

**8/31/00 DRAFT**

## **Needs and Potential Contractors for “Jump Starting” WRAP RTC Modeling**

### Introduction

The Western Regional Air Partnership (WRAP) needs to conduct a modeling analysis for Regional Haze across the Western United States. The initial efforts will require particulate – photochemical grid modeling of 1996.

A Regional Technical Center (RTC) is being established under the WRAP. This center will eventually extend the modeling described above. Thus, an integral part of this solicitation is the transmittal of all of the necessary modeling tools, inputs, and outputs to the WRAP, as well as providing technical support to the WRAP to ensure that the RTC can take these products and use them for further analyses. To facilitate the requirement for meeting deadlines in providing modeling support for the Regional Haze Rules, we recommend that part of this work be performed by contract.

Several options are available for doing this work. They include:

- Contracting out all 309 work
- Contracting out part of the work
- Performing all work within the RTC

We are recommending the hybrid approach with part of the work being contracted and the remainder of the work being performed by the RTC. Beyond 309, we recommend that the RTC be responsible for 308 modeling requirements. 308 SIP modeling work is not as distant as it may seem.

### Approach

Five tasks are shown below. These are as follows:

1. Testing and setting up the model
2. Base run modeling
3. Modeling of control strategies
4. Training and data transfer
5. Documentation of work

While this plan is not specific to any particular model, it will follow the recommendations of the Modeling Forum. Currently, Models-3 is their model of choice but a decision will be made in 2001 as to the final recommended modeling approach. If Models-3 cannot perform as expected, an alternative, less rigorous approach will be selected by the Modeling Forum in 2001. Candidate approaches have already been identified as a part of the Modeling Forum’s work.

Not all of these may need to be contracted out. It may be possible to contract out as little as task #1 with joint efforts (RTC/contractor) for completion of the remaining tasks. In fact, the recommended model may change after task #1 is completed. However, all tasks should be placed on an RFP (using Models-3) so that these options are available. Task 3 may be the most difficult to contract

out as there may be a number of last minute decisions made on necessary modeling runs. This could run into high contract costs because of expected “change-orders.”

Thus, our proposed contracting goes beyond just providing expertise to WRAP and having the RTC doing most of the work. *This is necessary because of delays encountered in the creation of a RTC.* Yet, States and Tribes need to have staff that are knowledgeable of all the work that went into modeling support of their SIPs and TIPS. Long-term modeling capability is needed by the States and Tribes, not only to refine 309 SIPs/TIPs, but also to perform 308 work, which needs to start soon.

## **TASKS**

### **Task 1 – Testing and setting up the model ( for July, 1996)<sup>1</sup>**

Meteorological Data is available at 36 km resolution for all of the contiguous U.S. for 1996 and is available for the western U.S. at a 12 km resolution for July 1996. The following elements shall be included in this task:

1. Process the NET inventory through the Emissions Processor for July 1996
2. Run the Air Quality Model for the WRAP region at 36 km resolution for July 1996
3. Compare and evaluate model results with IMPROVE data and gaseous data species by species
4. Pick a time period where 36 km run could benefit from higher resolution
5. Run 12 km resolution for that time period
6. Compare and evaluate
7. Make recommendation on whether to proceed with this modeling system.

### ***Task 2 – Base run modeling***

**If the evaluation indicates the system is viable:**

1. Process WRAP inventory through the Emissions Processor
2. Run Air Quality Model for 1996 at 36 km
3. Compare and evaluate all episodes against IMPROVE and gaseous data
4. Correct / improve model inputs if necessary
5. Re-run episodes as necessary

---

<sup>1</sup> This initial effort will utilize the PSU/NCAR Mesoscale Meteorological Model version 5 (MM5) meteorological fields developed for the EPA for the year 1996. The emissions input to the model will initially be the NET inventory, which will subsequently be updated by the WRAP. In order to expedite the incorporation of this work into the RTC, the Models-3 system is being used.

### **Task 3 – Modeling of 309 control strategies**

1. Analyze the inventory for 2018
2. Apply GCVTC strategies to 2018 inventory
3. Run model
  - a. All states together
  - b. Removing GCVTC strategies one state at a time (to see effect of state participating in 309 or not)
4. Provide the incremental visibility changes for all Class I areas in the domain to WRAP on the 20% best and worst days

### **Task 4 – Training and data transfer (all files, processors, and results) to RTC**

1. As work becomes completed and the RTC is developed, the contractor shall transfer the appropriate files, processors, and other relevant materials to the RTC
2. An integral part of the transfer shall be providing technical support to the RTC to ensure that the RTC understands how all results were obtained and ensure that all files, processors and other relevant materials can be duplicated by the RTC

### **Task 5 – Final Report**

1. The contractor shall develop a final report with a full description of all analyses and provide complete results

### **Possible Contractors**

The following is a preliminary list of possible contractors that may be interested in bidding on RFPs for WRAP regional modeling. There is no attempt to exclude potential contractors on this effort:

<b>Possible Contractor</b>	<b>Comments</b>
Environ	<ul style="list-style-type: none"><li>• Has experience with Models-3 and SMOKE.</li><li>• Has a proposed approach for refining the S-R Matrix using CALPUFF and MM-5.</li><li>• Developing a screening tool version of REMSAD and its emission preprocessors</li></ul>
Washington State University (WSU)	<ul style="list-style-type: none"><li>• Has experience with Models-3 and SMOKE.</li><li>• Currently contracting with WESTAR for the Northwest Models-3 demonstration project.</li></ul>
Rowan Williams Davies & Irwin (RWDI) of Guelph, Ontario, Canada	<ul style="list-style-type: none"><li>• Has experience with applications of CMAQ, SAQM, CALGRID, CALPUFF, MM5, MC2, and various emissions processors.</li></ul>
AER	<ul style="list-style-type: none"><li>• Has done regional aerosol modeling, including CMAQ</li><li>• Staff worked on the GCVTC VARED work</li></ul>
SAI (ICF/Kaiser)	<ul style="list-style-type: none"><li>• Developed, evaluated, and applied UAM, REMSAD, and other advanced models</li></ul>

ENSR	<ul style="list-style-type: none"> <li>• Did the Project VARED work in support of the GCVTC</li> <li>• Key VARED personnel are no longer there.</li> </ul>
Earthtech	<ul style="list-style-type: none"> <li>• Developed CALPUFF/CALMET, potential tools for screening</li> </ul>
Applied Modeling Inc.	<ul style="list-style-type: none"> <li>• Has provided cost-effective conversions of complex models to advanced PCs</li> </ul>
Pechan-Avanti Group	<ul style="list-style-type: none"> <li>• Developed and applied the S-R Matrix (with consultant's help), a potential modeling approach for screening purposes.</li> </ul>
Abt Associates	<ul style="list-style-type: none"> <li>• Applied and evaluated the S-R Matrix in cost/benefit work</li> </ul>
Sonoma Technology Inc.	<ul style="list-style-type: none"> <li>• Has used the IAS VARED TCs for WRAP visibility modeling work</li> <li>• Worked on MAQSIP which is a precursor of CMAQ with MCNC</li> <li>• Worked on SMOKE for state of Utah.</li> </ul>
RAND	<ul style="list-style-type: none"> <li>• Developed complex models for the Colorado Front Range and was the prime contractor for GCVTC policy and technical work</li> </ul>
Alpine Geophysics	
CH2M-Hill, Southwest Regional Office	
University of Colorado, Center for Advanced Decision Support for Water and Environmental Systems	
Georgia Institute of Technology (out of the region like MCNC but has the technical capabilities and experience)	<ul style="list-style-type: none"> <li>• Did work for SAMI.</li> </ul>
University of California at Riverside	<ul style="list-style-type: none"> <li>• Developed ADOM and applied to Project VARED.</li> </ul>
Desert Research Institute	<ul style="list-style-type: none"> <li>•</li> </ul>
DELTA Group, UC Davis, Crocker Nuclear Lab	<ul style="list-style-type: none"> <li>• Developed the PRESTO-TC model during GCVTC</li> </ul>
ENVAIR	<ul style="list-style-type: none"> <li>• Has applied the UAM in multiple iterations to determine source-receptor relationships in the East for the NOx SIP call. Has used CMAQ. Developed the UAM.</li> </ul>
Stratus Consulting	<ul style="list-style-type: none"> <li>• Worked with ENVAIR on the NOx SIP call .</li> </ul>