



Technical Status Report

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Background

The purpose of this ongoing series of status reports is to periodically describe what and when technical work products from WRAP Forums and Workgroups or other sources will be available for use in the regional haze planning process by October 2006. Descriptions of the individual projects are in the WRAP workplan, and methods and details about the data (how and why the work was done) are also available from contractor reports or websites, or from the Technical Coordinator. *This update is specific to work accomplished August through October 2005, and describes plans to date for future technical analyses.*

The status report is organized as follows:

- Access and content of existing data nodes;
- Progress updates for key existing and planned work product deliverables from Forums and Workgroups, summarized from the project descriptions in the WRAP Workplan Update for 2005-07 (http://wrapair.org/WRAP/documents/05-07Workplan_final.pdf);
- Updated status of the overall schedule and approach for technical analyses of control strategies supporting regional haze planning; and
- Highlights and brief descriptions of selected specific analyses and projects related to regional haze planning accomplished in the past 3 months.

A) Existing Data Nodes

Updates and changes to this section from earlier status reports are noted *in italics*.

Visibility Information Exchange Web System (VIEWS) - <http://vista.cira.colostate.edu/views/> – this system provides ongoing access to IMPROVE and other visibility monitoring data, research results, and special studies related to the Regional Haze Rule. Downloads of the IMPROVE data, custom displays of spatial, chemical, and temporal patterns, as well as information about applying monitoring data for regional haze planning are available. This information will be used in the Phase II Attribution of Haze (AoH) project during 2005-06. This system was originally sponsored by the Ambient Monitoring & Reporting Forum, and now has national coverage through sponsorship by all 5 RPOs. *The complete preliminary dataset from Regional Haze Rule Baseline Period (2000-04) as measured by the IMPROVE monitoring network has been posted, and Class I area-specific data are available for review, including 5-year averages of the Best and Worst 20% visibility days and glide paths from baseline period averages to EPA default natural conditions.*

Causes of Haze Assessment project (CoHA) - <http://coha.dri.edu/index.html> - this ongoing project of the Ambient Monitoring & Reporting Forum project is completing detailed analyses of IMPROVE and meteorological monitoring data in the WRAP region. Work to date includes multi-year back trajectory wind plots for each monitored Class I area, trajectory regression analyses' results used in the Phase I AoH project, and extensive descriptive information about the monitoring data and each Class I area. Planned work for 2005-06 will be used include trend analyses and receptor modeling using the Positive Matrix Factorization (PMF) technique to relate source types and regions to the 2000-04 baseline period monitoring data, also to be used in

AoH Phase II. *Analyses of the long-term trends in the IMPROVE visibility data for monitoring sites with 10 or more years of record are available at: <http://coha.dri.edu/>.*

Emissions Data Management System (EDMS) - http://wapedms.org/default_login.asp - this ongoing project of the Emissions Forum is an emission inventory data warehouse and web-based GIS application that provides a consistent, complete, and regional approach to emissions data tracking to meet the requirements for SIP and TIP development, periodic progress reviews, and data updates. The EDMS serves as a central regional emissions inventory database for all types of emissions, and uses associated software to facilitate the data collection efforts for regional modeling, emissions tracking and associated data analyses. Baseline and future years' emissions data will be stored and accessed here, with the displays and regional summaries to be used in AoH Phase II. Use of the EDMS is based on user registration and periodic listserv updates, requires a password for ad-hoc data queries, but is open to all interested users. *The EDMS has been updated with 2002 point, area, mobile, and fire emissions during the past 3 months, and EDMS will continue to have additional inventory data added over the next several months. Testing of the EDMS for functionality and operational performance will be completed by the end of 2005.*

Regional Modeling Center (RMC) - <http://pah.cert.ucr.edu/aqm/308/> - the objective of this ongoing project of the Air Quality Modeling Forum is to provide the necessary technical and policy tools needed by states and tribes for the Regional Haze Rule. The substantial effort by the RMC is intended to support State and Tribal agencies in conducting regional haze analyses in the western United States. This analysis is being performed by operating regional scale, three-dimensional regulatory air quality models that simulate the emissions, chemical transformations, and transport of criteria pollutants and fine PM and consequent effects on visibility in Class I areas in the WRAP region and across North America. Responsibilities of the RMC include: 1) Emissions processing and modeling; 2) Air quality and visibility modeling simulations; 3) Analysis, display, and reporting of modeling results, and 4) Storage/quality assurance of the modeling input and output files. The RMC offers periodic listserv updates, provides data and technology transfer support, and uses monthly conference calls to review work products. Results from the RMC work will be used extensively in the AoH Phase II project. *A complete status report on RMC activities for the March 2004 through February 2005 period was completed in August, and a complete report on final 2002 base year modeling simulations performed by the RMC during 2005 is scheduled for December. Additional information is available later in this report.*

B) Overview of WRAP 2005-06 Key Technical Deliverables (November 2005 update)

Time Frame	Responsible Group/Subject	Deliverable (completion target month)
2005 Q2	Emissions Forum	<ul style="list-style-type: none"> ▪ Operational version of Emissions Data Management System (EDMS) with actual 2002 EI for WRAP region. (done in September)
	Fire Forum (Phase 2 EI project)	Final 2002 complete fire EI – actual 2002 emissions, stored in EDMS. (completed July)
	Monitoring Forum (CoHA project)	<ul style="list-style-type: none"> ▪ Source apportionment of each state’s major emissions source category impacts at Class I areas in AoH report. (done) ▪ Descriptive analyses of 2002 monitored impact at Class I areas in AoH report. (done)
	Modeling Forum (source apportionment project)	<ul style="list-style-type: none"> ▪ Source apportionment of each state’s major emissions source category impacts at Class I areas in AoH report. (done) ▪ Initial source apportionment of each state’s natural and manmade emissions at Class I areas in AoH report. (done)
	Attribution of Haze WG	<ul style="list-style-type: none"> ▪ AoH Phase I Report complete – Integrated “weight of evidence” source attribution for each state’s emissions source category impacts at Class I areas, from TSSA and CoHA projects, based on 2002 “interim” (not EDMS) EIs. (done)
	Tribal Data Development WG	<ul style="list-style-type: none"> ▪ Tribal monitoring data analysis from CoHA project for tribal Class I areas in AoH report. (done)
	Stationary Sources Forum	<ul style="list-style-type: none"> ▪ List of BART-eligible sources (done) ▪ Emission Inventory and Control Technology Technical Support project underway (scheduled work completed)
	Dust Emissions Forum	<ul style="list-style-type: none"> ▪ Phase 2 windblown dust emissions inventory model completed, evaluated, and EI included in subsequent modeling analyses. (done) ▪ Host dust control measures workshop (done)

2005 Q3	Emissions Forum	<ul style="list-style-type: none"> ▪ EDMS updated with 2018 base case EI for WRAP region. (inputs from EF/SSJF/TDDWG projects below – in process, due for completion early December) ▪ Onroad, off-road, and road dust 2002, 08, 13, and 18 EI updates complete (completed October). ▪ 2002 and 2018 offshore shipping, locomotives, and planes' EIs complete (complete in early November) ▪ Complete second round of testing on EDMS performance (to be completed in December)
	Fire Forum (Phase 3 EI project)	<ul style="list-style-type: none"> ▪ 2000-04 baseline period and 2018 fire EI scenarios for planning purposes. (modeling files and summary data delivered mid-October, final report December)
	Monitoring Forum (CoHA project)	<ul style="list-style-type: none"> ▪ Continuing development of conceptual models and processing of additional IMPROVE data as inputs for the AoH Phase II project. (ongoing)
	Modeling Forum (2002 base case and source apportionment modeling projects)	<ul style="list-style-type: none"> ▪ Modeling performance evaluation using final actual 2002 emissions from SSJF/EF projects, and compared to monitoring data, as inputs to AoH Phase II. (completed November) ▪ Boundary conditions and new emissions estimates from WRAP Fire Forum, other RPOs, Canada, and Mexico updated. (completed September) ▪ Source apportionment underway, will not be complete until 2006, when a "final" 2002 actual emissions are run for Regional Haze Plans (mid-2006)
	Attribution of Haze WG	<ul style="list-style-type: none"> • AoH Phase II/Technical Support System = update 2002 source attribution report. (complete November)
	Tribal Data Development WG	<ul style="list-style-type: none"> • Tribal monitoring needs draft report from CoHA project for tribal Class I areas. (done) ▪ Review, improve, project emissions inventories of point and oil/gas sources on tribal lands. (done)
	Stationary Sources Forum	<ul style="list-style-type: none"> ▪ Complete review and QA of the 2002 point and area source inventory. (done)
	Mobile Sources Forum	<ul style="list-style-type: none"> ▪ Continuing work on off-road retrofit program.
	Dust Emissions Forum	<ul style="list-style-type: none"> ▪ Establish a preliminary definition of dust and release for public review. ▪ Recommendations on appropriate size distribution of fine versus coarse dust emissions.
	In and Near Forum	<ul style="list-style-type: none"> • Summarize PM₁₀ SIPs for local sources and their transferability to Class I areas. (done)
2005 Q4	Emissions Forum	<ul style="list-style-type: none"> ▪ Prepare EIs for 2018 base case emissions projections for WRAP region. (November-December) ▪ Complete continuing needed improvements to EDMS.
	Fire Emissions Forum (Phase 4 EI project)	<ul style="list-style-type: none"> ▪ 2018 projection year fire EIs consisting of 2 to 3 scenarios, approach for wildfire/wildland fire use/prescribed fire forecasts are under discussion, change from original approach to hold wildfire/wildland fire use constant 2002-18. (December)
	Monitoring Forum (CoHA)	<ul style="list-style-type: none"> ▪ PMF analyses and processing of additional data as inputs to AoH Phase II. (November)

	Modeling Forum (2018 base case modeling project)	<ul style="list-style-type: none"> ▪ Modeling evaluations using 2004-04 baseline period emissions as input to AoH Phase II (December) ▪ Modeling evaluations using 2018 base case emissions as inputs to AoH Phase II (December)
	Attribution of Haze WG	<ul style="list-style-type: none"> ▪ Publish preliminary IMPROVE monitoring data from 2000-04 for glide path. (November) ▪ Publish proposed Weight of Evidence source attribution method for assessing Reasonable Progress, using technical monitoring, emissions, and modeling data
	Stationary Sources Forum	<ul style="list-style-type: none"> ▪ Complete work on oil/gas and point/area source 2018 base case EI projection scenarios. (October/November) ▪ Prepare analyses summarizing key control scenarios' likely specifications for 2018 point and area source control strategy projections for WRAP region. (November)
2006 Q1	Emissions Forum	<ul style="list-style-type: none"> ▪ Complete continuing needed improvements to EDMS. ▪ Continuing emissions analyses for 2018 control strategy scenarios.
	Monitoring Forum (CoHA project)	<ul style="list-style-type: none"> ▪ Continue work on products for AoH Phase II report. ▪ Work on analyzing final regulatory dataset from IMPROVE 2000-04 monitoring data.
	Modeling Forum (2018 control strategy modeling project)	<ul style="list-style-type: none"> ▪ Start source apportionment of each state's 2018 major emissions source category impacts at Class I areas, associated with control strategy scenarios for second AoH report. (January)
	Attribution of Haze WG	<ul style="list-style-type: none"> ▪ AoH Phase II – apply integrated Weight of Evidence source attribution method for the 2018 base case results for each Class I area. (January)
	Stationary Sources Forum	<ul style="list-style-type: none"> ▪ Continue work on control technology analysis and program development
	Dust Emissions Forum	<ul style="list-style-type: none"> ▪ Complete definition of dust
2006 Q2	Emissions Forum	<ul style="list-style-type: none"> ▪ Continuing emissions analyses for 2018 control strategy scenarios.
	Monitoring Forum (CoHA)	<ul style="list-style-type: none"> ▪ Work products to support AoH report.
	Modeling Forum (2018 control strategy modeling project)	<ul style="list-style-type: none"> ▪ Continuing source apportionment of each state's 2018 major emissions source category impacts at Class I areas, associated with control strategy scenarios. ▪ Source apportionment of each state's natural and manmade emissions at Class I areas.
	Attribution of Haze WG	<ul style="list-style-type: none"> ▪ Continue work on second AoH Phase II/TSS projects.
	Stationary Sources Forum	<ul style="list-style-type: none"> ▪ Continue work on control technology analysis and program development
	Dust Emissions Forum	<ul style="list-style-type: none"> ▪ Complete analysis of sources and control options in high-dust areas

2006 Q3	Emissions Forum	<ul style="list-style-type: none"> ▪ Continuing emissions analyses and tracking specifications for 2018 control strategy scenarios.
	Monitoring Forum (CoHA)	<ul style="list-style-type: none"> ▪ Complete work products to support AoH report.
	Modeling Forum (2018 control strategy modeling project)	<ul style="list-style-type: none"> ▪ Complete source apportionment of each state's 2018 major emissions source category impacts at Class I areas, associated with control strategy scenarios. ▪ Complete source apportionment of each state's natural and manmade emissions at Class I areas. (December)
	Attribution of Haze WG	<ul style="list-style-type: none"> ▪ Complete work on AoH Phase II/TSS projects, integrating work products from EF, MF, AMRF, SSJF, FEJF, TDDWG, and DEJF for IWG use. (September)
	Stationary Sources Forum	<ul style="list-style-type: none"> ▪ Complete work on control technology analysis and program development
	Dust Emissions Forum	<ul style="list-style-type: none"> ▪ Complete analysis of sources and control options in high-dust areas

C) Schedule and Technical Analyses of Control Strategies Supporting Regional Haze Planning

The overall schedule and the approach for technical analyses of control strategies supporting regional haze planning is summarized in the section below. Additional information is available in the 2005-07 WRAP Workplan and 2003-08 WRAP Strategic Plan at: <http://www.wrapair.org/WRAP/docs.html>.

The approach is intended to fulfill the following:

- Consistent and comparable, and reproducible regional analyses of technical data;
- Interstate consultation of the emissions contributions of states and tribes to each Class I area;
- Assessment of the visibility improvement from adopted and proposed control strategies at each Class I area within and downwind of the WRAP region.

The control strategies to be evaluated are defined as emissions inventories, described next. Regional dispersion modeling analyses of these inventories are planned. The BART rule and associated modeling requirements are being evaluated so that modeling work can efficiently cover needs of individual states and the SSJF to evaluate emissions reductions for individual sources and in regional programs. A first draft of this “consolidated” modeling protocol will be available in mid-August.

The Attribution of Haze Workgroup is responsible for integrated analyses of monitoring and emissions data, and air quality dispersion and receptor modeling results. The AoH WG is planning to jointly complete these analyses between August 2005 and September 2006, referred to as the AoH Phase II project, and simultaneously build and display these results on a Technical Support System website. All Forums, Workgroups, and Committees, but especially the IWG will have significant input into the design and functions of the TSS. The AoH Phase II/TSS project workplan will also be available in mid-August.

In November, the Regional Modeling Center will release a Modeling Plan addressing the following:

- Schedule for RMC activities, including coordination with key dates for other WRAP Committees/Forums/WGs
 - “Base02a” – 2002 Actual Emissions – for Model Performance Evaluation
 - “Planning02” case – 2000-04 fire EI + corrections/changes to actual 2002 emissions
 - “Base18a” case – 2018 emissions version 1
- Modeling Protocol for BART and Regional Strategies
- Source Apportionment Plan using CAMx with PSAT
- Plans for Modeling Sensitivity Analyses (fire, road dust, other categories)

Updates on these projects and the technical approach appear in Section D of this and subsequent technical status reports.

Evaluation of 2018 Regional Haze Control Strategies

<p>September through December 2005</p>	<p><u>2018 Base Case Definition</u></p> <ul style="list-style-type: none"> • Known control programs, i.e., what emissions will be in 2018 if no additional controls are adopted • Projected from 2002 emissions (2000-04 in the case of fire emissions) 	<p>2018 Base Case Control Programs</p> <ul style="list-style-type: none"> • Federal on-road and non-road mobile emissions • §309 SIPs (5-state SO₂ Annex) • Controllable fire emissions (use 2000-04 baseline for 2018) • Point and area sources: <ol style="list-style-type: none"> 1) Statutes and rules “on the books” as of 12/2004 to be implemented before 2018 2) Sources to be operational before 2018 (permitted and under construction as of 12/2004) 3) Includes quantified SIP measures, NEAPs, EACs, MACT, etc. 4) Accounts for economic and demographic factors
<p>August 2005 through September 2006</p>	<p>2018 Regional Control Options</p> <ul style="list-style-type: none"> • California PM_{2.5} and ozone SIP measures • BART- individual eligible sources added up for regional analysis • Point Source backstop cap and trade for BART + other point sources, options for: <ul style="list-style-type: none"> • Regional NO_x • Regional SO₂ • Nested §309 SO₂ • Others? • Fire - greater application of Emissions Reduction Techniques for fire emissions to meet definition of regionally consistent enhanced smoke management programs – sensitivity evaluation • Dust - greater control levels and/or spatial extent of existing Dust Control programs – sensitivity evaluation 	
<p>Not for regional analysis</p>	<ul style="list-style-type: none"> ➤ Area sources in general ➤ Dust sources in general 	

WRAP Emissions Inventories for Regional Haze Planning (November 2005 update)

	2002 – represents 2000-04 baseline period	2018 Base Case	2018 Control Scenarios
Point	<ul style="list-style-type: none"> a. Start with EDMS as reported using 2002 NEI CERR submittals by states/tribes [www.wrapedms.org] b. 2002 CA NEI data in EDMS as reported c. Improvement project by ERG/ENVIRON, focused on QA of reported data, oil/gas production/distribution, and data on existing controls d. Deliverables – August-October 2005 	<ul style="list-style-type: none"> a. Based on 2002 EDMS EI as improved by ERG/ENVIRON b. “On-the-books” controls as of 12/2004, use forecast models to project 2018 base case with no additional controls c. Obtain/report CA data for 2018 base with documentation, need to coordinate on format d. Deliverables – October-November 2005 e. Will be loaded in EDMS 	<ul style="list-style-type: none"> a. 3 to 5 scenarios, derived from 2018 base case EI as projected by ERG/ENVIRON, based on applying SO_x and NO_x control technology options b. Regional emissions management options addressing source categories, not source-specific c. Obtain/report CA data for 2018 new controls with documentation, need to coordinate on format d. Will be scaled off 2018 base case as needed for analyses during 2006 e. Will be loaded in EDMS
Area	<ul style="list-style-type: none"> a. Start with EDMS as reported by states/tribes, gap-filled as needed using NEI methods b. 2002 CA NEI data in EDMS as reported c. Improvement project by ERG/ENVIRON, focused on QA of reported data, oil/gas prod./dist., and data on existing controls d. Deliverables – August-October 2005 	<ul style="list-style-type: none"> a. Based on 2002 EDMS EI as improved by ERG/ENVIRON b. “On-the-books” controls as of 12/2004, use forecast models to project 2018 base case with no additional controls c. Obtain/report CA data for 2018 base with documentation, need to coordinate on format d. Deliverables – October-November 2005 e. Will be loaded in EDMS 	<ul style="list-style-type: none"> a. Need for control scenarios unknown b. If needed, part of point source regional emissions management options addressing source categories? c. Obtain/report CA data for 2018 new controls with documentation, need to coordinate on format d. Will be scaled off 2018 base case as needed for analyses during 2006 e. Will be loaded in EDMS

	2002 – represents 2000-04 baseline period	2018 Base Case	2018 Control Scenarios
On-Road	<ul style="list-style-type: none"> a. ENVIRON project - WRAP region survey of state/tribal/MPO/local agencies to verify Mobile6 data inputs b. Run EPA Mobile6 with specific inputs, generate 2002 emissions estimates c. Obtain/report CA data for 2002 with documentation, need to coordinate on format d. Deliverables – August 2005 e. Will be loaded in EDMS 	<ul style="list-style-type: none"> a. ENVIRON to project 2008, 2013, and 2018 emissions from 2002, using Mobile6 b. Obtain/report CA data for same years with documentation, need to coordinate on format c. Deliverables – September 2005 d. Will be loaded in EDMS 	<ul style="list-style-type: none"> a. No additional emissions control EIs are planned b. WA and OR adoption of CA mobile source standards not addressed.
Non-Road	<ul style="list-style-type: none"> a. ENVIRON project - WRAP region survey of state/tribal/MPO/local agencies to verify NONROAD2004 data inputs b. Run NONROAD2004 with specific inputs, generate 2002 emissions estimates c. Additional work on planes, trains, commercial marine, and offshore shipping d. Obtain/report CA data for 2002 with documentation, need to coordinate on format e. Deliverables – June-August 2005 f. Will be loaded in EDMS 	<ul style="list-style-type: none"> a. ENVIRON to project 2008, 2013, and 2018 emissions from 2002, using NONROAD2004 b. Obtain/report CA data for same years with documentation, need to coordinate on format c. Hold planes, trains, commercial marine, and offshore shipping constant, except for “on-the-books” controls as of 12/2004 d. Deliverables – September 2005 e. Will be loaded in EDMS 	No additional emissions control EIs are planned
Road Dust	<ul style="list-style-type: none"> a. ENVIRON preparing updated 2002 road dust emissions in regionally “consistent” manner, for method see: http://www.wrapair.org/forums/ef/inventories/mobile/040209Final_MSEI.pdf b. Uses VMT inputs from mobile EI project c. Coordinate with CARB. d. Deliverables – updated 2002 EI using new VMT data – August 2005 e. Will be loaded in EDMS 	<ul style="list-style-type: none"> a. ENVIRON preparing updated 2018 road dust emissions in regionally “consistent” manner, for method see: http://www.wrapair.org/forums/ef/inventories/mobile/040209Final_MSEI.pdf b. Uses VMT inputs from mobile EI project c. Coordinate with CARB. d. Deliverables – updated 2018 EI using new VMT projections data – September 2005 e. Will be loaded in EDMS 	No emissions control EIs are planned

	2002 – represents 2000-04 baseline period	2018 Base Case	2018 Control Scenarios
Fire	<p>a. <u>2002 Actual Emissions</u></p> <ol style="list-style-type: none"> 1) Air Sciences project - WRAP region EI of actual 2002 emissions for all types of fire, developed in 2 phases 2) Based on records of federal/ state/tribal agencies, verified using survey notebooks of activity data 3) Already coordinated w/ N. Sotolongo of ARB 4) Deliverables – July 2005 5) Will be loaded in EDMS <p>b. <u>2000-04 Baseline Planning Emissions</u></p> <ol style="list-style-type: none"> 1) Air Sciences project - WRAP region planning EI “representative” of actual 2000-04 emissions for all types of fire [2-part project, see 2018 fire EI] 2) Built by comparing and compositing fire activity from longer period of record with 2002 Actual Emissions EI, using records of federal/state/tribal agencies 3) Obtain/report CA data for same years with documentation, coordinate on format and use 4) Deliverables – October 2005 5) Will be loaded in EDMS 	<p>a. <u>2018 Projection Planning Emissions</u></p> <ol style="list-style-type: none"> b. Air Sciences project - WRAP region planning EI “representative” of range of 2018 emissions for all types of fire [completes 2-part project, see 2000-04 fire EI] c. Based on 2000-04 fire EIs, each fire category assessed for likely range of fire activity and the associated variance in potential emissions across the WRAP region, emissions to be categorized as anthropogenic or natural, and controllable versus uncontrollable emissions for anthropogenic fire projected for each type of fire EI d. Wildfire in 2018 for modeling applications to be held constant, same as 2000-04 wildfire EI – November 2nd update - approach for wildfire/wildland fire use/prescribed fire forecasts are under discussion, change from original approach to hold wildfire/wildland fire use constant 2002-18. e. With support from the contractor, state and tribal regulatory smoke managers will coordinate with their burners to determine the likely 2018 range of each fire activity type in their jurisdiction f. Obtain/report CA data for 2018 with documentation, coordinate on format and use g. Deliverables – December 2005 h. Will be loaded in EDMS 	
WB Dust	<ol style="list-style-type: none"> a. WRAP Regional Modeling Center product b. 36/12km data from 2002 MM5 winds c. Deliverables – Summer 2005 d. Annual summary will be loaded in EDMS 		Hold constant
Biogenics	<ol style="list-style-type: none"> a. WRAP Regional Modeling Center product b. 36/12km data from 2002 MM5 met. data c. Deliverables – Summer 2005 d. Annual summary will be loaded in EDMS 		Hold constant
Fugitive NH₃ by Landuse Category	<ol style="list-style-type: none"> a. WRAP Regional Modeling Center product b. 36/12km data from 2002 MM5 met. data c. Deliverables – Summer 2005 d. Can be loaded in EDMS 		Hold constant
Model Boundary Conditions	<ol style="list-style-type: none"> a. Generated by Harvard/University of Houston for WRAP Regional Modeling Center 36km grid using GEOS-Chem model b. Deliverables – 2002 data complete January 2005 		Hold constant

D) Highlights of selected specific analyses and projects related to regional haze planning (November 2005)

Analysis of the Fine Fraction of Particulate Matter in Fugitive Dust Final Report (complete October 2005) ([PDF](#))

This study was sponsored and supervised by the WRAP and conducted by Midwest Research Institute (MRI). One of its primary conclusions is that concentration measurements used to develop PM_{2.5} emission factors in AP-42 were biased high by a factor of two, as compared to PM_{2.5} measurements from US EPA reference method samplers. The results also show that the ratio of fine to coarse PM for fugitive dust should be around 0.1. Currently, the fine to coarse ratios in AP-42 range from 0.15 to 0.4 for most fugitive dust sources. This factor of two bias helps to explain why researchers often see a discrepancy in the proportion of fugitive dust found in PM_{2.5} emission inventories as compared to the proportion on ambient filter samples. The results of this study will be used to improve PM_{2.5} emission factors for paved and unpaved roads, wind blown dust, construction, and other fugitive dust sources. Specifically, the WRAP's Dust Emissions Joint Forum and MRI will propose appropriate revisions to the AP-42 emission factors and will post these proposals on this website.

Point and Area Sources Emission Inventory and Control Technology Technical Support Project
(<http://www.wrapair.org/forums/ssjf/documents/eictts/index.html>)

The purpose of this work sponsored by the SSJF, EF and TDDWG is to support WRAP activities to address emissions from point and area sources by providing WRAP work groups and forums with data, information, and assessments to support the development of programs to address the contribution of Western point and area sources to regional haze at mandatory Class 1 federal areas. The work includes such tasks as emissions inventory analysis, inventory improvements, and future year projections of emissions from point and area sources. It also includes evaluating emission control technology (costs, control efficiencies, etc.).

The project has a number of supporting documents and deliverables, which are found on the main project page (above), and on the 3 project workgroup pages: [Oil/Gas](#) | [Projections](#) | [NOx EGU](#). Data results are being summarized, and will start to be available in mid-November, and will be presented in at the December WRAP Board meeting. California emissions estimates provided by the ARB have been incorporated in these products.

Updating Mobile Source Inventories Project (<http://www.wrapair.org/forums/ef/UMSI/index.html>)

For the Emissions Forum, ENVIRON is developing updated on-road and off-road mobile source emissions inventories for 14 Western states for the 2002 base year and for three future years - 2008, 2013, and 2018. These will be detailed county-level emissions inventories separated by all classes of on-road and off-road vehicles and engines. Emissions will be estimated for an average weekday for each of the four seasons. The pollutants to be included in the inventory are VOC, NO_x, CO, SO₂, PM₁₀, PM_{2.5}, EC/OC, and NH₃. To construct these inventories, ENVIRON will be surveying state and local air quality planning agencies and also metropolitan planning organizations (MPOs) to obtain the most up-to-date mobile source activity data and control program information. Available tribal mobile source emissions will be included in the emissions inventories; these will be coded for the tribes and excluded from the appropriate counties to avoid double-counting. On-road mobile source emissions will be estimated with EPA's MOBILE6.2 model. Emissions for most off-road mobile sources will be estimated with EPA's Draft NONROAD2004 model. Locomotive emissions will be based on locomotive fuel consumption estimates, and aircraft emissions will be based on aircraft landing and takeoffs. For more information, contact [Alison Pollack](#) of ENVIRON.

The project has a number of supporting documents and deliverables, which are found on the main project page (above). Data results are being summarized, and will start to be available in mid-November, and will be presented in at the December WRAP Board meeting. California emissions estimates provided by the ARB have been incorporated in these products.

2002 WRAP Region "Phase II – Actual" Fire Emissions Inventory Final Report (completed July 2005)
(<http://www.wrapair.org/forums/fejf/tasks/FEJFtask7PhaseII.html>)

The FEJF has prepared 2002 emission inventories for wildfire, wildland fire use (WFU), prescribed burning in wildlands, non-Federal rangeland burning, and agricultural burning. The 2002 emission inventory files for fire have been and will be used by the WRAP's Regional Modeling Center (RMC) as input to the regional dispersion model. WRAP State and tribal air quality and forestry offices and approximately 30 Federal Land Manager offices were provided the opportunity to provide a quality control (QC) review of the fire activity and emissions data. The report documents the technical methodologies to compile activity data, quantify emissions, and format the data for output to several systems (SMOKE IDA, National Emissions Inventory (NEI) (NIF3.0 format) and WRAP's Emissions Data Management System (EDMS)). The report also presents summary statistics for fire emissions for 2002 for the WRAP region. (07/22/05) [PDF](#)

WRAP Region “Phase III & IV – Typical, Representative, Regional Haze Planning” Fire Emission Inventories for the 2000-04 Baseline Period and 2018 Projection Year ([Air Sciences Project Page](#))

The October 21st release of the Phase III data consists of SMOKE-model ready files and draft documentation for the Phase III Baseline Period inventories. The project workplan is at: [Development of 2000-04 Baseline Period and 2018 Projection Year Emission Inventories, Final Work Plan](#).

Inter-RPO 2002 National Wildfire “Actual” Emissions Inventory project ([Project Page](#) at Air Sciences)

The purpose and deliverables from the Inter-RPO 2002 National Wildfire Emission Inventory were reviewed at the September 28th FEJF Meeting [PPT](#). The project workplan is at: [Inter-RPO National 2002 Wildfire Emissions Inventory, Final Work Plan](#).

FEJF Fire Tracking Systems project to Evaluate Existing Tracking Systems – The purpose of this project is evaluate existing fire tracking systems to meet the minimum needs outlined in the Fire Tracking System policy (see below), yet is flexible enough to allow for modifications to accommodate expansions to include additional options. This is not a search for a “brilliant new design;” but instead describes the approach to look at existing fire tracking systems to determine if an existing system, with few or minor modifications, will satisfy our requirements. Both web based and historical systems (e.g., wildfire systems) may be listed; however, our primary emphasis is on real time data import and export capabilities.

Project Goals and Deliverables – To evaluate existing fire tracking systems and provide the following:

- A feasibility assessment of existing systems;
- An analysis of modifying each system to include WRAP needs (e.g., what needs to be done to make the system fit our needs); and
- Estimate resources needed to modify the system to meet the required elements for tracking prescribed fires. The cost estimate should include development hours, any additional hardware costs, on-going system costs et cetera. The estimate should be itemized and should include some of the additional optional elements, provide for regional coordination, and transfer of data to the WRAP’s EDMS system.

At least the following operational existing fire tracking systems must be evaluated:

- FASTRACS – Oregon
- Airshed Management System (formerly RAZU) - Montana / Idaho
- Smoke Management Database - New Mexico
- Nez Perce Tracking System
- South Carolina
- Florida

An emissions inventory and tracking system for fire is a specific requirement under Section 309 and a broader requisite under Section 308 of the Rule. The fire tracking system and WRAP emissions inventory system are regional approaches to the data gathering and tracking initiatives, which are specifically encouraged in the Rule. Therefore, the

WRAP is advancing the WRAP FTS Policy for states and tribes under both Sections 308 and 309 to meet the requirements of the Rule.

It is the position of the WRAP FTS Policy that it is necessary to track fire activity information in the WRAP region using a fire tracking system, which will also provide the information essential to create a fire emissions inventory. The WRAP FTS Policy identifies seven essential components of a fire tracking system that represent the minimum spatial and temporal fire activity information necessary to consistently calculate emissions and uniformly assess fire impacts to regional haze, and to meet the requirements of the Rule.

- Final FTS Policy as approved by the WRAP Board (04/02/03) [PDF](#)

IMPROVE Regional Haze 2000-04 Baseline Monitoring Data (November 2nd update)

IMPROVE has released preliminary 2000-04 baseline period monitoring data in October 2005, for use in preparing default glide paths for each Class I area. QA and finalization of these data for regional haze SIP purposes will be completed by early Summer 2006. Final data are not expected to be very different from the preliminary data. The exact final values for regional haze planning will be affected by the QA review, any EPA decisions about using a revised light extinction equation to be recommended by the IMPROVE Steering Committee over the next few months, and any EPA decisions about using revised natural conditions estimates as discussed next.

A presentation of the baseline period monitoring data and their consequence will be provided at the November 16-17 AoH meeting, and at the January 10-11 Reasonable Progress/SO_x/NO_x workshop.

2004 Regional Modeling Center Final Report Released (completed August 24, 2005)

The [WRAP Regional Modeling Center](#) (RMC) has released the Final RMC Report for project year 2004. The RMC is responsible for performing air quality modeling simulations for the WRAP region's states and tribes in order to provide analytical results used in developing implementation plans under the Regional Haze Rule. Responsibilities of the RMC include: meteorological modeling; emissions processing and modeling; air quality and visibility modeling simulations; analysis, display, and reporting of modeling results; and storage and quality assurance of the modeling input and output files. The final report discusses RMC activities and deliverables for project year 2004, from March 1, 2004 through February 28, 2005. Please contact [Dr. Gail Tonnesen](#) of the University of California at Riverside, RMC Project Manager for additional information.

[GIS Landuse Database project](#) (posted August 8, 2005, completed Summer 2005)

The purpose of this project was to develop updated, current year (2000-04) GIS databases for use in air quality and emission inventory development efforts. These data will be used in air quality analysis and support of source attribution/apportionment activities; improvement of near-field activity data and analysis of emissions strengths; provide more uniform landuse and demographic data to make temporally consistent regional estimates of biogenics, ammonia, and windblown dust emissions; providing a consistent set of baseline data for area source activity data and planning; and identify and apply appropriate GIS data layers for Canada and Mexico. Deliverables for the project include technical memos and appendices summarizing Identification of Relevant GIS Data and Sources, GIS Data Evaluation, and a final report entitled "Development of Current Year GIS Databases for Air Quality and Emission Inventory Development and Analysis for the WRAP".