



Technical Memorandum

To: Pat Cummins, WRAP Stationary Sources Joint Forum

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cc: Tom Moore

Subject: Quality Assurance Plan for Task 1.A, Draft

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This draft Quality Assurance Plan (QAP) lays out the procedures that ERG will implement to review and improve the 2002 base year WRAP emissions inventory. This plan discusses the data to be reviewed, the review methods and tools we will use, the review priorities, and gap filling approaches we will implement. Throughout this task, we will strive to incorporate all feedback provided by state, local, and tribal contacts. We also understand the importance of the guidance contained in the Tribal Template (<http://wrapair.org/WRAP/reports/Gen-Tribe-Temp.pdf>), and understand that the Regional Haze Rule explicitly recognizes the authority of tribes to implement the provisions of the Rule.

BACKGROUND

We (ERG) propose an inventory review and comparison of the 2002 inventory contained in the EDMS with the 2002 National Emissions Inventory (NEI) as provided by the U.S. Environmental Protection Agency (EPA) in the first week of February. These two inventories are essentially the same, but this approach, described in detail below, takes advantage of the extensive QA already performed and corrections made to the 2002 NEI by state/local/tribal agencies, EPA, and in some cases ERG and other contractors, which are not reflected in the 2002 EDMS inventory V1.

DATA TO BE REVIEWED AND COMPARED

As stated above, we propose that the data to be reviewed consist primarily of the 2002 EDMS inventory, along with the base year 2002 NEI data. These data were all provided by state, local, and tribal agencies to the U.S. EPA. The 2002 inventory covers sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM, PM_{2.5}, and PM₁₀), volatile organic compounds (VOC), carbon monoxide (CO), and ammonia (NH₃). The source category coverage for this phase of the inventory review is stationary point and area nonpoint sources. Mobile sources, prescribed burning and wildfires, and windblown dust are excluded from this review.

The review will focus on top emitting NO_x, SO₂, VOC, NH₃, and PM sources, such as electric generating units (EGUs), boilers, turbines, internal combustion engines, and oil and gas production. (QA activities for oil and gas production are not addressed in this task; Task 1.B. focuses on these sources in detail.) SO₂ sources in the WRAP region not covered in the SO₂ Annex (AK, CA, CO, ID, MT, ND, NV, SD, and WA) will also be reviewed closely.

The focus of the data review will address completeness of the:

- Geographic coverage;
- Point source facilities;
- Area nonpoint source categories;
- Pollutant coverage;
- Control device information for point sources; and
- Control status for area nonpoint sources.

QA activities will also make note of possible outliers at the facility, source category, and county level detected during QA activities.

REVIEW METHODS AND TOOLS

The tools used in the first phase of this review will consist of other emissions inventories and emissions data sets developed for the WRAP region. These other inventories will be compared to the 2002 EDMS and NEI files to assess the completeness of the point and area nonpoint source inventories. The following inventories will be used in this capacity:

- 2002 Clean Air Markets Division (CAMD) and DOE electric generating unit (EGU) data (including CAMD's most recent control device information compiled for Western States);
- Draft 2003 Regional SO₂ Emissions and Milestone Report (http://wrapair.org/forums/309/documents/050131Draft_WRAP_SO2_Milestone_Report.pdf)
- The 1999 NEI for point and area nonpoint sources;
- The potential BART-eligible source list developed by ERG for the SSJF; and
- The 1996 base line inventory used in the §309 Technical Support Document (TSD).

The inventory files for the WRAP's draft Attribution of Haze Summary Report were considered for use in the review of the 2002 inventory, but ruled out because they are based on the Emissions Forum's "interim" 2002 inventory that was used for initial geographic source apportionment and source attribution work during 2004, and will be replaced in early 2005 by final 2002 EI data files. The data in this inventory are derived from the 1996 WRAP point source database, the 2002 CAMD and DOE EGU data, and the 1999 NEI for area sources.

A system will be established to track inventory review procedures, document correction and gap filling procedures, and verify that the inventory data are re-checked after the procedures are completed. Pertinent information for data obtained from all sources will be kept in the project file. For electronic data, the original data set will be retained on the project's shared drive (in read-only format, and accessible by all ERG team members). All personal communications via meetings, telephone, facsimile, or email will be retained in the project file.

We will establish standardized review procedures for each point, area nonpoint, and tribal file. For point sources, facilities will be sorted by source category, with particular focus on EGUs and

other top-emitting sources of NO_x and SO₂. (In developing the NEI, EPA made the decision to use NO_x and SO₂ estimates for EGUs that were obtained from the agency's Acid Rain Program. These estimates, based on hourly continuous emissions monitoring [CEM] data, were deemed preferable by the EPA rather than state, local, or tribal submittals. For this project, we will work with the state, local, tribal agencies and SSJF members to determine which EGU data set should get priority.)

Table 1 (tables are grouped at the back of this memo) presents an example tracking sheet that can be used as a tool in the point source QA review. This type of system can be used to identify top-emitting facilities (and their rank in other inventories), missing facilities, and possible outliers in the point source inventory. From here, we will prioritize the point source review on facility and unit emission control information.

Table 2 presents an initial list of point source categories (by 3-digit SCC) to be closely examined in the point source inventory. This table was compiled from the 2002 EDMS inventory V1 and the draft 2002 point source NEI. Starting with these categories, the point source QC will be targeted at finding missing facilities, pollutants, and counties, and identifying emission outliers. ERG has already developed several tests and tools to assist in this task to assess the completeness and accuracy of the point source inventory. For example, ERG maintains a national-level Historical Facility table that contains a list of all point source NEI facilities in the country, along with geographic coordinates, addresses and federal identifying numbers. With this table, we can assess if a facility is missing from the point source inventory. If a facility is missing, it may be because it closed, changed names, or its emissions were reported within an area source category. Once we identify missing point sources, we may need to contact the states and/or tribes to determine the reason for their exclusion from the 2002 inventory.

For area nonpoint sources, a similar type of approach will be implemented. Substitute number of source categories for number of facilities, and area source categories of concern will be identified. In addition, the area source categories in the 2002 inventory will be compared to the list of "common" categories shown below:

Agriculture Production—Crops
Agriculture Production – Livestock
Commercial/Institutional Stationary Source Fuel Combustion
Construction: SIC 15 – 17
Food and Kindred Products: SIC 20
Industrial Stationary Source Fuel Combustion
Mineral Processes
Mining and Quarrying: SIC 14
Oil and Gas Production
Other Combustion
Paved and Unpaved Roads
Residential Fuel Combustion
Solvent Utilization
Waste Disposal, Treatment, and Recovery--On-site Incineration
Waste Disposal, Treatment, and Recovery--Open Burning
Wood Products: SIC 24

We will then determine why key source categories are missing in the inventory, and possibly recommend gap filling procedures. The top-down inventory development method for area sources will over- or underestimate emissions in a given county. For both point and area nonpoint sources, our review will also focus on counties that include Class I areas in order to assess the impacts of specific facilities, and especially area source categories, on Class I areas.

For tribal submittals, Table 3 shows data submitted (or soon to be submitted) for the 1999 NEI and the 2002 NEI, noted by Sarah Kelly on behalf of WRAP's Tribal Data Development Work Group (TDDWG). This task will consist of combining these into one file and assessing the status of control device information, as applicable. A concurrent task will be undertaken that will focus on developing more complete tribal inventories for eight tribes/reservations. These inventories will also be consolidated in the EDMS inventory.

CONTROL DEVICE INFORMATION AND GAP FILLING APPROACHES

For point sources, we will first check to see how many sources have indicated the emissions are controlled and have provided complete control information (control device codes and control efficiencies.) For these sources, the only QA step necessary is to ascertain that the control device is appropriate for the source category and the pollutant (i.e., the control device code is correct) and the efficiency is within the expected range. If an estimate is labeled "controlled" but no control device is provided, then this would be a candidate for augmentation. If an estimate is labeled uncontrolled, review would consist of an assessment of the emission factor to see if it is truly an uncontrolled factor, if it is provided. Otherwise, no further review would be required. There are likely to be a large number of records that are labeled as "controlled," but lacking associated control devices. Again, we will need to narrow this set down to a manageable size. This prioritization can include proximity to Class I areas and the size of the source. We suggest focusing on sources that emit greater than 100 tons per year (tpy) of any one regional haze pollutant. Priority can also be given to some source categories such as EGUs. For EGU's, CAMD data or operating permits will be reviewed in depth.

For area nonpoint sources, this task will use the §309 TSD as a starting point. Appendix A of the TSD presents an assessment of control plans for selected nonattainment areas. We will basically update and expand this summary information. Within the 2002 area nonpoint source inventories themselves, the control device and control efficiency information is likely to be limited. We have found that generally states do not fill in control information for area sources in the 2002 inventory.

Through our regulatory support to the U.S. EPA, we are knowledgeable of criteria pollutant and hazardous air pollutant regulations that include area sources. Key source categories that we provide regulatory support for include industrial boilers, stationary turbines and internal combustion engines, and solid waste disposal. We will compile tables of these regulations and their control device/emission level requirements, area source cutoffs, reporting requirements, and implementation dates. ERG will work with the Emissions Forum and the SSJF to confirm state, local, and tribal area source regulations that are also in place as of 2002. Also, we will coordinate with our staff working on Task 1.C. (Projections) who are currently compiling information on regulations with compliance dates after 2002, to ensure there is no duplication of effort. A close review of the existing regulations will be the first step in identifying controlled

(but not reported as such) area source emissions. The next step will consist of applying assumed control devices and efficiencies for review by the SSJF. For the Emission Inventory Improvement Program (EIIP), we developed default control efficiencies by control device and pollutant, and we can use this table as a quality check for the area source inventory. If available, we can also double-check state provided emission factors against AP-42/FIRE to determine if controlled or uncontrolled emission factors were used in developing the emission estimates.

DOCUMENTATION

Documentation for this task will detail the QA review process implemented, our findings regarding the completeness of the 2002 inventory, and gap filling methods. Summaries will be presented on the availability of control device information.

PREPARE INVENTORY FOR EDMS UPLOAD

The last step will ensure that the revised 2002 inventory files are uploaded into the EDMS, and are assigned the appropriate version number (e.g., version 2.0). The format for this upload will be EPA's NEI Input Format, version 3 or NIF 3.0.

Table 1. Point Sources QA Tracking Sheet

Locale Name: Example County	2002 NEI	2002 EDMS Inventory (v1)	1999 NEI	1996 §309 TSD/ 2003 Regional SO₂ Report	Potential BART- Eligible Source List
# facilities					
% with control device info					
Top emitting NO _x sources, or ranking					
Top emitting SO ₂ sources, or ranking					
Top emitting PM sources, or ranking					
Top emitting VOC sources, or ranking					
Top emitting NH ₃ sources, or ranking					

Table 2. Priority Point Source Categories

3 digit SCC	SCC Description
101	External Combustion Boilers, Electric Generation
102	External Combustion Boilers, Industrial
103	External Combustion Boilers, Commercial/Institutional
201	Internal Combustion Engines, Electric Generation
202	Internal Combustion Engines, Industrial
203	Internal Combustion Engines, Commercial/Institutional
250	Petroleum and Solvent Evaporation, Bulk Stations
275	Internal Combustion Engines, Fixed Wing Aircraft L & TO Exhaust
301	Industrial Processes, Chemical Manufacturing
302	Industrial Processes, Food and Agriculture
303	Industrial Processes, Primary Metal Production
305	Industrial Processes, Mineral Products
306	Industrial Processes, Petroleum Industry
307	Industrial Processes, Pulp and Paper and Wood Products
310	Industrial Processes, Oil and Gas Production

Table 3. Summary of Tribal Data Submitted to EPA

Tribe	1999 or 2002 Point Source Data Submitted	1999 Area Source Data Submitted
Pueblo of Laguna	<ul style="list-style-type: none"> • Natural gas compressors • Communications equipment mfg facility 	<ul style="list-style-type: none"> • RWC • Residential LPG combustion • Residential natural gas combustion • Agriculture activities • Landfill activities • Construction activities • Paved road dust • Unpaved road dust
Pueblo of Santa Ana	<ul style="list-style-type: none"> • Sand and gravel facility 	<ul style="list-style-type: none"> • Abandoned gravel piles • Construction activities • Commercial natural gas combustion • RWC • Residential natural gas combustion • Prescribed burning • Residential waste open burning
Ute Mountain Ute Indian Tribe	<ul style="list-style-type: none"> • Gravel pit 	<ul style="list-style-type: none"> • Residential LPG combustion • Commercial LPG combustion • Prescribed burning • Agriculture activities • Oil and gas well activities • Paved road dust • Unpaved road dust
Gila River Indian Community	<ul style="list-style-type: none"> • Fertilizer prod facilities • Aircraft engine testing facility • Metal prod facilities • Waste TSD facilities • Seed processing facilities • Asphalt/concrete prod facilities • Cattle feed mill • Electrical equip mfg facility • Motor vehicle driving school • Outdoor prod mfg facility • Chemical mfg facility • Wood prod mfg facilities • Automobile repair shop • Gas stations • Cotton gin 	<ul style="list-style-type: none"> • Residential LPG combustion • RWC • Agriculture activities • Paved road dust • Unpaved road dust • Waste open burning • Agricultural fertilizer application
Salt River Pima-Maricopa Indian Community	<ul style="list-style-type: none"> • Waste disposal facilities • Asphalt/concrete prod facilities • Sand and gravel facilities 	<ul style="list-style-type: none"> • Gas stations

Table 3. Cont.

Tribe	1999 or 2002 Point Source Data Submitted	1999 Area Source Data Submitted
Confederated Tribes of the Umatilla Indian Reservation	<ul style="list-style-type: none"> • Grain elevator 	<ul style="list-style-type: none"> • RWC • Agricultural fertilizer application • Agricultural field burning • Paved road dust • Unpaved road dust • Asphalt prod activities
Coeur d'Alene Tribe	<ul style="list-style-type: none"> • Sawmill and plywood production facility • Sawmill with wood burning cogen plant • Lumber mill 	
Assiniboine and Sioux Tribes of Fort Peck Indian Reservation	<ul style="list-style-type: none"> • Grain elevators • Auto body shops • Gas stations • Automobile repair shops • Electronics mfg facility • Metal fabrication facility • Airports • Asphalt prod facility 	<ul style="list-style-type: none"> • Oil and gas well activities • Sand and gravel pits
La Posta Band of Mission Indians	<ul style="list-style-type: none"> • Tribal offices • Health clinic • Sand and gravel facility 	<ul style="list-style-type: none"> • Residential LPG combustion • Residential solvent use • Residential pesticide use • Construction activities
Pueblo of Acoma		<ul style="list-style-type: none"> • RWC • Residential LPG combustion • Residential natural gas combustion • Agricultural tilling • Agricultural wind erosion • Agricultural fertilizer application • Construction activities • Paved road dust • Unpaved road dust
Bishop Paiute Tribe		<ul style="list-style-type: none"> • RWC • Residential waste open burning • Prescribed burning • Paved road dust • Unpaved road dust