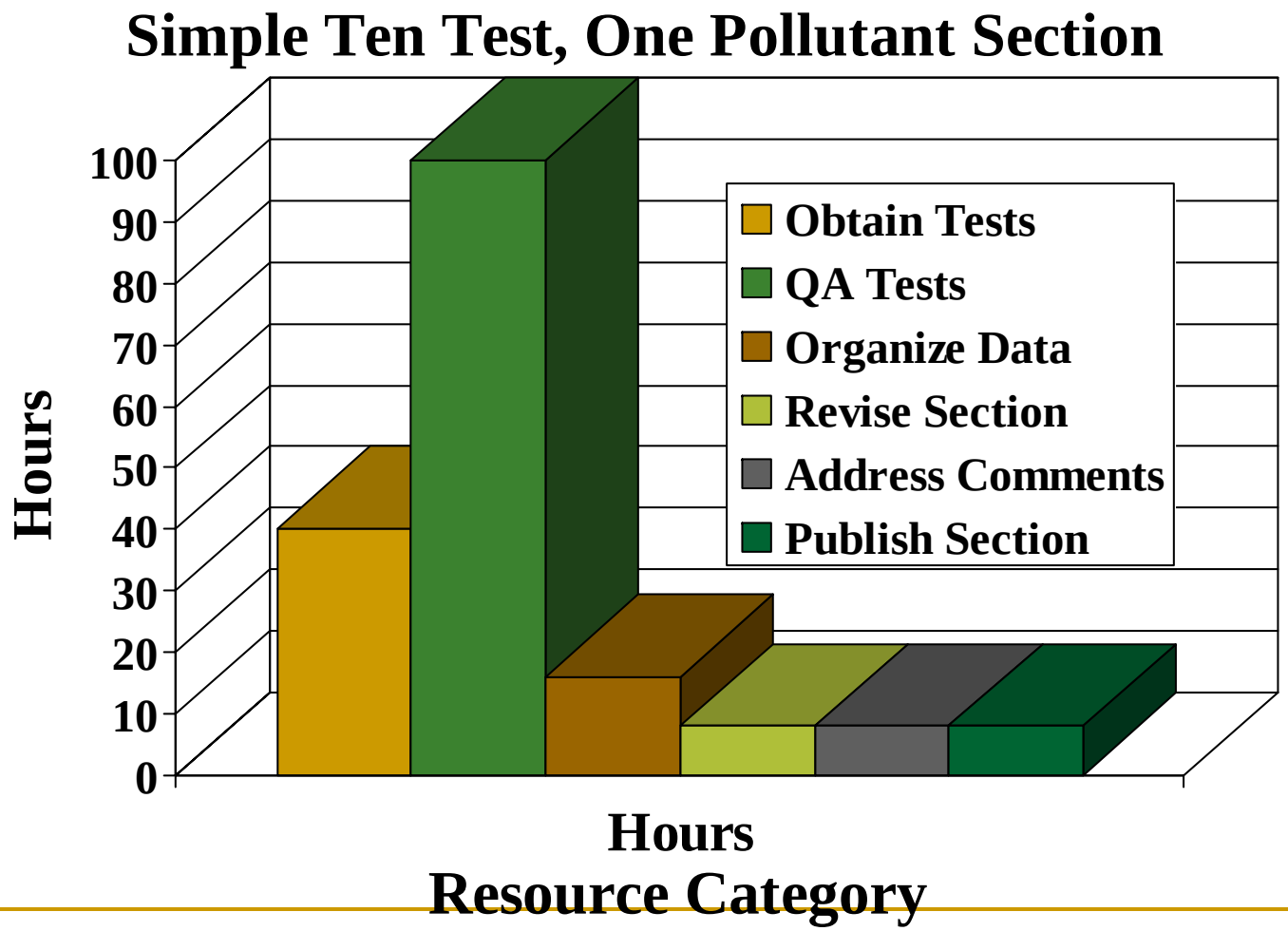
Ron Myers
Emissions Factors & Policy
Applications Group

Emissions Factors Capabilities
vs.
Program Requirements

Overview

- 20th Century Development Considerations
- Opportunities to Improve the Process
- Active EPA Project Areas
- Emissions Factors Selection Idea
- Emissions Factors Use Simulation

Where do Current EF Development Resources Go?



Data Usage Considerations

- **Paper, Paper, Everywhere**
  - EF Development
    - Information in multiple locations
    - Information underutilized
    - Process subjectively focuses on bias issues
    - Process duplicates State Assessments
    - Information manually transcribed
  - State Test Assessments
    - Information manually transcribed multiple times
    - Some assessments are very rigorous
    - No clear assessment standard
    - Process subjectively focuses on bias and precision issues
    - Some bias acceptable
    - Focus on compliance

Opportunities to Improve System

- Expand/Revise Format of Source Tests
- Standardize Assessment Processes
- Employ 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

EPA Active Project Efforts

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

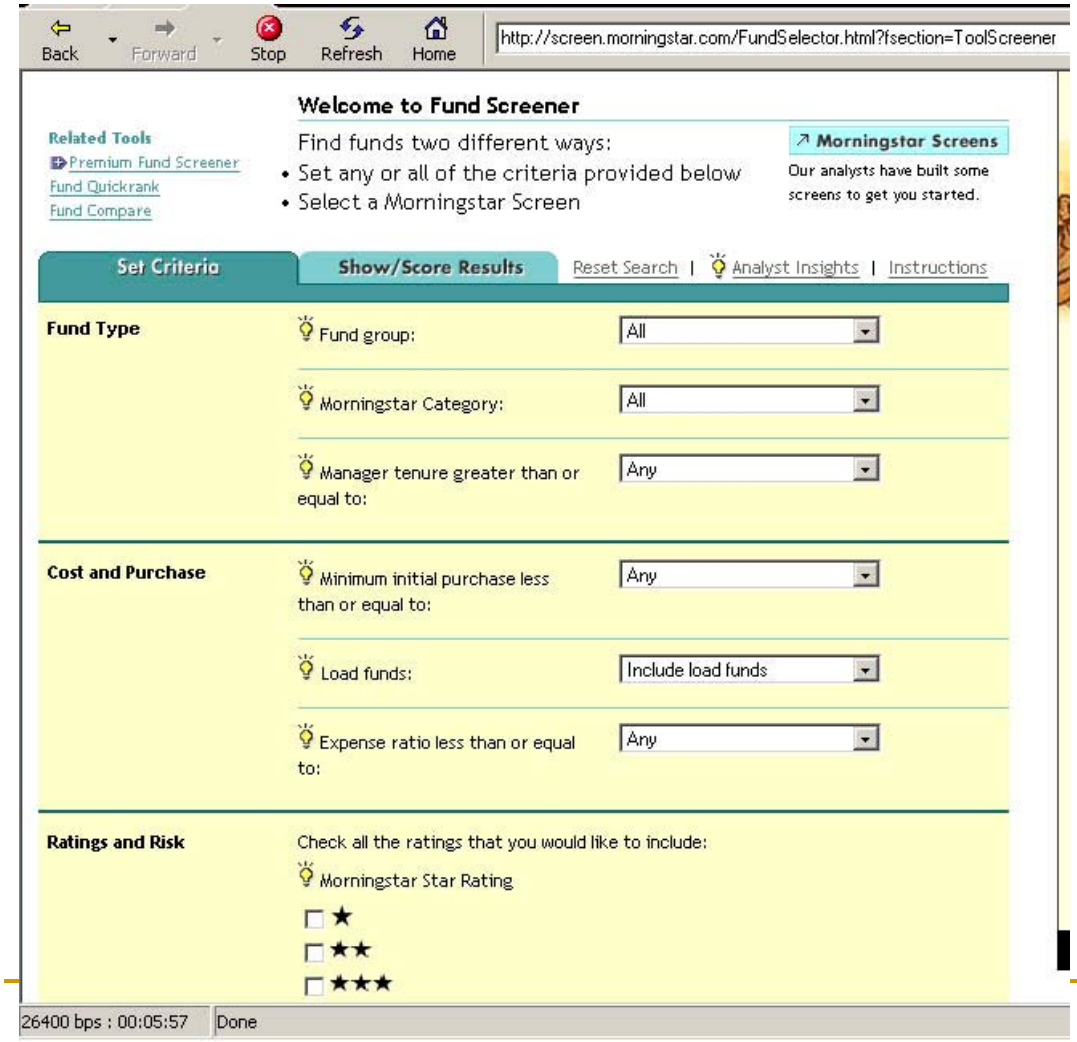
EPA Active Project Efforts (cont)

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

EPA Active Project Efforts (cont)

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

Emissions Factors Selection
Imagining Outside the Box



Program Specific Emissions Factor Selection & Adjustments

- Bias
- Precision
- Source Variability

Emissions Factors Use Simulation

- National Program
- Four/Five Regional Programs
  - One Regulatory Authority per region
  - One Quantification Consultant per region
  - Eight highly competitive corporations per region

Emissions Factors Use Simulation

- National Program
  - Establishes Health Goals
  - Establishes National Emissions Standards
  - Determines National Emissions Factors

Emissions Factors Use Simulation

- One person is the regulatory authority
  - Establishes emission limitation in region
  - Collects permit fees
  - Evaluates compliance with applicable limit
  - Collects fines for non-compliance

Emissions Factors Use Simulation

- Eight people per group have one folded page
  - On the back of their page is their annual CA$H balance sheet
  - The folded page presents information on their production facilities
    - Facility number
    - Control device
    - Fuel type
    - Product recycle percent
    - Daily production level
    - Site specific emissions information is under the fold

Emissions Factors Use Simulation

- One person is quantification consultant
  - Applies Emissions Factors @ $1,000/facility
  - Performs Source Test @ $10,000/facility

Emissions Factors Use Simulation

- Discussion on acceptability of emissions factors
- Discussion on decision process for use of emissions factors vs. paying for better emissions information
- Discussion on problems created by processes

EPA Active Project 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
Draft revised procedure for EF development	June 2005
Draft electronic process for EF development	August 2005

Open Discussion

Non-Inventory Issues and Partnerships

An overview of our activities

Revamping the Emissions Factors Program Workshop

Emissions Factors

- Designed to develop area-wide emissions inventories
  - AP 42 originally published in 1972
  - Now has over 200 major source categories
  - Includes criteria and toxic air pollutant factors
- Represent *averages*, not site specific values
- Are estimates!

Emissions Factors

- Despite AP 42 guidance, used for
  - Program applicability determinations
  - Emissions standards and limits
  - Site-specific permit limits
  - Compliance determinations

Other Non-Inventory Uses Include

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

EFPAG to clarify non-inventory use

- Create options paper for quantifying emissions at individual sites
  - Rely on current rankings
  - Develop maximum and minimum values
  - Generate statistics for maximum and minimum values

Example for gas-fired small boiler with low NOx burners

Pollutant	Emissions Factor (lb / mmbtu)	# of Tests	RSD, %	SD	Option 1 Rating	Option 2 3 times EF	Option 3 95% CI
CO	84	49	124	104	B	252	288
NOx	50	5	54	27	D	150	103

EFPAG to clarify non-inventory use

- Partner with stakeholders to create enhanced emissions factors tools
- Conduct workshops to promote tools
- Develop guidance or rules for non-inventory use

Partnerships

- Crushed stone processing
- Hot-mix asphalt
- Turbines and gas-fired combustion
- TANKS
- Army ammunition, PM 2.5, multi-metals
- Remote optical sensing
- Printing and publishing

Monitoring Knowledge Base (MKB) Website

- Objective
  - Provide access to wide range of available monitoring from central site
- Audience
  - Technical staff
    - EPA, state, local, tribal agencies
    - Industry and consultants

MKB Design Approach

- Follow Agency format and IT guidelines
- Layer access to information (basic to detailed)
- Provide links to existing information
  - Minimizes development of new materials
- Access information via
  - Control technology or
  - Industry

MKB Website Focus

- Monitoring Basics
  - Primer
  - FAQs with responses
  - Regulatory requirements
- Monitoring Techniques for differing control types
- Monitoring Requirements and Techniques by industry type

Initial MKB Control Devices for VOC and PM

- Fabric Filters
- Wet scrubbers
- Catalytic oxidizers
- Condensers
- Adsorbers
- Electrostatic precipitators
- Thermal oxidizers
- Carbon absorbers

MKB VOC and PM Industries

- Initial
  - Printing and publishing
  - Surface coating
- Others
  - Pharmaceutical
  - Batch chemical
  - Auto manufacturing
  - Fiberglass resin
  - Computer chip design

MKB Successes

- Provide organized access to
  - Basic monitoring concepts
  - Monitoring approaches for control devices
  - Monitoring examples (CAM and title V)
- Provide access to State / local / tribal permit websites

MKB Challenges

- Designing to accommodate broad range of knowledge
- Providing specific example monitoring requirements of permits
- Providing links to permits by industry type, emissions source, or control type

MKB Next Steps

- Complete Agency review
- Beta test

Looking for Answers in All the Right Places

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

Emissions Factors Improvement Workshop 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 follow-up actions at the end of the workshop

More structure

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

Ground rules

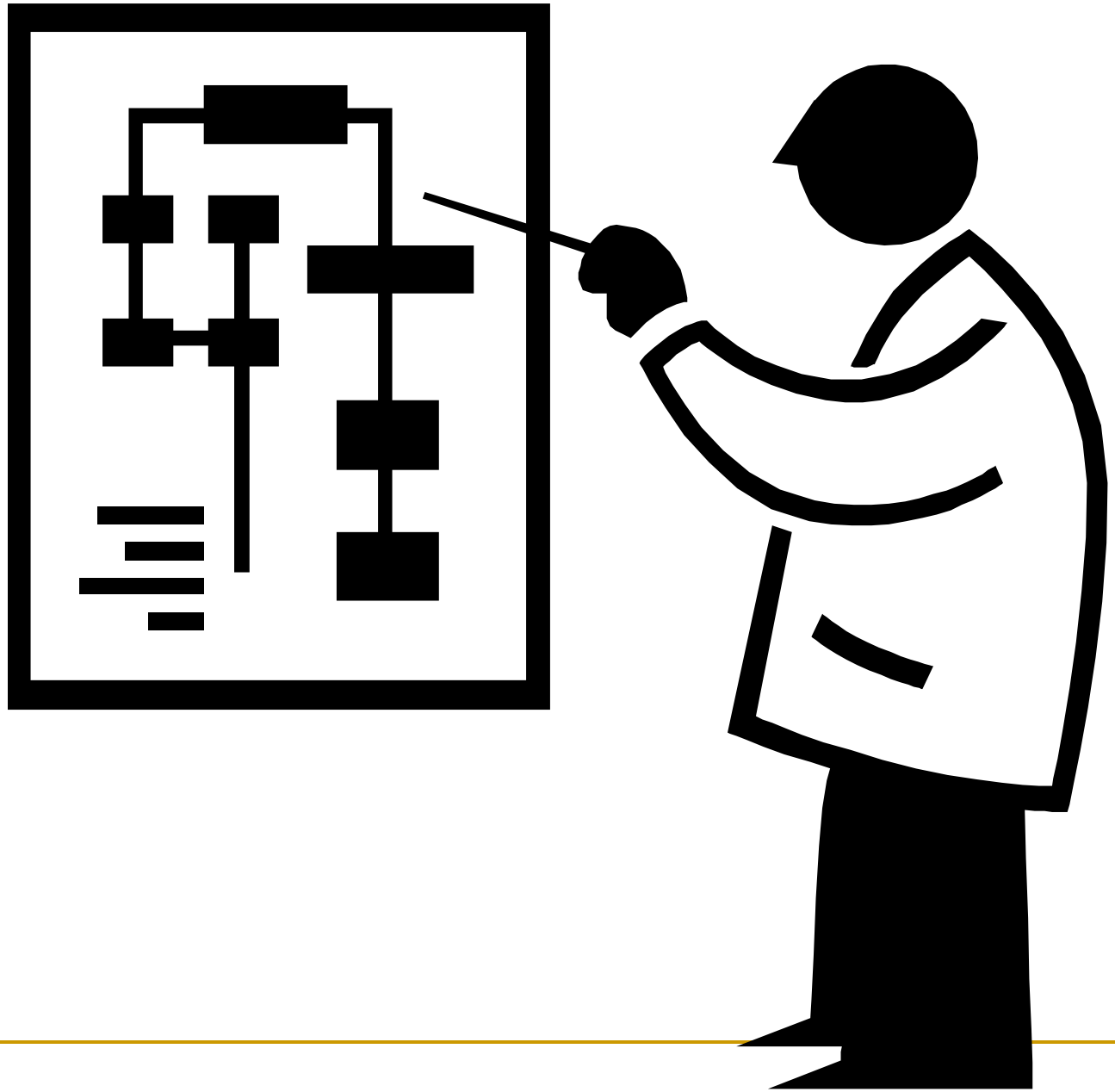
- Respect for each other and our opinions is inherent, act accordingly!
- All ideas are acceptable (see above)
- One voice at a time- let the facilitator facilitate
- Everyone will have opportunity to contribute
- Focus comments on interests, not positions (we are not here to bargain)

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 5 minutes!

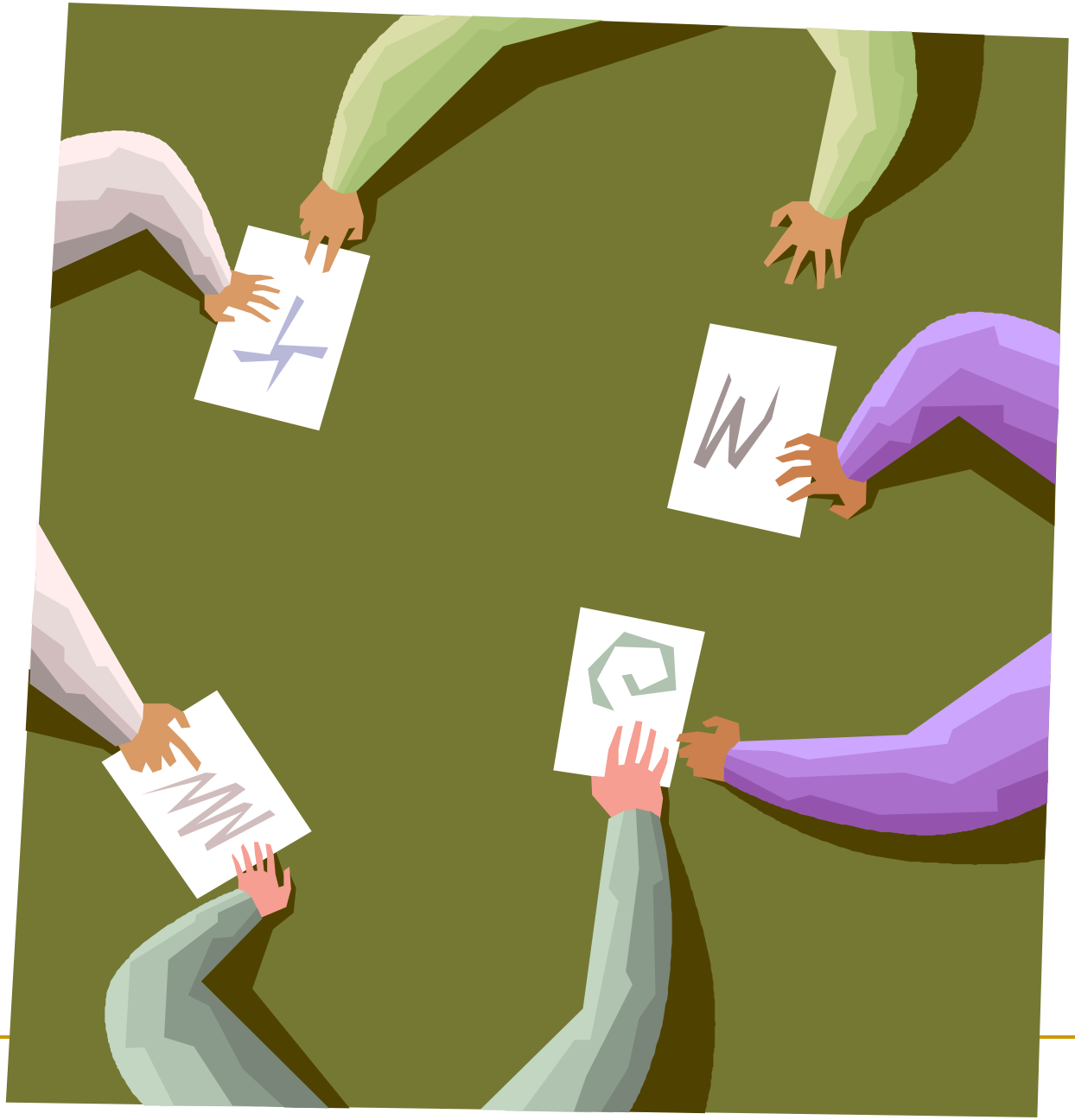
Step one

- 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 10 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 one or two top rated actions into clear proposal statements on a flipchart (e.g., collaboration between EPA, states, and specific industry sector to develop…)
- You have 15 minutes!



Step three

- Each table will report to whole group the proposal 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

Step five

- Review voting results – which are the top three?
- For top three proposals, discuss:
  - 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 <u>all</u> charts and include in follow-up report

Wrap-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)
- Please, collect your participation gifts

ATTACHMENT 4
DETAILS FROM THE GROUP BREAK OUT SESSIONS HELD DURING THE AUGUST 26, 2004, EMISSION FACTOR IMPROVEMENT WORKSHOP

This page included to provide for two-sided printing.

DETAILS FROM THE GROUP BREAK OUT SESSIONS HELD DURING THE AUGUST 26, 2004, EMISSION FACTOR IMPROVEMENT WORKSHOP

Group 1: Information Transfer and Sharing

A. Major Points Discussed

Note: The group developed a list of points of interest and members were allowed to vote for those they considered most important. Votes tallies are shown below.

- List serve–Q & A and chat room – 0 votes
- Links to emission factor sources – 3 votes
- Clearinghouse for source test data w/SCC or SIC sort ability and state and local evaluations for test data – 4 votes
- EPA contact for each source category
- Strategy for outreach to small business buy in and training – 7 votes
- Industrial show and tell, information exchange mechanism – 3 votes
- Disclaimers regarding emission factors – 2 votes
- Personnel exchange forum/mechanism – 5 votes
- Standardized file format and submittal for electronic test reports. Also a template for stack sampling – 7 votes
- Get out of jail free/first time exemption mechanism/amnesty during research – 2 votes
- Central approval authority and certification – 4 votes

B. Proposals Developed

- With stakeholder collaboration, develop a data model and interface to standardize certifiable electronic reporting and submittal formats.
- Make the development and use of emission factors small business friendly. Identify small business needs and develop training and outreach to ensure that small businesses are awareness of emission factors and their applicability.

Group 2: Emission Factor Data Uncertainty

A. Major Points Discussed

- Measurement protocols
- Collect more data
- Adopt NIST standard
- Evaluate peer review published data
- Evaluate accuracy of measurement equipment
- Acknowledge (what?)
- Unequal state application
- Collect vendor data
- Include in setting permit limits
- Revise emission factor rating system
- Classify sources
- Evaluate met conditions
- Process variables and other operational
- Use existing state data
- Effect on NAAQS and other regulations
- Effect of emission factor changes on compliance
- Reconcile reference methods with monitoring
- Standardize accuracy vs data definitions
- ID legal status
- Training and certification of testers
- Data entry QA
- Differences in processes
- Incorporate differences in compliance
- Calculation QA
- Provide error estimates

B. Prioritized List of Points Discussed

- Standardize process
- Effect on compliance
- Outreach
- Acquire existing and new data
- Evaluate/improve emission factor development process
- Incorporate accuracy and precision in published emission factors
- Who does what?
- Who spends how much?

C. Proposals Developed

- Collaboratively standardize the emission factor development process by: defining uses of emission factors, establishing quality-affecting standards for data collection, and collecting additional information associated with tests to ensure that the data collected are of sufficient quality. Also establish outreach programs and ensure that emission factors will meet the needs of stakeholders.

Group 3: Non-Inventory Applications of Emission Factors

A. Major Points Discussed

- Revised road paved and unpaved dust algorithm – 5 votes
- Alternative to emission factors for calculating fees – 1 vote
- Streamline process fur updating emission factors – 9 votes
- Physical site layout – 0 votes
- Better characterization of uncertainty – 5 votes
- Residual risk — 0 votes
- NSR/PSD applicability – 0 votes
- Allow use of emission factors for EIS modeling – 0 votes
- Alternatives to AP-42 emission factors /site specific modeling – 2 votes
- Use medians instead of arithmetic – 2 votes
- Cross agency agreement/coordination – 0 votes

B. Proposals Developed

- Streamline the emission factor development process by: involving partners who are willing to commit resources, developing objective criteria for emission factor rating tests, developing a standard testing protocol, and forming a group to certify tests.
- Reduce the uncertainty in emission factors by: using only A or B rated test data in emission factor development, providing both a range and a median value for emission factors, establishing criteria for quantifying uncertainty, and explaining uncertainty in AP-42.

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