APPENDIX B1: SECOND WORKSOP PRESENTATION

Needs Assessment for Evaluation and Design of an Emissions Data Reporting, Management, and Tracking System

Introduction

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Introduction

Project Intent and Objectives

Intent

- Assess needs of EDMS through Interview Workshops and Web Questionnaire

Objectives

- Determine the Emissions Data to be Reported and Tracked
- Perform a Comparative Analysis of Existing EDMS and Conceptual WRAP EDMS
- Prepare a Report Recommending Needs for the WRAP EDMS

Intent and Objectives

Project Timeline

Determination of Requirements

First Workshop – Santa Fe, NM	March 20
Second Workshop – Denver, CO	May 7
Submission of Findings	May 30

Comparative Analysis of Existing Systems

Presentation of Comparative Analysis	June 2

Final Report

Presentation of Needs Assessment Report	June 17-19
Final Needs Assessment Submission	July 11

Project Timeline

Goals and Objectives of WRAP EDMS

- Store and Analyze Emissions from State/Tribal/Local Agencies in support of Regional Haze SIP and TIP
- Implement the RHR Emissions Reporting and Tracking Requirements
- The EDMS should be capable of:
  - Accepting EPA-compliant data submission formats
  - Performing user specific QA/QC tests
  - Producing user specific reports
  - Allowing data queries
  - Graphically displaying data through GIS
  - Allowing public access through a web-based system

Goals and Objectives

Timeline of WRAP EDMS Development

Completion of Needs Assessment	Summer 2003
Build, Alpha and Beta test EDMS Phase I	Fall 2003
◆ Implement §309 Requirements for first SIP	
Release EDMS Phase I	Spring 2004
Populate EDMS with 2003 emissions data	2004
Collect and QA/QC 2002 STL Emissions data	2004
Implement Phase II of EDMS	Fall 2004
◆ §308 and other Regulation Requirements	
◆ Additional Functionality	

EDMS Development Timeline

Timeline of WRAP EDMS Development (Cont.)

Produce emissions reports for §309	Fall 2004
Prepare 2002 base and 2018 projection years' emissions files for RMC	Fall 2004
Ongoing operation of EDMS	2005 - 2007

EDMS Development Timeline

Meeting Objectives

- Describe Project Objectives
- Review Issues and Input(s)
- Evaluate Options
- Discuss & Rank Preferences

Meeting Objectives

Regional Haze Rule Background

SIP Requirements Divided into 2 sections

- 40CFR51.308 – National Requirements for 156 Mandatory Federal Class I Areas in 36 States
- 40CFR51.309 – Optional Requirements for 16 Mandatory Federal Class I Areas on the Colorado Plateau
  - Incorporates Recommendations from the Grand Canon Visibility Transport Commission Report
  - Applicable to the 9 transport region states
- States can submit plan individually or join a regional planning organization (WRAP)

Regional Haze Rule Background

Regional Haze Rule Requirements - §308

Implementation Plan Due Dates

- States must submit SIP 12 months after designation for all PM2.5 attainment areas
- states must submit SIP 3 years after designation, no later than December 2008, for all PM2.5 non-attainment areas

Core Requirements for Regional Haze Implementation Plan

- Reasonable Progress Goals
  - Natural Visibility Conditions by 2064
  - Improvement for most impaired days
  - Insure no degradation for least impaired days
  - Rate of progress must be maintained for each year of the Implementation period
- Calculation of Baseline and Natural Visibility Condition

Regional Haze Program Requirements - §308

Regional Haze Rule Requirements - §308 (cont.)

Core Requirements for Regional Haze Implementation Plan (cont.)

- Long Term Regional Haze Strategy
  - Enforceable Emissions Limitations, Compliance Schedule and other measures necessary to achieve Reasonable Progress Goals
- Monitoring Strategy
  - Monitoring Strategy for measuring, characterizing and reporting Regional Haze Visibility Impairment

BART Requirements for Regional Haze Visibility Impairment

- List of BART-Eligible Sources
- Determination of BART for each BART-Eligible source
- Install and Operate BART within 5 years after SIP Revision approval
- Otherwise, states must implement an Emissions Trading Program

Regional Haze Program Requirements - §308

Regional Haze Rule Requirements - §308 (cont.)

SIP Comprehensive Periodic Revisions

- Revise and Submit SIP Revision by July 31, 2018 and every 10 years thereafter
- Evaluate and Reassess all core requirements
  - Current Visibility Conditions of Most and Least Impaired days
  - Effectiveness of the Long Term Strategy
  - Affirmation or Revision to Reasonable Progress Goals

Regional Haze Program Requirements - §308

Regional Haze Rule Requirements - §308 (cont.)

Periodic Reporting Requirements

- Report to EPA every 5 years evaluating progress towards the Reasonable Progress Goals
  - Studies of Implementation of all measures for achieving the Reasonable Progress Goals
  - Summary of Emission Reductions
  - Current Visibility conditions of Most and Least Impaired days
  - Difference between Current Visibility Conditions for Most and Least Impaired days and Baseline Visibility Conditions
  - Change in Visibility Impairment for Most and Least Impaired days, over the past 5 years
  - Analysis tracking the change over the past 5 years in emissions of pollutants contributing to visibility impairment from all sources and activities

Regional Haze Rule Requirements - §308 (cont.)

Periodic Reporting Requirements

- Report to EPA every 5 years evaluating progress towards the Reasonable Progress Goals (cont.)
  - Assessment of any significant changes in anthropogenic emissions that occurred over the past 5 years and have limited or impeded progress in reducing pollutant emissions and improving visibility
  - Review of State Visibility Monitoring Strategy

Regional Haze Rule Requirements - §309

Implementation Plan Schedule

- Plan submitted by December 2003

First SIP Requirements

- SIP must be effective until December 2018
- Projection of Visibility Improvement through 2018 for Most and Least Impaired days

Regional Haze Rule Requirements - §309

First SIP Requirements (cont.)

- Treatment of Clean Air Corridors – Provide Comprehensive Emissions Tracking Strategy
  - Identify CAC
  - Identify patterns of growth that could cause significant emissions increases resulting in visibility impairment in the 16 Class I Areas
  - Identify significant emissions growth outside the CAC resulting in visibility impairment in the 16 Class I Areas
  - Analyze effects of increased emissions for impaired visibility within CAC
  - Determine if other CACs exist in any of the 16 Class I areas and identify measures necessary to protect them

Regional Haze Rule Requirements - §309 (cont.)

First SIP Requirements (cont.)

- Stationary Sources
  - Monitoring and Reporting of SO_2 Emissions
  - Criteria and Procedures for Market Trading Program if regional SO_2 milestones are exceeded
  - Provision to activate Market Trading Program within 12 months after milestones exceeded, and assure that all affected sources are in compliance with other requirements within 5 years
  - Provision for states to supply annual report assuring the compliance of all sources with applicable requirements
  - Report assessing emission control strategy for NO_x and PM and the degraded visibility improvement resulting from such strategies

Regional Haze Rule Requirements - §309 (cont.)

First SIP Requirements (cont.)

- Mobile Sources
  - Statewide inventories of annual emissions of VOC, NO_x, SO_2, EC, OC and PM2.5 for 2003 through 2018
  - Determination if mobile sources emissions contribute significantly to visibility impairment in any of the 16 Class I Areas
  - Mobile Source Emission Budget for any visibility impaired area requiring the state to restrict annual emissions of VOC, NO_x, SO_2, EC, OC and PM2.5
  - For Visibility impaired areas, an Emissions tracking system must provide for reporting of annual mobile source emissions in the periodic implementation plan revision
  - Interim report in 2003, 2008, 2013, and 2018 on the implementation status of the GCVTC recommendations

Regional Haze Rule Requirements - §309 (cont.)

First SIP Requirements (cont.)

- Programs related to Fire
  - Include documentation for Visibility Impairment from prescribed fire smoke
  - Include a Comprehensive Smoke Management Program
  - Statewide Inventory Emissions Tracking System for VOC, NO_x, EC, OC and PM2.5
  - Encourage alternatives to burning
  - Establish annual emissions goals for fire that will minimize emission increases from fire

Regional Haze Rule Requirements - §309 (cont.)

First SIP Requirements (cont.)

- Area Sources
  - Asses the impact of dust emissions from paved and unpaved roads on visibility conditions in the 16 Class I Areas
  - Implement Emission Management Strategy to address the impact for any visibility impairing dust emissions

Regional Haze Rule Requirements - §309 (cont.)

First SIP Requirements (cont.)

- Pollution Prevention
  - Summary of all current Pollution Prevention Programs
  - Inventory of all renewable energy capacity and production currently in use
  - Percent of the state total energy capacity that is renewable
  - Provide Incentive Program that reward efforts that go beyond compliance with air pollution related requirements
  - Preserve and expand energy conservation effort
  - Identify specific areas where renewable energy has the potential to supply power
  - Project short and long term emissions reductions and visibility improvements associated with the renewable energy goals
  - A description of the commission goal that renewable energy will comprise 10% of the regional power needs by 2005, 15% by 2015
  - Demonstration of progress toward achievement of renewable energy goals in 2003, 2008, 2013, 2018

Consolidated Emissions Reporting Rule - CERR

Purpose

- Simplify and consolidate emissions inventory reporting requirements to a single location within the CFR
- Establish new reporting requirements related to PM2.5 and Regional Haze
- Establish new reporting requirements for statewide reporting of area and mobile source emissions

Consolidated Emissions Reporting Rule – CERR (cont.)

Difference Between CERR and Existing Requirements

- Inventories will add PM2.5 and NH_3
- Currently Area and Mobile sources are reported by attainment area, CERR will inventory all sources statewide by county
- Option to report smaller point sources once every 3 years or one-third of the sources every year

Consolidated Emissions Reporting Rule – CERR (cont.)

Specific Reporting Requirements

- Pollutants: Actual SO_2, VOC, NO_X, CO, Pb and Pb compounds, Primary PM2.5 and PM10, NH_3
  - Initial NH3 and PM2.5 required on June 1, 2004
  - All Report will be submitted in the NIF format
- Sources: Point, Area, On-road and Non-road Mobile, Biogenic
- Emission Thresholds
  - All anthropogenic stationary sources with emission above threshold must be included as point source, otherwise as area source
  - See Handouts for Threshold Values

Consolidated Emissions Reporting Rule – CERR (cont.)

Specific Reporting Requirements (cont.)

- Reporting Schedule
  - Annual cycle: Inventory will be for 2001 and must be submitted by June 1, 2003; Subsequent inventories will be submitted 17 months following the end of the reporting year
  - 3 Year Cycle: Inventory will be for 2002 and must be submitted by June 1, 2004; Subsequent inventories will be submitted 17 months following the end of the reporting year
  - See Handouts for Required Data Elements

Opening Discussion

Review and Comparison of Existing Systems

Multiple existing systems were compared:

1. National Emissions Inventory (NEI)
2. Tribal Emissions Inventory Software Solution (TEISS)
3. California Air Resources Board Emissions Inventory
4. Others

NEI - National Emissions Inventory

Address: www.epa.gov/ttn/chief/net/index.html

Data Collection

- Submitted as text, XML, or Microsoft Access Database
- Highly standardized submission format

Pollutants

- CO, NOx, SO_2, PM_{10}, $PM_{2.5}$, VOCs, and NH_3

Sources

- Point, Area, Mobile (On-road and Non-road), Biogenic Sources

Data QA/QC

- QA/QC format and content of submitted data

NEI (cont.)

User Preferences

- Simple queries and maps with ability to export
- FTP access for download of bulk data

GIS Components

- No true GIS components available on-line

Security

- Public Access to all data

Training

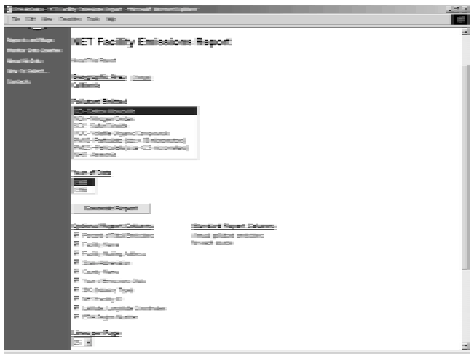
- Publications on data collection/submission process
- On-line instructions for the use of the web based system

NEI (cont.)

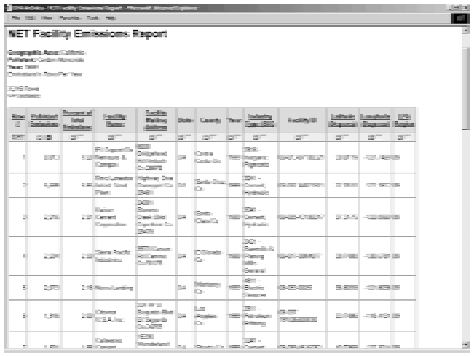
Reporting/Tracking

- Facility Emissions Report
- Facility Count Report
- Facility SIC Report
- Tier Report
- Facility Search Report
- Facility Locator Map Facility/Monitor Locator Map
- Emissions Summary Map
- Emissions Distribution Map

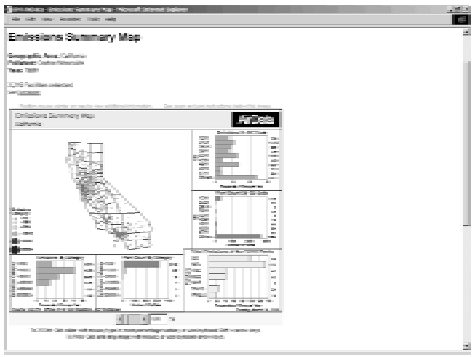
NEI (cont.)



NEI (cont.)



NEI (cont.)



NEI (cont.)

Positives

- **Simple, easy to use interface**
- **Highly standardized submission format**
- **Reports**

Negatives

- **No true GIS component**
- **EPA's QA/QC procedures – modification of data**

TEISS - Tribal Emissions Inventory Software Solution

Address: N/A – Desktop Application

Data Collection

- **Incorporates data from the NEI, NTI, ITEP and MOBILE6**

Pollutants

- **CO, NOx, SO_2, PM_{10}, $PM_{2.5}$, VOCs, NH_3, and Others**

Sources

- **Point, Area, Mobile (On-road and Non-road sources)**

TEISS (cont.)

User Preferences

- **Perform emission estimate calculations**
- **Perform modeling**
- **Create maps dynamically**
- **Perform data entry**
- **Export data in formatted text, NIF v2.0, other database formats**

GIS Components

- **Embedded GIS technology**
- **Access to Map Tools to Pan/Zoom/Select**
- **Ability to add/remove GIS Themes to maps**
- **Dynamically query database and highlight affected areas**
- **Ability to export maps/data to ESRI ArcView shapefiles**

TEISS (cont.)

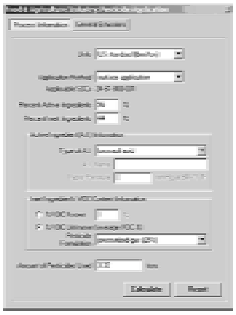
Security

- **Limited Access – TEISS is a desktop application**

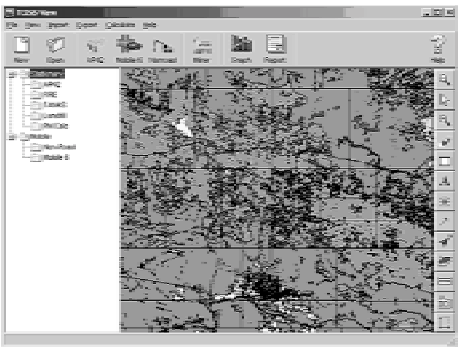
Training

- **Complete User's Guide for the system**
- **Help File System**
- **Database Dictionary**

TEISS (cont.)



TEISS (cont.)



TEISS (cont.)

Positives

- **Incorporates data from several existing systems**
- **Loaded with functionality – emission estimate calculation, modeling and GIS**

Negatives

- **Incorporates data from several existing systems**
- **Currently not available on the internet – desktop version only**

California Air Resources Board Emissions Inventory

Address: www.arb.ca.gov/emisinv/eib.htm

Data Collection

- **Plain text or Microsoft Access Database (CEIDARS 2.5)**

Pollutants

- **TOG, CO, NOx, SO_2,Optionally PM_{10}, $PM_{2.5}$ ROG**

Sources

- **Point, Area, Mobile Sources (On-road and Non-road)**

Data QA/QC

- **QA/QC format and content of submitted data**

California (cont.)

User Preferences

- **Simple queries with ability to export data as text**

GIS Components

- **No true GIS components available on-line**

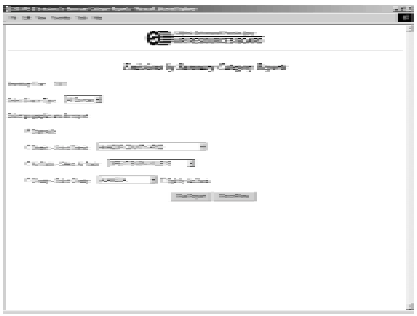
Security

- **Public Access to all data**

Training

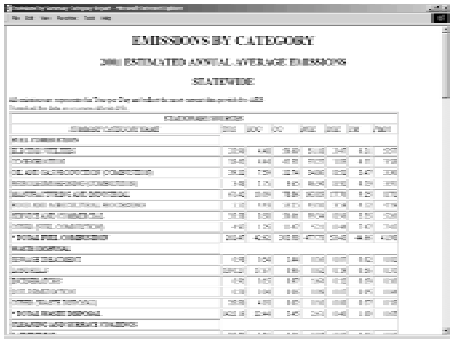
- **On-line instructions for the use of the web based system**

California (cont.)



Comparative Summary

California (cont.)



Comparative Summary

California (cont.)

Positives

- **Simple, easy to use interface**

Negatives

- **Limited data access – one report choice**
- **No true GIS components**

Comparative Summary

Other Existing Systems

DEN – Delaware Environmental Navigator
Address: www.dnrec.state.de.us/dnreceis

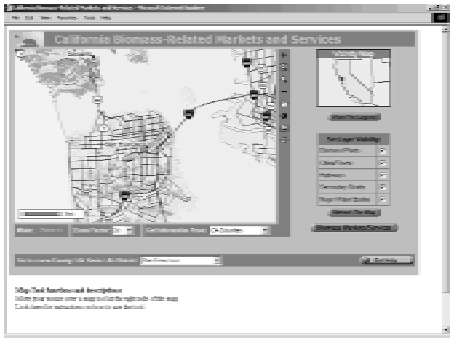
CBRMS - California Biomass Related Markets and Services
Address: www.arb.ca.gov/gismo/biomass

Comparative Summary

DEN

Comparative Summary

CBRMS



Comparative Summary

Comparison of Existing Systems

Overall Comparison			
	NEI	TEISS	CAL
Pollutants Tracked	7	7+	5
Scope of Data	US+	Tribal Lands	California
Ability to Query Data	Yes	Yes	Yes
Ability to Generate Reports	Yes	Yes	Yes
Ability to Generate Maps	Yes	Yes	No
Ability to Perform Modeling	Export Dataset	Yes	Export Dataset
Publicly Accessible	Yes	Limited	Yes
Regional Haze Rule Tracking Reqs.	No	No	No

Comparative Summary

Conceptual WRAP EDMS

Data Needs

- Accept and Report all visibility-impairing pollutant emissions from State/Tribal/Local Agencies
- Include all sources and their activity data
- Emission Data minimally reported on an annual temporal resolution and at a county spatial resolution
- Calculate Regional, State and County emissions
- Accept and report data in the NEI format
- Set submission and reporting schedule

Data QA/QC

- Perform QA/QC Automatically for format and consistency errors
- Regional consistency in emission calculation methodology
- Standard data review process performed by submitter

Conceptual WRAP EDMS

Conceptual WRAP EDMS (cont.)

User Preferences

- Ability to query data by multiple geographical areas and source types
- User-selected output format including NIF, text, model-ready input files

GIS Components

- Internet GIS functionality for enhanced data queries

Training

- State Tribal and Local Agency staff workshop training
- Online user's manual
- General user support

Conceptual WRAP EDMS

Conceptual WRAP EDMS (cont.)

Reporting/Tracking

- Implement all reporting and tracking requirements of RHR
- Implement all reporting and tracking requirements of other regulations, if necessary
- Tracking and Reporting Examples
  - Stationary Sources
    - Annual SO_2 Emissions compared to SO_2 Milestones
    - WEB Sources, Allowances and Transfers
  - Mobile Sources
    - Aggregate by state, county, tribe, vehicle type, service type
    - Emission Projection and Emission Reduction Goals
  - Fire Sources
    - Emission Projection Goals
    - Activity Information
  - Summary
    - Summary of annual Emission Inventory, grouped by county, sate and region for all pollutants, broken down by source categories, and by summed for all sources

Conceptual WRAP EDMS

Conceptual WRAP EDMS (cont.)

System Housing

- To be determined

Conceptual WRAP EDMS

March 20th Workshop Summary

Emissions Data Needs, Reporting and Tracking

- Multiple Types of Users Suggested – Planners and Scientists
- Suggested Database be designed in a modular fashion, implementing Reporting and Tracking Requirements of §309 first, then §308 and others
- System should incorporate 6 major source modules – Point, Area, Fire, Mobile, Biogenic, and Dust
- May include sub-modules for emission models and QA/QC procedures
- Inventory should include actual emissions rather than potential
- State/Tribal/Local should submit data to WRAP EDMS
- Fire emissions data will also be submitted by Trade Associations and Industry
- Suggested that the minimal temporal resolution of the emissions data be annual
- Pollution Prevention, Modeling and Fire Forums requested daily/hourly temporal resolution

March 20th Workshop Summary

Emissions Data Needs, Reporting and Tracking (cont.)

- WRAP would submit data directly to NEI for Regional Haze Rule Reporting Requirements
- Many felt the EDMS should include emissions calculation and emission projection functionality
- Suggested that Visibility Impairing Pollutants are the priority now, but the system should accommodate inclusion of other pollutants in the future
- Descriptive source parameters and activity data should be included in the EDMS
- WRAP and EPA could provide the International Data
- System should include version control for all data submitted

Data QA/QC

- System should incorporate automated QA/QC functionality to check submission format and appropriate data range
- WRAP should consult with the submitting agency before modifying any data points

March 20th Workshop Summary

GIS Requirements

- Fire Emissions Joint Forum requested ESRI formatted data and the ability to print multiple sized maps from the web-based system

User Preferences

- Proposed mixed level of access – Public and Protected functionality
- Modeling Forum requested SMOKE formatted exports
- EDMS should accept NEI formatted submissions and produce NEI formatted exports – This will allow easy integration with the TEISS system

March 20th Workshop Summary

Training

- Should provide training for consistent emissions factors
- Should provide on-line user manual
- Should provide hands-on training / help desk

Physical Location

- No group consensus

Group Roundtable Discussion

Ranking
of
Needs & Preferences

APPENDIX B2: SECOND WORKSHOP DISCUSSION POINTS

During the Denver workshop, participants raised and discussed the following concerns, questions, preferences, and recommendations:

For the emissions data needs, reporting and tracking requirements of the EDMS,

- All the emissions tracking and reporting requirements of RHR (308 and 309) should be included in Phase I.
- 308 may be more important because of its larger base of users but 309 tracking for fire source, stationary SO_2 source, mobile source and CAC should constitute Phase I.
- Will the 1st version of the EDMS be populated with the Comprehensive 2002 database? The 2003 data should be projected based on the 2002 data. The EDMS might use default/previous years data for 2003 and the Rules for default data given by states
- Projections should not be part of the EDMS; only actual data should be input.
- Only pre-trigger tracking for SO_2 would be considered in Phase I. Post-trigger tracking would be developed at a later date in Phase II.
- WRAP should not automatically forward data to NEI.
- Some STL have point source threshold values that are different from the EPA's. This discrepancy should be addressed.
- Tribes will be submitting data by reservation (spatial resolution for Tribes). Therefore, county data should be segregated from reservation data and reservation data should be included in Phase I.
- All the emissions data in the EDMS should be available on an annual basis in support of regulatory documentation.
- The EDMS should be operational in 2004.
- STL should submit data to EDMS at the same time they submit data to NEI except for fire sources data. Fire emissions data have formats that are different from NIF.
- The area source definitions are different from state to state. The EDMS should check for emissions double counting.
- Fire appears to be the only source that really requires daily/hourly data. In Phase I, fire emissions data should be submitted, stored at the annual resolution including the seven (7) activity data and emission factors. In Phase II, they should be submitted, stored at daily/hourly resolution when more refined data would be needed as ERT becomes more refined. Moreover, the system would store fire profiles in EDMS and perform emissions calculations for fire. FLMS would be provider of fire emission data also.

For the Data QA/QC,

- The EDMS should incorporate automated QA/QC functionality to check submission format and content
- Versioning by year and within the year should be required for the EDMS. It should be both at state and database level. The approval process for versioning and QA/QC should be done by states and DBA.
- WRAP should develop default rule for replacing blank and erroneous values. These default values might include NEI data.
- The SO_2 milestones should be included with versioning.
- WRAP should consult with the submitting agency before modifying any data points.

- The biogenic emissions are currently generated at RMC on a 36-km grid. There will be a need to convert to county level.
- The dust emissions (PM_{10} and $PM_{2.5}$) are currently estimated using wind as emission/grid square. There will be a need to convert to county level.
- A Unit Conversion Lookup table would be very helpful.

For the GIS Requirements,

- GIS Data should be at county level, and may be other data as well, collected by category. There would be a need for more spatial data to populate GIS. Mobile source data should be by county, stationary and fire sources already in Latitude and Longitude, and CAC organized at the county level.

For the User Preferences

- EDMS should accept NEI formatted submissions and produce NEI formatted exports – This will allow easy integration with the TEISS system and easy coordination with STL submission to NEI.

For the Training options,

- No discussion was brought up on the training options.

For the Physical Location option,

- No discussion was brought up on the location of the system.

EA Report

- EA report should be a blue print for a contractor to build the EDMS without any difficulties. It should show a flow chart of the EDMS needs by module, phase, GIS and pollutants.

APPENDIX B3: SECOND WORKSHOP PARTICIPANTS

Name	Affiliation
Don Arkell	WESTAR
Brock LeBaron	Utah DEQ
Carol Nielsen	Utah DEQ
Tom Moore	WRAP staff
Alice Edwards	Alaska DEC
Heather Lancour	New Mexico ED
Mike Sundblom	Arizona DEQ
Roy Doyle	Colorado DOH
Bob Palzer	Sierra Club
Chris Fatogoma	EA Engineering
Barry Rubin	EA Engineering
Jason Samus	EA Engineering
Dennis Schwerh	West Associates
Pete Lahm	USDA Forest Service
Lewis Mcleod	CS & KT