

**1996 Fire Emission
Inventory Draft Final
Report**

*Meeting Discussion
Materials*

FIRE EMISSIONS JOINT FORUM

WESTERN REGIONAL AIR
PARTNERSHIP

DECEMBER 10-11, 2002
JACKSON, WY

DRAFT REPORT EXECUTIVE SUMMARY

The Fire Emissions Joint Forum (FEJF) of the Western Regional Air Partnership (WRAP) has completed an air emissions inventory for fire on wildlands in the 13-state WRAP Region. The inventory includes emission estimates and activity data for wildfire and prescribed fire over calendar year 1996. The FEJF collected activity data for fire events from federal and state agencies, arrived at data quality objectives, devised emission calculation routines, estimated emissions for all fire events, and published database and dispersion model ready digital files of the resulting inventory.

The purpose of the wildland fire emission inventories is to further the WRAP's charge of supporting member states' Regional Haze State Implementation Plans. Along with emission inventories from other types of sources, the 1996 wild and prescribed fire emission inventories will be used by the Emissions and Air Quality Modeling Forums to test run WRAP-wide air quality dispersion models.

Building the emission inventory involved many technical steps shaped by extensive stakeholder and expert discussion. Driven by dispersion model demands, the FEJF decided to produce an *event based* emission inventory placing fire emissions at coordinate locations on specific days. Federal and state records of individual fire events were collected. Activity records were checked for completeness and quality for fire size, fuel loading, date, and location. Fuel loading and emission factor tables along with diurnal consumption and plume profiles were developed from the literature, expert and professional judgment, and stakeholder input. Spreadsheet and geographic information system software were used to store and calculate the inventories.

Limitations of this emission inventory include omission of fire events and variable data quality due to the variety of data sources used. Furthermore, estimating emissions from wildland fire involves considerable scientific uncertainty. This FEJF deliverable also does not include an emission inventory of burning on agricultural lands.

This report presents a wildfire and prescribed fire emission inventory for 1996 covering the 13-state modeling domain for the WRAP Region. The methods developed for this study may be refined and utilized for future air emission analyses.

Executive Summary of Fire Activity and Emissions from Wildfires and Prescribed Fires in 1996

	Wildfire	Prescribed fire	Total
Number of individual fires	1,348	14,696	16,044
Area burned (acres x 10 ³)	5,030 (90%)	555 (10%)	5,585
Fuel consumed (tons x 10 ³)	48,085 (90%)	5,243 (10%)	53,328
PM _{2.5} emissions (tons x 10 ³)	648 (93%)	44 (6%)	694

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QUALITY ASSURANCE DATA REPORTS

CD-ROM

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