

Scope of Work

Characterization of Emission Sources Near Class I Areas in the WRAP Region

November 1, 2002

Task 1: Develop a Work Plan

The Contractor shall submit to the Forum a draft work plan for collecting and portraying information on emission sources in the vicinity of Class I areas in the WRAP region (AK, AZ, CA, CO, ID, MT, NV, NM, ND, OR, SD, UT, WA, WY). The work plan must include a “global approach” for characterizing sources near all WRAP Class I areas and a second, more “in-depth approach” for characterizing sources near a subset of areas, including the approximate number of areas to be included in the subset and criteria for selecting them. For each approach the work plan shall specify:

1. The emission sources to be characterized.
2. The data to be collected and their sources.
3. A method for defining the area to be analyzed around each Class I area.
4. A method for classifying areas – e.g., according to the magnitude, trend, seasonality, and dominant type of emission source(s) and IMPROVE data.
5. Examples of the maps and tables to be generated for each Class I area.
6. The web site layout, development approach, and an example page(s).
7. A description of an interview process to glean information from state officials and federal land managers which may not be apparent in databases used for this project. For the global approach, the description shall include a list of initial contacts, the questions to be asked, and any background material to be provided in advance to the interviewees.
8. A schedule for completing the remaining tasks.

A final work plan shall be submitted after review by the Forum.

Task 2: Map Point Sources

The contractor shall use GIS software and the WRAP 1996 stationary source inventory to plot all stationary sources in the vicinity of each Class I area. The plots should indicate the boundary of the Class I area and the relative emission rate of each source. Each source should be labeled on the map (e.g., with a letter or number) such that a corresponding table can be used to look up the source name, source type, and emission rate per pollutant for all sources shown on the map. The buffer areas should be shown on the maps, but this should not preclude the display of point sources beyond the buffer area. The maps shall contain sufficient political and geographic detail to facilitate identification of each source, especially by the individuals to be interviewed in Tasks 3 and 6.

Task 3: Interview State Officials and Federal Land Managers

In accordance with the procedures identified in the work plan, the contractor shall interview state officials and federal land managers to obtain basic information on the presence and role of local emission sources on visibility in all Class I areas. Interviewees shall be provided with the maps produced under Task 2 and any other background information (e.g., a list of activities likely to cause emissions of visibility-impairing pollutants) needed to facilitate the information gathering process. Among other things, the interviewees shall be asked to verify the operational status of major stationary sources and to identify recent activities and proposals that could affect visibility in the Class I area.

The WGA will provide the contractor with an initial list of contacts. Since many individuals are expected to be familiar with more than one area, approximately 50 interviews are expected under this task.

The contractor shall record interviewee responses and make them and/or the contractor's notes available to the WGA upon request. Preferably, the contractor will record responses and notes electronically. The material need not be stored in a relational database and may use abbreviated terms, etc., for the purpose of efficiency or expediency in performing the task. Such material will be useful for future "near" work and for interpreting the results of receptor models to be applied in the WRAP's Causes of Haze report.

Task 4: Map Area and Mobile Sources

The contractor shall use GIS software and the appropriate surrogate data to spatially allocate area and mobile source emissions within the 1996 county-level WRAP inventories to the buffer zone of each Class I area. For instance, 2000 Census population and/or housing data, if/when available, could be used to spatially allocate most area sources. Additionally, the percent of a county's agricultural land found within the buffer zone (as determined from LULC data) could be used to spatially allocate agricultural engine, fugitive dust, and ammonia emissions.

Emissions from wildfire, prescribed wildland fire, and agricultural fire shall be determined for the buffer zones based on the WRAP 2018 "average" year without smoke management. This inventory contains data on a 50 km coordinate system.

The maps should be drawn to the same scale and contain the same political and geographic features as in Task 2 and should provide other features that may help portray the spatial distribution and magnitude of area and mobile emissions, such as population distributions and LULC. The maps may also show major stationary sources.

The contractor is not obligated to "subtract" emissions from within Class I areas in order to quantify and display only those emissions near Class I areas. In fact, emissions and surrogate data (used by the contractor) within the boundaries *should be* displayed, with an obvious caveat that such data may not reflect seasonal variability, especially peak activities.

Task 5: Classify Class I Areas

In accordance with the method described in the work plan, the contractor shall classify all Class I areas according to the magnitude, trend, seasonality, and dominant type of emission source(s) and IMPROVE data. This task is meant to answer the following types of questions:

- Which areas are subject to the most nearby emissions, which are subject to the most emissions relative to visibility conditions, and what are the dominant source categories near these areas?
- Which areas appear to be experiencing a trend in nearby emissions and/or activities (both up and down), which source categories or emission surrogates are most responsible for the trend, which of the upward-trending areas are experiencing the greatest increase, and which of the upward-trending areas are also identified as having large nearby emissions or large nearby emissions relative to visibility conditions?

The WGA realizes that there are a potentially large number of questions/combinations that could be asked along these lines, and that some of the questions may not be conceived until after completion of the contract. The contractor should therefore create a “near” emissions database that can be easily queried for such information. Finally, those questions that are addressed in the final report should be answered in part through a set of maps showing which areas meet criteria such as those above. The questions to be addressed will be finalized in the work plan.

Task 6: Select a Subset of Class I Areas for In-Depth Analysis

In accordance with the work plan, the contractor shall recommend a subset of Class I areas to be analyzed in greater depth. Selection criteria may include review of the maps in Task 2 and 4, consideration of interview responses in Task 3, examination of IMPROVE data for trends and indicators of local impacts, proximity to urban and pristine areas, distribution across the WRAP region, and preference for areas in which micro-inventories have been developed.

Task 7: Perform an In-Depth Characterization of Emission Sources for the Subset of Class I Areas Selected in Task 6

In accordance with the work plan, the contractor shall further characterize emission sources near Class I areas selected in Task 6. This work may include further interviews of local officials, collection and analysis of visitation data, and collection and analysis of GIS data from state and county agencies, such as road data. The information collected in this task should strive for some consistency across Class I areas to facilitate their comparison.

Task 8: Prepare and Submit Web Pages

The contractor shall prepare and submit a set of organized web pages that can be easily added to the WRAP web site. A main page shall be prepared that provides a very brief summary (e.g., executive summary) of the final report and a map of all the Class I areas and their buffer zones. The user should be able to click on an area and go to a page for that area which contains summary data and the types of maps described in Tasks 2 and 4. The main page should also

provide links to the maps (and the associated data) produced under Task 5 (classification maps). Classification maps, like the map on the main page, should allow the user to go directly to an area's page by clicking on the area of interest. The main page should also contain a table (or a link to a table) that lists all the Class I areas with links to their individual pages. This is necessary for some areas that may be difficult to find and access through the regional map, especially given the difficulty of displaying all their names. Finally, the main page should provide access to the subset of sites and their in-depth information identified in Tasks 6 and 7. The contractor may wish to show two maps on the main page, one for all areas and one for the subset; or the contractor may distinguish the subset somehow on the map of all areas.

Task 9: Prepare and Submit Reports and Relevant Data

The Contractor shall submit to the Forum a draft report including:

1. A description of any deviations from the final workplan.
2. Examples of the tables and maps generated for each Class I area examined
3. Summary tables and maps for the entire WRAP region, including those described in Tasks 5 and 8.
4. A brief description of the project databases, how they were assembled, and their major weaknesses and/or caveats.

A final report shall be submitted after review by the Forum.

At the end of the project, the Contractor shall also submit all relevant data, including databases of emission and activity/surrogate data, digital maps, and GIS files.

All workplans, reports, Web pages, and relevant data shall be submitted to the WGA in electronic format. Paper copies may be submitted at the Contractor's discretion.