

**SCOPE OF WORK:  
TECHNICAL SUPPORT FOR WRAP ACTIVITIES TO  
ADDRESS POINT AND AREA SOURCE EMISSIONS**

October 14, 2004

**1.0 PURPOSE AND GENERAL REQUIREMENTS**

The purpose of this work 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.). This project will require working with state, tribal and federal representatives, as well as the business and environmental communities.

There are several uncertainties that must be factored into the work of the WRAP. These include the possibility of federal multi-pollutant initiatives for electric utilities, the final federal rule for Best Available Retrofit Technology (BART) due by April 2005, and the extent to which WRAP states and tribes choose to implement source-specific BART as opposed to an alternative program (i.e., regional trading). As a result, there is a need to maintain flexibility in program design and to assess new information as it becomes available, including information from ongoing WRAP technical studies which will provide more information on the contribution of various sources to regional haze in the West. The availability and consistency of the contractor's team over the course of the project is an important factor since point and area source program development for the WRAP will be an iterative process and will require revisiting analyses as assumptions change or new data become available.

The WGA will accept bids from individual companies and teams seeking to provide the full range of services described below, or from individual companies and teams seeking to provide only some of these services. Hence, the WGA may issue one or more contracts (depending on the scope and quality of individual proposals) to meet the needs described below.

**2.0 BACKGROUND**

The WRAP is a collaboration of tribal governments, state governments, and federal agencies working with industry and environmental groups to develop the technical and policy tools needed by western states and tribes to comply with the U.S. Environmental Protection Agency's (EPA) regional haze rule (40 CFR 51.308-309). The activities of the WRAP are conducted by a network of committees and forums composed of WRAP members and stakeholders representing a wide range of interests and viewpoints. The work on this project shall cover the WRAP region, which includes Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

The regional haze rule requires states (and at their discretion, tribes) to implement BART for certain stationary sources. States and tribes have the option of implementing an alternative program (e.g., an emissions trading program) in lieu of BART. State and tribal implementation

plans for regional haze must also demonstrate reasonable progress towards natural visibility conditions in the year 2064. Hence, the WRAP stationary source program for regional haze will need to address both BART and non-BART sources.

The Stationary Sources Joint Forum (SSJF) of the WRAP is charged with conducting technical assessments and developing policy options and recommendations for the WRAP membership. One primary area of focus for the WRAP is expected to be the development of options for emissions trading programs for large stationary sources of SO<sub>2</sub> and NO<sub>x</sub> (e.g., those emitting over 100 tpy). Such programs will be designed to, at a minimum, satisfy the BART requirements of the regional haze rule and are likely to include BART and non-BART sources. However, it may also be necessary for the WRAP to address sources of other visibility impairing pollutants (VOC, PM, and possibly NH<sub>3</sub>), and sources that may not be included in a trading program due to their size, emission monitoring capabilities or other limitations.

At this time, the WRAP anticipates that any source-specific BART analyses will be conducted by those states and tribes that select that approach instead of participating in alternative programs such as emissions trading. This expectation could change over the course of the project depending on the needs of WRAP states and tribes.

The SSJF is currently completing a project to identify all BART-eligible sources in the WRAP region. By the end of 2004, all BART-eligible and potentially-eligible sources will have been identified.

### **3.0 WORK TASKS**

#### **Task 1: Emissions Inventory Analysis, Improvement, and Projections**

1.A. Inventory Review: Based on state and tribal submittals to EPA's National Emissions Inventory, the WRAP is completing a 2002 emissions inventory for all visibility impairing pollutants, which are SO<sub>2</sub>, NO<sub>x</sub>, VOC, PM, PM<sub>10</sub> and PM<sub>2.5</sub>, elemental carbon, organic carbon, carbon monoxide (CO), methane, and ammonia. This inventory will be contained in the WRAP Emission Data Management System (EDMS), which also includes inventories for Canada and Mexico. The EDMS is being managed by the WRAP Emissions Forum. The contractor, in consultation with the Emissions Forum and the SSJF, shall analyze the 2002 WRAP emissions inventory for point and area sources and determine if it contains the information needed by the WRAP to support program development, including information on current controls and control efficiencies. The EDMS contractor is charged with performing quality assurance steps of data reported to EDMS and taking steps to ensure the accuracy of the data and fill missing emissions data. To the extent that the inventory is still missing needed information (e.g., control devices and control efficiencies), the successful bidder shall work with the Emissions Forum (EF) and SSJF to collect and input the information in a format that is compatible with the WRAP EDMS.

The contractor shall perform a quality assurance review of the point and area source inventories in the EDMS in concert with the SSJF and EF. Fugitive dust emissions associated with point sources are considered part of the point source emissions. States and tribes use various methods to estimate emissions and different definitions for area sources and point sources. The contractor

shall propose a plan that describes the data to be reviewed and the methods to be used with a focus on the presence and validity of control device information and control efficiencies for both area and point sources. The review will require consultation with individual jurisdictions and industry representatives. In order to make the most effective use of project resources, priorities will be established in consultation with the SSJF.

(Note: The following area source categories will not be part of any of the tasks under this project: biogenic, prescribed fire (agriculture and wildland), wildfire, road dust, windblown dust, and mobile source emissions. Inventories and quality assurance for these categories are being addressed by other forums.)

Inventory Review Deliverables: Draft and final reports shall be submitted which summarize the inventory review process and contain specific recommendations for improvements to the emissions inventory. The primary focus of these reports is to (1) assess the completeness and reasonableness of point and area source emissions for purposes of making emissions projections, (2) verify the methods and reasonableness of gap filling procedures used for area source emissions and (3) provide a discussion of the various means by which states and tribes define “area sources” and “point sources” and the resulting effect on data evaluation. After finalizing the report, the contractor may be asked to periodically evaluate the stationary sources inventory for changes resulting from the quality assurance review or from other factors. Such evaluations shall be documented in a memorandum and/or in addenda to the final report. The contractor shall provide suggested inventory revisions to the SSJF and EF for review. Approved revisions shall be loaded into the EDMS by the contractor.

1.B. Oil and Gas: Oil and gas sources have been identified as the second largest category of stationary source NOx emissions in the WRAP region. Oil and gas sources are also emitters of SO<sub>2</sub>, VOC and PM.

Some of these sources occur on tribal lands. A separate project is underway within the WRAP to examine existing point sources on tribal land. Coordination of these efforts will be done by the SSJF and the WRAP Tribal Data Development Work Group.

As is the case with other area sources, the WRAP 2002 emissions inventory for oil and gas sources is expected to contain significant uncertainties due to the large number of dispersed sources in this category and the fact that inventory procedures sources vary among states and tribes. The contractor should be aware of the fact that ownership and operation of oil and gas facilities changes frequently. In addition, it is necessary to quantify the amount and/or frequency of periodic high level (spike) emissions related to routine well installation, operation, and maintenance activities and to include this information as appropriate in the data sets. In coordination with the SSJF Oil and Gas Work Group, the contractor shall:

- Evaluate the accuracy of current, existing emissions inventories for oil and gas sources and document the methods used to calculate those inventories, including information on emission rates, current control technologies and efficiencies, and the different methods used to estimate emissions and categorize oil and gas sources.

- Evaluate and recommend alternative methods to estimate emissions for oil and gas sources to improve the accuracy and consistency of the regional inventory.
- Provide an updated emissions inventory for 2002 for oil and gas sources for the WRAP region.
- Recommend projection methods and prepare a regionally consistent oil and gas emissions inventory for 2018 (see related task below). New emissions and retirement of existing sources should be considered within the projection method.
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The review will require consultation with individual jurisdictions and industry representatives. In order to make the most effective use of project resources, priorities will be established in consultation with the SSJF.

Oil and Gas Deliverables: Draft and final reports shall be submitted which summarize the inventory review process, describe the emissions inventories, and contain specific recommendations for improvements to the emissions inventories. After finalizing the report, the contractor may be asked to periodically evaluate the oil and gas inventories for changes resulting from the quality assurance review or from other factors. Such evaluations shall be documented in a memorandum and/or in addenda to the final report. Contractor shall provide revisions to the inventory to the SSJF and EF for review. Approved emissions inventories and any subsequent revisions under this contract shall be loaded into the EDMS by contractor.

#### 1.C.

2018 Emissions Projections: After the 2002 inventory is reviewed and any necessary improvements are made, the contractor shall develop point and area source emissions projections for all visibility impairing pollutants for the year 2018. This projection work shall include emissions from the WRAP region at the same geographic level of detail as the 2002 base year emission inventory (e.g. state, county, tribal reservations). The projections should include emissions estimates for new (expected) sources not contained in the base year inventory. Emission projections must also be obtained from the CENRAP states of Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma and Texas. The CENRAP projections may be available from CENRAP, however if they are not, they should be projected from CENRAP 2002 emissions data. (The WRAP will facilitate interactions with CENRAP.)

The contractor shall identify and recommend appropriate assumptions, input data, and economic and emission models to be used for projection variables. Variables include both demographic information and economic growth rates. For major SCC categories, variables include: source retirement rates, new source location and fuel use, and emission reductions expected from known federal, state, and tribal air quality requirements adopted by September 2004 and to be implemented by the end of 2018. Prior to use of these variables in projecting emissions, the proposed approach, including the methods, assumptions, input data, and models, will be approved by a projections work group that consists of members from the Economic Analysis Forum, Emission Forum, and SSJF. The contractor may review the methods and assumptions

contained in the last projection work completed by E.H. Pechan, Projections Report for the 2018 Base Case Emission Inventory (<http://www.wrapair.org/forums/ef/docs.html>) as it develops a proposal for WRAP consideration.

2018 Emissions Projections Deliverables: A report proposing the appropriate assumptions, input data, and economic and emission models to be used for projection variables will be presented to the projections work group for their review and approval. Using the approved assumptions, data, and models, draft and final 2018 emissions inventory and report shall be submitted to the projections work group for review and approval by the SSJF and EF. Approved 2018 emissions projections shall be loaded into the EDMS by the contractor. The resulting 2018 baseline inventory will then become the basis for evaluating control technologies and potential strategies to reduce stationary source emissions as part of the regional haze SIPs and TIPs.

## **Task 2: Control Technology Analysis**

The performance and cost of control technologies will be a primary consideration in the development of stationary source programs to address regional haze in the WRAP region. The contractor shall work with the SSJF to develop and evaluate potential opportunities to reduce stationary source emissions, including from BART-eligible sources which will be explicitly identified by the SSJF. The contractor will provide information for various source categories and control technologies (e.g., costs, control efficiencies, and other impacts on the source and environment). NO<sub>x</sub> controls were recently characterized for the WRAP for a number of significant NO<sub>x</sub> source categories identified in the 1996 WRAP stationary source inventory.<sup>1</sup>

2.A. Sulfur Dioxide: The contractor shall work with the SSJF to evaluate options for expanding the WRAP SO<sub>2</sub> Annex which was adopted by the states of AZ, UT, NM, WY, and OR. This will primarily involve evaluating emission reduction options for SO<sub>2</sub> sources > 100 TPY (BART and non-BART; electric utilities and other sources) in the remainder of the WRAP region.

2.B. Nitrogen Oxides from EGUs: The contractor shall work with the SSJF to evaluate potential NO<sub>x</sub> emission reductions from electric generating units (EGUs), some of which are BART-eligible. The contractor shall assess the NO<sub>x</sub> reductions that are achievable from various boiler types, including burner configurations, boiler sizes, and shapes as well as coal ranks. The effect of permitted carbon monoxide limits must also be considered in this evaluation. This will include working closely with industry and environmental stakeholders to access and evaluate their information on this topic, as well as information from EPA. Draft and final reports shall include a description of the NO<sub>x</sub> combustion controls available for various boiler and coal types and describe the range of emission reductions that might be expected from the installation of such controls on each type of boiler, considering fuel differences and carbon monoxide restrictions.

2.C. Nitrogen Oxides from Other Sources: The contractor shall work with the SSJF to evaluate NO<sub>x</sub> control options for non-EGU sources, including oil and gas sources. Some of these sources may ultimately be suited for inclusion in an emissions trading program while others may not. In

<sup>1</sup> See <http://www.wrapair.org/forums/mtf/nox-pm.html>.

particular, information will be needed on the population of sources, current and proposed emission standards across source types and jurisdictions, and potential control options for new and existing sources. Such work must be closely coordinated with the oil and gas emissions inventory work described above.

2.D. Other Pollutants: While much of the focus of this effort will be on stationary sources of NOx and SO2, some effort will be required to evaluate control options for sources of other visibility impairing pollutants (speciated VOCs, PM, and possibly ammonia). In particular, some level of analysis for these pollutants is expected for BART-eligible sources. The extent of the analysis required under this task will depend on the results of forthcoming technical assessments on the causes of haze in the WRAP region and on the results of the project currently underway to identify BART-eligible sources.

Control Technology Analysis Deliverables: The contractor shall submit draft and final reports to the SSJF for review and approval, summarizing the issues addressed, the options considered, and the data, assumptions, methods, and results. Separate reports will be required for SO<sub>2</sub>, NO<sub>x</sub>, and other pollutants considered. Based on the results of the control strategy analyses and review by the SSJF, the contractor shall provide three to five, as yet to be identified, 2018 point source control strategy inventories for review. Approved 2018 control strategy scenario projections shall be loaded into the EDMS by the contractor.

**Proposed Schedule:**

October 15, 2004	Publish RFP
November 4 <sup>th</sup>	Pre-bid call
November 16 <sup>th</sup>	Bids due
November 17-30	Bid review, contractor interviews
December 3 <sup>rd</sup>	Contract award
January 10, 2005	<b>Reports due:</b> 1) 2002 EI data review, 2) draft oil and gas data review/methodology proposals, and 3) projections approach/input data/models draft report
January 27 <sup>th</sup>	Approve January 10 <sup>th</sup> reports, begin EI work
March 4 <sup>th</sup>	<b>Reports due:</b> 1) draft 2002 EI improvements, 2) draft 2002 oil and gas EI improvements, 3) final list of point and area source control programs by state/county/tribe/federal jurisdiction, and 4) draft SO <sub>2</sub> /NO <sub>x</sub> /other pollutant control technology analyses
March 18 <sup>th</sup>	Approve March 4 <sup>th</sup> reports, load final revised 2002 EI (including oil and gas emissions) into EDMS.
April 20 <sup>th</sup>	<b>Reports due:</b> 1) draft 2018 base case emissions projections, draft final reports for all tasks except control strategy scenarios.
May 10 <sup>th</sup>	Approve April 20 <sup>th</sup> reports, load 2018 base case emissions inventory (including oil and gas emissions) into EDMS.
June/July	<b>Reports due:</b> 1) 3 to 5 proposed 2018 control strategy scenario reports and EIs.
August	Approve June/July reports and EIs, load 3 to 5 2018 control strategy scenarios' emissions inventories into EDMS.
September 2005	<b>Project complete.</b>