APPENDIX 5A

TECHNICAL SUPPORT DOCUMENT FOR 2002 MANE-VU SIP MODELING INVENTORIES, VERSION 3

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for the
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ACRONYMS AND ABBREVIATIONS

ATP	Anaerobic Thermal Processor
BEIS	Biogenic Emissions Inventory System
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CAMD	Clean Air Markets Division
CAP	criteria air pollutant
CE	Control Equipment (NIF 3.0) table
CEM	Continuous Emissions Monitoring
CENRAP	Central Regional Air Planning Organization
CERR	Consolidated Emissions Reporting Rule
CMU	Carnegie Mellon University
CNG	compressed natural gas
CO	carbon monoxide
CO_2	carbon dioxide
EF	emission factor
EFIG	Emission Factors and Inventory Group
EGU	electricity generating unit
EI	inventory
EM	Emission (NIF 3.0) table
EP	Emission Process (NIF 3.0) table
EPA	U.S. Environmental Protection Agency
ERP	Emission Release Point (NIF 3.0) table
ETBE	ethyl tertiary butyl ether
ETOH	ethanol
ETS	Emission Tracking System
EU	Emission Unit (NIF 3.0) table
FIPS	Federal Information Processing Standard
FIRE	Factor Information and REtrieval Factor
GIS	geographic information system
GSE	ground support equipment
HAP	hazardous air pollutant
HC	hydrocarbon
HPMS	Highway Performance Monitoring System
ID	identification
IDA	Inventory Data Analyzer format
I/M	inspection and maintenance
km	kilometer
LAI	leaf area indices
LEV	low emission vehicle
LPG	liquified petroleum gas
MACT	maximum achievable control technology
MANE-VU	Mid-Atlantic/Northeast Visibility Union
MARAMA	Mid-Atlantic Regional Air Management Association
MTBE	methyl tertiary butyl ether
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industrial Classification System

NEI	National Emissions Inventory
NH_3	ammonia
NIF	NEI Input Format
NMIM	National Mobile Inventory Model
NO	nitrous oxide
NO_x	oxides of nitrogen
NYSDEC	New York State Department of Environmental Conservation
ORIS	Office of Regulatory Information Systems
OTC	Ozone Transport Commission
PAR	photosynthetic active radiation
PE	Emission Period (NIF 3.0) table
Pechan	E.H. Pechan & Associates, Inc.
PFC	portable fuel container
PM	particulate matter
PM-CON	condensible PM
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PM10-FIL	filterable PM_{10}
PM10-PRI	primary PM_{10}
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM25-FIL	filterable $PM_{2.5}$
PM25-PRI	primary $PM_{2.5}$
POTWs	public owned treatment works
ppm	parts per million
psi	pounds per square inch
QA	quality assurance
QAPP	Quality Assurance Project Plan
RPO	Regional Planning Organization
RVP	Reid vapor pressure
SCC	Source Classification Code
SPDPRO	speed profile
SPDREF	speed cross reference
SI	Site (NIF 3.0) table
SIC	Standard Industrial Classification
SIP	State Implementation Plan
S/L	State and Local
SMOKE	Sparse Matrix Operator Kernel Emissions
SO_2	sulfur dioxide
TAME	tertiary amyl methyl ether
TR	Transmittal (NIF 3.0) table
TSD	technical support document
U.S.	United States
VISTAS	Visibility Improvement State and Tribal Association of the Southeast
VMT	vehicle miles traveled
VOC	volatile organic compound
WRAP	Western Regional Air Partnership

CHAPTER I – INTRODUCTION

A. What is the purpose of this TSD?

This technical support document (TSD) explains the data sources, methods, and results for preparing Version 3 of the 2002 base year criteria air pollutant (CAP) and ammonia (NH_3) emissions inventories for point, area, onroad, nonroad, and biogenic sources for the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Regional Planning Organization (RPO). The MANE-VU region includes Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Local air planning agencies include Philadelphia and Allegheny County, Pennsylvania. The region also includes the Penobscot Tribe of Maine Indian Nation (Tribal code 018) and the St. Regis Band of Mohawk Indians of New York (Tribal code 007). However, these tribal authorities did not provide any data for the 2002 MANE-VU inventory. MANE-VU will use these inventories to support air quality modeling, State Implementation Plan (SIP) development, and implementation activities for the regional haze rule and fine particulate matter (PM) and ozone National Ambient Air Quality Standards (NAAQS).

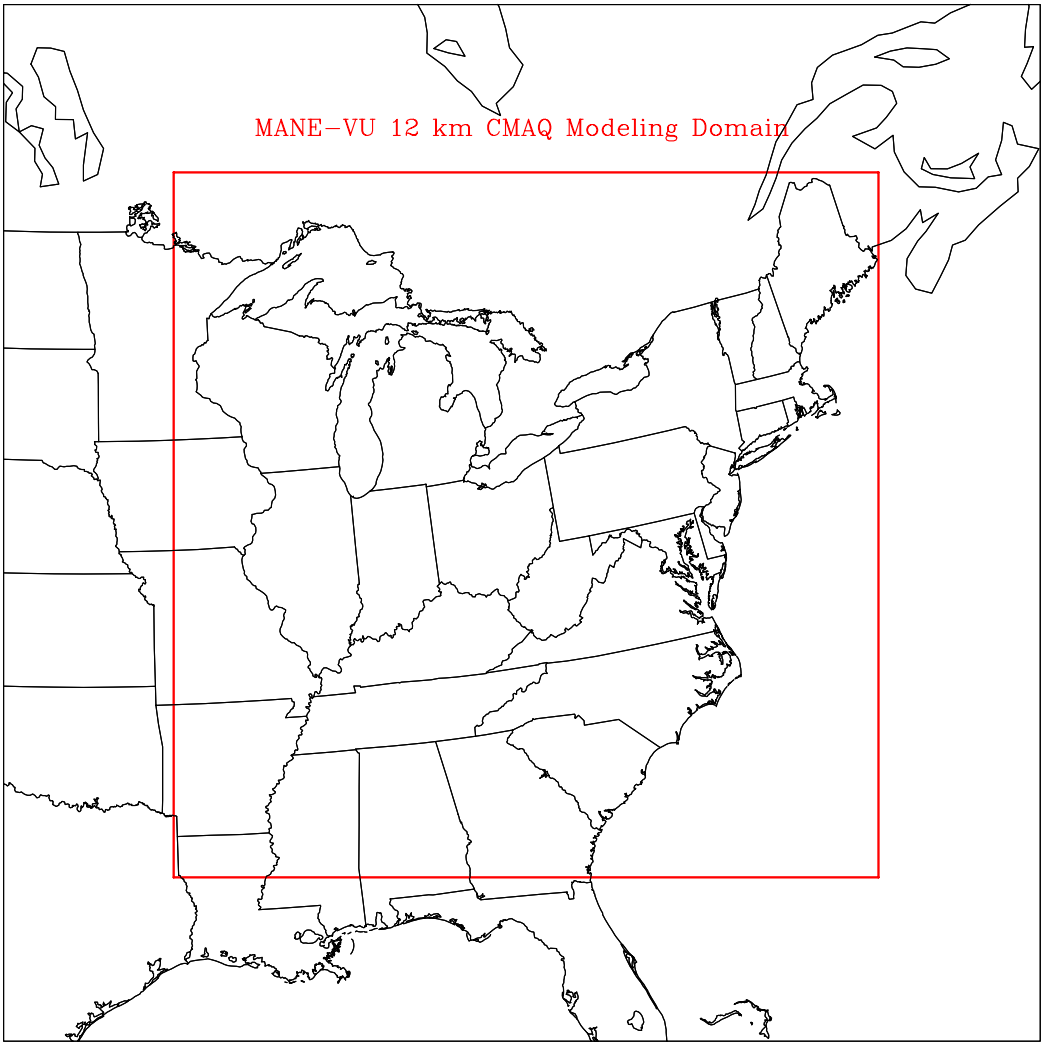
The inventories and supporting data prepared include the following:

(1) Comprehensive, county-level, mass emissions and modeling inventories for of 2002 emissions for CAPs and NH_3 for the State and Local (S/L) agencies included in the MANE-VU region;
(2) The temporal, speciation, and spatial allocation profiles for the MANE-VU region inventories;
(3) Inventories for wildfires, prescribed burning, and agricultural field burning for the southeastern provinces of Canada; and
(4) Inventories for other RPOs, Canada, and Mexico.

The mass emissions inventory files were prepared in the National Emissions Inventory (NEI) Input Format Version 3.0 (NIF 3.0). The modeling inventory files were prepared in Sparse Matrix Operator Kernel Emissions/Inventory Data Analyzer (SMOKE/IDA) format. Ancillary files (holding spatial, temporal, and speciation profile data) were prepared in SMOKE/IDA compatible format. Figure 1 shows the Models-3 Community Multiscale Air Quality Modeling System (CMAQ) modeling domain for the MANE-VU region.

The inventories include annual emissions for sulfur dioxide (SO_2), oxides of nitrogen (NO_x), volatile organic compounds (VOC), carbon monoxide (CO), NH_3, and particles with an aerodynamic diameter less than or equal to a nominal 10 and 2.5 micrometers (i.e., primary PM_{10} and $PM_{2.5}$). The inventories included summer day, winter day, and average day emissions. However, not all agencies included daily emissions in their inventories, and, for the agencies that did, the temporal basis for the daily emissions varied between agencies. The temporal profiles prepared for this project will be used to calculate daily emissions when not available in the inventory files.

Figure 1. MANE-VU 12-Kilometer CMAQ Modeling Domain



B. What are Versions 1, 2, and 3 of the 2002 MANE-VU Inventory?

Work on Version 1 of the 2002 MANE-VU inventory began in April 2004. The consolidated inventory for point, area, onroad, and nonroad sources was prepared by starting with the inventories that S/L agencies submitted to the United States (U.S.) Environmental Protection Agency (EPA) from May through July of 2004 as a requirement of the Consolidated Emissions Reporting Rule (CERR). The EPA's format and content quality assurance (QA) programs (and other QA checks not included in EPA's QA software) were run on each inventory to identify format and/or data content issues (EPA, 2004a). E.H. Pechan & Associates, Inc. (Pechan) worked with the MANE-VU S/L agencies and the staff of the Mid-Atlantic Regional Air Management Association (MARAMA) to resolve QA issues and augment the inventories to fill data gaps in accordance with the Quality Assurance Project Plan (QAPP) prepared for this project (MANE-VU, 2004a). MARAMA is the MANE-VU organization's employees, whereas

MANE-VU is the member S/L agencies plus MARAMA employees. MARAMA is one of three RPOs (in addition to Ozone Transport Commission (OTC) and North East States for Coordinated Air Use Management) supporting the MANE-VU effort.

A draft of the point and area source inventories and summary files were provided for stakeholder review during August 2004. Stakeholder comments were reviewed by the S/L agencies and revisions to the inventory files were made to the files to incorporate stakeholder comments as approved by each S/L agency. The inventories were finalized during December 2004 and the SMOKE input files were prepared and reviewed by the modelers during December 2004 and early January 2005. The final inventory and SMOKE input files were finalized during January 2005.

Work on Version 2 (covering the period from April through September 2005) involved incorporating revisions requested by some S/L agencies on the point, area, and onroad inventories. Work on Version 3 (covering the period from December 2005 through April 2006) included additional revisions to the point, area, and onroad inventories as requested by some states. Thus, the Version 3 inventory for point, area, and onroad sources were built upon Versions 1 and 2. This work also included development of the biogenics inventory. Version 3 of the nonroad inventory was completely redone due to changes that EPA made to the NONROAD2005 model.

C. How is this TSD organized?

Chapters II through V of this TSD present the general and State-specific methods and data sources used to develop Version 3 of MANE-VU's 2002 inventory for point, area, nonroad, and onroad sources. Chapter VI presents the methods, data sources, and model used to develop the biogenics inventory. Chapter VII documents the temporal allocation, speciation, and spatial allocation modeling input files used for Version 3 of MANE-VU's 2002 inventory for all sectors. Chapter VIII describes the non-MANE-VU region inventory data used for MANE-VU BaseB Modeling. References for the TSD are provided in Chapter IX. Appendices A and B provide the QA Summary Report files prepared during development of the State-specific inventories for point and area sources, respectively. Appendices A and B also provide tables that identify for each S/L agency, the Version 3 data sources, emission type period, pollutant, and the number of counties by source classification code (SCC). For the nonroad inventory, Appendix C provides the final county, monthly National Mobile Inventory Model (NMIM) inputs provided or confirmed by the States for Reid vapor pressure (RVP), weight percent oxygen, and gasoline sulfur.

CHAPTER II – POINT SOURCES

A. General Methods for all State and Local Agencies

1. What Data Sources Were Used?

Version 3 of the 2002 MANE-VU point source inventory is based primarily on Version 1 with some state-specific revisions incorporated into Versions 2 and 3. Version 1 was developed using the inventories that S/L agencies submitted to EPA from May through July of 2004 as a requirement of the CERR. All 12 State agencies submitted point source inventories to EPA. In addition, Allegheny and Philadelphia Counties in Pennsylvania each submitted their own point source inventories to EPA. The EPA performed some limited QA review of the S/L inventories to identify format, referential integrity, and duplicate record issues. The EPA revised the inventories to address these issues and made the files available to the S/L agencies on August 6, 2004. These inventory files were used as the starting point for Version 1 of the MANE-VU inventory. These inventory files were obtained from EPA, consolidated into a single data set, subjected to extensive QA review, revised (as approved by the MANE-VU S/L agencies) to address QA issues and to fill data gaps identified while preparing Version 1. Subsequently, the following agencies provided revisions to their point source inventories:

- Version 2 – Connecticut, Delaware, and Maryland
- Version 3 – Massachusetts, New York, and Rhode Island

The revisions that these states provided for Versions 2 and 3 are discussed in the "State-Specific Methods" section of this chapter.

In order to track the origin of data, the temporal period of emissions, and to facilitate generation of emission summaries, the following NIF plus fields were added to the Transmittal (TR), Site (SI), Emission Unit (EU), Emission Release Point (ER), Emission Process (EP), Emission Period (PE), Emission (EM), and Control Equipment (CE) tables:

- Data Source Codes:

Code	Description
S	State agency-supplied data.
L	Local agency-supplied data to incorporate S/L comments for individual records.
P	NH_3 emissions from MANE-VU inventory for cement kilns.
AUG-A	PM Augmentation: ad-hoc change.
AUG-C	PM Augmentation: standard augmentation method.
AUG-O	PM Augmentation: set PMxx-FIL = PMxx-PRI for SCCs starting with 10 (external fuel combustion) and 20 (internal fuel combustion). Note: emission factors and particle-size data for estimating condensible emissions for fuel combustion SCCs starting with 30 were not available; therefore, condensible emissions were not estimated for these processes

if an agency provided filterable and not primary emissions for these processes. In other words, the primary emissions were assumed to equal the filterable emissions.

AUG-Z PM Augmentation: automated fill-in of zero values where all PM for a particular process is zero.

- Revision Date: This field indicates the month and year during which the last revision was made to a record.

- State Federal Information Processing Standard (FIPS): This field indicates the state FIPS code of the submittal.

- County FIPS: This field indicates the county FIPS code of the submittal.

The following NIF plus fields were added to the EM table:

- Emission Ton Value: This field indicates the values of the emissions in tons. This field was used to prepare summaries of emissions on a consistent EU basis.

- Emission Type Period: This field indicates the period of the Emission Type – either ANNUAL or NONANNUAL. This field was used to prepare summaries of annual emissions.

- CAP_HAP: This field identifies records for CAP versus records for hazardous air pollutants (HAPs). For the MANE-VU inventory, the flag is CAP for all records.

- Year: This field indicates the year of the data; for this inventory, it is 2002.

Note that the QAPP for Version 1 includes more data source codes than were used in Version 3 of the point source inventory. The data source codes listed above are the codes used in Version 3. The exception is for Rhode Island, who requested that their Version 2 inventory be replaced with its inventory included in the final 2002 NEI prepared by EPA. Thus, for Rhode Island, it was agreed to maintain the data source codes used in the NEI in Version 3 of the MANE-VU inventory. The data source codes for Rhode Island's point source inventory are explained under the state-specific section for Rhode Island.

2. What Quality Assurance Steps Were Performed?

A QAPP was prepared and approved by MANE-VU/MARAMA and the EPA Regional Office prior to initiating work on Version 1 of the inventory (MANE-VU, 2004a). This QAPP was followed during preparation of all three versions of the inventory. This section provides an overview of the QA checks completed on each version of the inventory. The QA process for each S/L inventory involved the following steps:

- Conduct QA checks on each S/L inventory;
- Prepare a QA Summary Report for submittal to the agency for review;

- Revise the inventory to resolve QA issues as directed by the agency;
- Repeat the QA checks on the revised inventory to verify that the corrections were completed;
- Perform augmentation to correct for missing data; and
- Repeat the QA checks to verify that the augmentation was completed correctly.

a. QA checks for S/L agency inventories

The following discusses the QA diagnoses that were run on the consolidated point source inventory data set. For each S/L agency, a "QA Summary Report" was prepared for each QA check in an Excel Workbook file. The results of each QA check was summarized in a separate spreadsheet and submitted to the S/L agency for review and resolution. The agencies provided corrections to the data in the Excel files or via e-mail and the inventory was updated with the corrections.

i. Continuous Emissions Monitoring (CEM) Analysis

The goal of this analysis was to compare annual NO_x and SO_2 emissions that were measured with CEM systems and reported to EPA to the annual NO_x and SO_2 emissions reported in the S/L inventories. Facilities report hourly CEM data to EPA for units that are subject to CEM reporting requirements of the NO_x SIP Call rule and Title IV of the Clean Air Act (CAA). Thus, hourly CEM emissions were summed to the annual level and compared to the annual emissions in the S/L inventories. If the S/L agencies agreed, the CEM hourly emissions would be used to support air quality modeling to accurately reflect the temporal distribution of emissions from CEM units during 2002. Since some of the states require facilities to certify the emissions they report for inclusion in the inventory, the agencies needed proof that the emissions in the CEM inventory compared well with the emissions in the S/L inventory.

The 2002 CEM inventory containing hourly NO_x and SO_2 emissions and heat input data were downloaded from the EPA/Clean Air Markets Division's (CAMD) web site (www.epa.gov/airmarkets) on July 8, 2004 (CAMD, 2004). The data were provided by quarter and state resulting in 48 separate files for the 12 states in the MANE-VU region. For each state, the hourly emissions were summed to the annual level by facility and EU.

The first stage in the CEM analysis involved preparing a crosswalk file to match facilities and units in the CEM inventory to facilities and units in the S/L inventories. In the CEM inventory, the Office of Regulatory Information Systems (ORIS) identification (ID) code identifies unique facilities and the unit ID identifies unique boilers and internal combustion engines (i.e., turbines and reciprocating engines). In the S/L inventories, the state and county FIPS and state facility ID together identify unique facilities and the EU ID identifies unique boilers or internal combustion engines. However, in some of the S/L inventories, the emissions for multiple EUs were summed and reported under the same EU ID. Thus, an Excel Workbook was sent to the S/L agencies that contained an initial crosswalk with the ORIS ID and unit ID in the CEM inventory matched to the state and county FIPS, state facility ID, and EU ID in the S/L inventory. Agencies were asked to confirm/correct/supplement the information in the crosswalk. The initial crosswalk also contained annual emissions summed from the hourly CEM emissions and flags that indicated if

CEM units were subject to reporting requirements under the NO_x SIP Call and/or Title IV of the CAA. It should be noted that the initial matching of the IDs in both inventories was based on previous crosswalks that had been developed for the 1999 NEI and in-house information compiled by Pechan. The matching at the facility level was nearly complete; however, S/L agency assistance was needed to match most of CEM units to EUs in the S/L inventories.

The crosswalk was updated with corrections to facility and CEM unit-to-EU matches, and with new matches provided by the S/L agencies. The matching of each CEM unit to an EU was still incomplete. Consequently, the comparison of annual emissions was performed at the facility level.

The second stage in the CEM analysis was to prepare an Excel Workbook file for each S/L agency that compared the annual emissions summed from the hourly CEM inventory to the annual emissions reported in the S/L inventory. The file included three spreadsheets that compared annual emissions at the facility level, listed the facilities in the CEM inventory that could not be matched to the facilities in the S/L inventory, and listed the facilities in the S/L inventory identified as an electricity generating unit (EGU) that could not be matched to a facility in the CEM inventory. The Excel files were sent to the S/L agencies for review. The S/L agencies then indicated if they did or did not want to use the hourly CEM inventory.

The facility-level comparison of CEM to emission inventory NO_x and SO_2 emissions found that for some facilities, the annual emissions from the S/L inventory exceeded the CEM annual emissions because the facility in the S/L inventory contained more than just CEM units. This condition was determined to be acceptable. However, S/L agencies were asked to review data for facilities where the CEM emissions were higher than the emissions summed from the S/L inventory. For these cases, CEM emissions may be higher than those reported in a S/L inventory due to methods EPA uses for using artificially high default values to fill in hourly CEM data when not reported or when a CEM unit was not working properly.

After reviewing the comparison of the CEM to S/L inventory emissions, New York and Vermont elected to use the 2002 CEM inventory containing hourly NO_x and SO_2 emissions for all facilities. Maryland; New Hampshire; and Allegheny County, Pennsylvania elected to use the 2002 CEM data for some but not all of the facilities within their jurisdiction. The Excel Workbook files containing the comparison of CEM to S/L inventories provides a spreadsheet identifying the facilities for which these S/L agencies elected to use the CEM inventory.

Subsequent to the completion of this analysis, it was determined that the structure of the EPA/CAMD file would not be compatible with the format of the SMOKE input file. The database structure did not affect the annual emissions summed from the hourly CEM emissions used in the comparison to S/L inventory data. For each of the S/L agencies that elected to use the 2002 CEM data, CAMD agreed to provide separate database files for each state with a structure compatible with the SMOKE input file format. Pechan then used the crosswalk to add to the CEM inventory files the state and county FIPS, state facility ID, and EU ID (if the crosswalk contains a CEM unit to EU match) to the hourly CEM database files provided by CAMD. The modified database was then used to create the SMOKE input files for these states.

Note that Delaware requested that the 2002 CEM inventory for its facilities not be used for regional haze modeling. However, if the consolidated point source inventory prepared under this project is used to support ozone episode modeling, Delaware may consider using the CEM hourly data for the episodes modeled. Therefore, the 2002 CEM inventory was also processed for Delaware's facilities.

ii. PM Emissions Consistency and Completeness Review

The following consistency checks were performed at the EM table data key level (for annual emissions) to compare PM emissions:

- If a process was associated with a PM emission record, but was missing one or more of the following (as appropriate for the SCC [i.e., condensible PM (PM-CON) is associated with fuel combustion only]): filterable PM_{10} (PM10-FIL), primary PM_{10} (PM10-PRI), filterable $PM_{2.5}$ (PM25-FIL), primary $PM_{2.5}$ (PM25-PRI), or PM-CON, the record was flagged for review.

- The following equations were used to determine consistency:

  PM10-FIL + PM-CON = PM10-PRI
  PM25-FIL + PM-CON = PM25-PRI
  PM-FIL + PM-CON = PM-PRI

- The following comparisons were applied to determine consistency:

  PM10-PRI >= PM10-FIL
  PM25-PRI >= PM25-FIL
  PM10-PRI >= PM-CON
  PM25-PRI >= PM-CON
  PM10-FIL >= PM25-FIL
  PM10-PRI >= PM25-PRI
  PM-PRI >= PM10-PRI
  PM-PRI >= PM25-PRI
  PM-FIL >= PM10-FIL
  PM-FIL >= PM25-FIL

If the data failed one of these checks it was diagnosed as an error, summarized in an Excel Workbook file, and provided to the S/L agency for corrections. If a S/L agency did not provide corrections to these errors, the errors were corrected or filled in according to the augmentation procedures.

iii. ERP Coordinate Review

Location coordinates for point sources were evaluated using geographic information system (GIS) mapping to determine if the coordinates were within 0.5-kilometers of the boundary of the county in which the source was located. If not, the S/L agency was asked to review the coordinates and provide corrections to either the coordinates or the state and county FIPS codes. The 0.5-kilometer test resulted in a large number of ERPs for review by the agencies. Therefore, to assist S/L agencies in prioritizing their review of coordinates, ERP records with coordinates located more than 0.5, 1, 2, 3, 5, 7, and 10 or more kilometers from their county boundary, and coordinates that mapped outside of their state boundary were identified. Annual emissions summed to the ERP level were included in the QA Summary Report to identify records with zero emissions for all pollutants and to identify the highest emitting stacks. The QA Summary Report was provided to the S/L agency for review and corrections.

iv. ERP Parameter Review

The EPA's QA guidance for diagnosing ERP issues for the point source NEI (EPA, 2004b) was applied to identify QA issues in the S/L point source inventories. The QA guidance involved diagnosing the correct assignment of the ERP type (i.e., stack or fugitive), parameters with zero values, parameters not within the range of values specified in the EPA's QA procedures, and consistency checks (i.e., comparing calculated values against the values reported in the inventory). In many cases errors were caused by missing or zero values. In other cases, out-of-range errors were caused by unit conversion issues (e.g., stack parameters were in ft, ft/sec, cu ft/sec, or degrees Fahrenheit). The QA issues were summarized in a separate QA Summary Report for each agency and each agency was asked to provide corrections. If an agency did not provide corrections for out-of-range or missing values, the data were corrected or filled in according to the ERP augmentation procedures.

v. Control Device Type and Control Efficiency Data Review

The CE codes in the "Primary Device Type Code" and "Secondary Device Type Code" fields were reviewed to identify invalid codes (i.e., codes that did not exist in the NIF 3.0 reference table) and missing codes (e.g., records with a null or uncontrolled code of 000 but with control efficiency data).

QA review of control efficiency data involved diagnosis of two types of errors. First, records were reviewed to identify control efficiency values that were reported as a decimal rather than as a percent value. Records with control efficiencies with decimal values were flagged as a potential error (although not necessarily an error, since the real control efficiency may be less than 1%).

The second check identified records where 100% control was reported in the CE table, but the emissions in the EM table were greater than zero and the rule effectiveness value in the EM table was null, zero, or 100% (implying 100% control of emissions). Because many agencies did not populate the rule effectiveness field or a default value of zero was assigned, records with null or zero rule effectiveness values were included where the CE was 100% and emissions were greater

than zero. The records that met these criteria were summarized in a QA Summary Report for review and correction, if necessary, by the S/L agency.

vi. Start and End Date Checks

QA review was conducted to identify start date and end date values in the PE and EM tables to confirm consistency with the inventory year in the TR table, and to confirm that the end date reported was greater than the start date reported. This check did not identify any QA issues in the three versions of the inventory.

vii. Annual and Daily Emissions Comparison

The following QA checks were conducted to identify potential errors associated with the incorrect reporting of daily and/or annual emissions:

- Any "DAILY" type record that is greater than its associated "ANNUAL".

A review of the daily vs. annual comparison revealed that in many cases, the daily value was nonzero (but very small), but the annual value was zero. This was generally a result of rounding in a S/L agency's original emissions database, where annual records were recorded in tons per year to a set number of decimal places, while the corresponding daily records were recorded in pounds per year to a set number of decimal places. The annual record rounds to zero in the original database, while the daily value remains non-zero. A tolerance check reveals the following (comparison in tons):

- Difference Tolerance (daily - annual)> 0
- Difference Tolerance (daily - annual)> .000001
- Difference Tolerance (daily - annual)> .00001
- Difference Tolerance (daily - annual)> .0001
- Difference Tolerance (daily - annual)> .001
- Difference Tolerance (daily - annual)> .01

For Version 1, the affected S/L agencies were as follows:

- Connecticut (09) 11 records
- Maine (23) 4 records
- Maryland (24) 72 records
- New Jersey (34) 2935 records
- Pennsylvania Allegheny County (42003) 17 records
- Pennsylvania Philadelphia County (42101) 146 records
- Rhode Island (44) 1 record

Rhode Island, Philadelphia, and New Jersey responded that the dailies that were greater than the annuals could be deleted. Maryland determined that they should be kept since the difference values were small. The records for the remaining S/L agencies were kept. This QA issue only occurred during processing of Version 1.

b. Responses from S/L agencies

Each S/L agency reviewed its "QA Summary Report" files and the S/L agency provided direction for correcting QA issues either in the QA Summary Report Excel files or via e-mail. The inventory was then revised to incorporate responses from each agency and the QA checks were run again to verify that the QA issues were addressed. If an agency responded to a QA issue by e-mail, the direction was recorded in the "QA Summary Report" file. The "QA Summary Report" file for each S/L agency was updated to document QA issues and resolution of issues associated with developing Versions 2 and 3 of the point source inventory. The "QA Summary Report" files for Version 3 are provided with this report in a separate zip file. The files in the zip file are organized in separate folders for each S/L agency. Each folder includes a separate Excel workbook file for the following QA checks if a QA issue existed:

- PM Augmentation QA Summary;
- Stack Parameter QA Summary;
- Stack Coordinates QA Summary;
- Stack Parameter and Coordinate Augmentation Summary;
- CEM Comparisons and Revisions; and
- Control Device/Efficiency Summary.

c. Gap Filling and Augmentation

The following discusses the augmentation procedures that were used to fill in missing data that were not supplied by the S/L agencies. The S/L agencies approved the procedures before they were applied. These procedures were applied after revising the inventory to address QA issues as directed by each S/L agency.

i. MANE-VU-Sponsored Inventories

MANE-VU prepared a 2002 NH_3 emissions inventory for cement kilns for SCCs 30500606 and 30500706 located in four MANE-VU states. Maryland chose to add one new facility 24013/0012 (state and county FIPS code/facility ID). New York chose to add the following three sites 36001/4010300016, 36001/4012400001, and 36111/3514800084. Maine and Pennsylvania chose not to add emissions from this inventory. The data for Maryland and New York were added to Version 1. These data were not changed in Versions 2 and 3 of the point source inventory.

ii. PM Augmentation

The PM augmentations process gap-fills missing PM pollutant complements. For example, if a S/L agency provided only PM10-PRI pollutants the PM augmentation process filled in the PM25-PRI pollutants. The steps in the PM augmentation process were as follows:

- Step 1: Initial QA and remediation of S/L provided PM pollutants;

- Step 2: Development of PM factor ratios based on factors from the Factor Information and REtrieval (FIRE) Data System, version 6.2, and the PM Calculator (EPA, 2003a; EPA, 2004c);
- Step 3: Implementation of the ratios developed in step 2.; and
- Step 4: Presentation of PM augmentation results to S/L agencies for review and comment.

An Access database (named *Reference Tables for PM Augmentation*) accompanies this document. This database contains the SCC Control Device Ratio table, the Emission Factors table, and Emission Factors Crosstab table discussed in Step 2. The Emission Factors Crosstab table contains the ratios developed from the Emission Factors table. The Emission Factors table contains detailed information on the emission factors used to develop the ratios. The PM Calculator ratio table can be provided upon request – it contains all possible combinations for SCC and Control Device types that are available in the PM Calculator. Ratios from the PM calculator were developed using a standard input of 100 TONS of uncontrolled PM-FIL emissions.

1. Initial QA and Remediation of PM Pollutants

S/L agencies were initially presented with files that detailed potential inconsistencies and missing information in their PM pollutant inventory. Inconsistencies in PM pollutants include the following:

- PM-PRI less than PM10-PRI, PM25-PRI, PM10-FIL, PM25-FIL, or PM-CON;
- PM-FIL less than PM10-FIL, PM25-FIL;
- PM10-PRI less than PM25-PRI, PM10-FIL, PM25-FIL or PM-CON;
- PM10-FIL less than PM25-FIL;
- PM25-PRI less than PM25-FIL or PM-CON;
- The sum of PM10-FIL and PM-CON not equal to PM10-PRI; and
- The sum of PM25-FIL and PM-CON not equal to PM25-PRI.

Potential missing information was summarized in a table which detailed the variety of cases provided by each S/L agency. For example, an S/L agency might have provided PM10-FIL and PM25-FIL for some processes, but provided only PM10-FIL for other processes.

S/L agencies were asked to review this information and provide corrections where possible. In general, corrections (or general directions) were provided in the case of the potential inconsistency issues. An example of a general direction provided by a S/L agency was to remove PM25-FIL where greater than PM10-FIL because the PM10-FIL was (in their particular case) known to be more reliable. In other cases, the agency-provided specific process-level pollutant corrections. If specific direction was not provided by the agency, zero PM pollutants were generally removed, or complements were set equal to the higher number.

2. Development of PM Factor Ratio

The primary deliverable of this step of the process was the development of a table keyed by SCC, primary control device, and secondary control device. This table is called the SCC Control Device Ratios table (see Table II-1). This table was filled according to the following steps:

- Ratios (both condensible and noncondensible) were added from FIRE for SCCs starting with 10* (external fuel combustion) and 20* (internal fuel combustion) where there was a direct match between the provided SCC, and primary and secondary control devices.

- Ratios (non-condensable) were added from the PM Calculator for SCCs starting with 10* and 20* where there was not a direct match between the provided SCC, and primary and secondary control devices. Condensible ratios were added from the PM Calculator based on the uncontrolled SCC for these SCCs. In some cases, it was necessary to map the SCC and control devices to the PM calculator to find a match for the noncondensible ratios. In other cases, it was necessary to map the SCC to FIRE to find a match for condensible ratios.

- For natural gas, process gas, and liquified petroleum gas (LPG) SCCs starting with 10* and 20*, it was assumed (based on FIRE emission factors) that the PM-PRI/PM10-PRI/PM25-PRI ratio was equal to 1. It was also assumed that the PM-FIL/PM10- FIL /PM25- FIL was equal to 1. Condensible ratios were calculated from uncontrolled FIRE emission factors for these SCCs. In some cases it was necessary to map the SCC to FIRE to find a match for condensible ratios.

- Ratios for SCCs not like 10* and 20* were obtained from the PM Calculator. It was assumed that the condensible component was zero.

Table II-1. Description of the Field Names and Descriptions for the SCC Control Device Ratios Table

Field Name	Field Description
PM Calculator	A “Yes” in this field indicates that at least some of the information was retrieved from the PM Calculator
FIRE	A “Yes” in this field indicates that at least some of the information was retrieved from the Emission Factors table. A “Condensible Ratios” in this field indicates that the condensible ratios factors were retrieved from this table.
Other	A field to indicate other sources as necessary.
SCC	Source category code from the S/L agency-provided data.
SCC_DESC	Description of source category code from the S/L agency-provided data.
maptoSCC	This field equals SCC unless the SCC provided was not found in the appropriate source table. In that case, the SCC was mapped using the closest available appropriate mapping choice.
maptoSCC_DESC	Description of the maptoSCC.
mapSCCNote	Any notes related to the mapping of the SCC. A “Yes” in this field indicates that the SCC was mapped.
PD	Primary device type from the S/L agency provided data.
PD_DESC	Description of the primary device (PD).
maptoPD	This field equals PD unless the PD provided was not found in the appropriate source table. In that case, the PD was mapped using the closest available appropriate mapping choice.
maptoPD_DESC	Description of the maptoPD.
mapPDNote	Any notes related to the mapping of the PD. A “Yes” in this field indicates that the PD was mapped.
SD	Secondary device type from the S/L agency provided data.
SD_DESC	Description of the secondary device (SD).
maptoSD	This field equals SD unless the SD provided was not found in the appropriate source table. In that case, the SD was mapped using the closest available appropriate mapping choice.
maptoSD_DESC	Description of the maptoSD.
mapSDNote	Any notes related to the mapping of the SD. A “Yes” in this field indicates that the SD was mapped.
PM-FIL/PM10-FIL	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM-FIL/PM25-FIL	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM-FIL/PM-PRI	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM-PRI/PM10-PRI	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM-PRI/PM25-PRI	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM10-FIL/PM25-FIL	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM10-PRI/PM25-PRI	This field and the following are ratios calculated from emission factors found either in FIRE or the PM calculator.
PM-CON/PM10-FIL	Condensible ratios were calculate from FIRE if available for 10* and 20* SCCs. If condensible ratios were not found in FIRE for 10* and 20* these ratios were set to zero.
PM-CON/PM10-PRI	Condensible ratios were calculate from FIRE if available for 10* and 20* SCCs. If condensible ratios were not found in FIRE for 10* and 20* these ratios were set to zero.
PM-CON/PM25-FIL	Condensible ratios were calculate from FIRE if available for 10* and 20* SCCs. If condensible ratios were not found in FIRE for 10* and 20* these ratios were set to zero.
PM-CON/PM25-PRI	Condensible ratios were calculate from FIRE if available for 10* and 20* SCCs. If condensible ratios were not found in FIRE for 10* and 20* these ratios were set to zero.
PM-CON/PM-FIL	Condensible ratios were calculate from FIRE if available for 10* and 20* SCCs. If condensible ratios were not found in FIRE for 10* and 20* these ratios were set to zero.
PM-CON/PM-PRI	Condensible ratios were calculate from FIRE if available for 10* and 20* SCCs. If condensible ratios were not found in FIRE for 10* and 20* these ratios were set to zero.
RPO Specific Note	Indicates SCC and control device combinations are in the RPO inventory.
Additional Notes	Any notes regarding assumptions about ratios.

3. Implementation of the QA Ratios

In order to calculate the additional PM pollutants based on the SCC Control Device ratio table developed in the above step, a crosstab table was created from the EM table based on the following fields:

- State FIPS
- County FIPS
- Tribal Code
- EU ID
- Process ID
- Start Date
- End Date
- Emission Type
- SCC
- Primary Device Type
- Secondary Device Type

The primary and secondary device type fields were added based on information from the CE table. If CE information was not available these fields were defaulted to 000 ("UNCONTROLLED"). In the few cases where there was a conflict between the control devices reported for the same process for PM pollutants (e.g., a PM10-PRI is listed as controlled, but PM-PRI did not have control information), the control device type was selected based on the controlled pollutant.

In addition to the fields listed above, the crosstab included the PM emission amounts for the particular process and a field that indicated whether those emissions existed in the inventory. These fields were as follows:

- PM_PRI
- PM_FIL
- PM10_PRI
- PM10_FIL
- PM25_PRI
- PM25_FIL
- PM_CON
- PM_PRI_EXISTS
- PM_FIL_EXISTS
- PM10_PRI_EXISTS
- PM10_FIL_EXISTS
- PM25_PRI_EXISTS
- PM25_FIL_EXISTS
- PM_CON_EXISTS

The emission values were in the PM_PRI, PM_FIL, PM10_PRI, PM10_FIL, PM25_PRI, PM25_FIL, PM_CON fields. The _EXISTS field indicated whether the pollutant was provided by the S/L agency. A zero indicated that the pollutant was not provided; a number greater than zero (usually one) indicates that it was provided by the S/L agency.

Prior to the development of this crosstab, the EM table was filled in as much as possible using basic assumptions. For example, if the S/L agency provided zero emissions for some but not all forms of PM for a particular process, it was assumed that all forms of PM for that process were zero and they were filled in accordingly. Since that assumption was that for non 10* and 20* SCCs, the condensible value was zero – that would lead to PM10-FIL = PM10-PRI and PM25-FIL = PM25-PRI and PM-FIL = PM-PRI. Given that assumption, values for these pollutants were also filled in. After this data insertion, a subset of the crosstab was created. This subset only contained processes that required additional augmentation. The SCC Control Device Type ratio table was based on only those SCC and control device types that required augmentation.

The next step was to fill in the missing information in this crosstab using the information found in the SCC Control Device Ratio table.

In calculating PM complement pollutants, priority was given to calculating –PRI and –CON pollutants. FIL pollutants were only calculated if necessary to calculate other pollutants or if it was a by-product of this calculation.

In augmenting the PM pollutants, the non 10* and 20* SCCs were augmented first, with order given to augmenting based on PM_{10} where available, $PM_{2.5}$ where available, and then PM.

Augmenting the PM pollutants for the 10* and 20* SCCs is more complicated, but the basic approach was to augment based on PM_{10} (FIL or PRI) where available, $PM_{2.5}$ (FIL or PRI) where available, and then PM (FIL or PRI) if PM_{10} or $PM_{2.5}$ variations were not available. Where both PM_{10} (FIL or PRI) and $PM_{2.5}$ (FIL or PRI) variations were both available, the calculation for PM-CON was generally driven from the PM_{10} number and the complements as necessary were back calculated. Where a PRI emission factor ratio was required and was not available, the FIL emission factor ratio was used.

After completing the calculations, the data was QA checked to ensure that the calculations resulted in consistent values for the PM complement. On a few occasions, the mix of ratio value and the pollutants and values provided by the S/L agency resulted in negative values when FIL was back-calculated. In this case the negative FIL value was set to zero and the PRI value was readjusted. In a few cases the appropriate combination of ratios, SCC, and control efficiencies were not available to calculate the PM10-PRI and PM25-PRI values. In these cases, PM10-PRI and PM25-PRI were set equal. The resultant PM table information was appended to the EM table.

Note: The augmentation procedures resulted in some high condensible ratios that were calculated for some SCC control device type combinations. In most cases, these high condensible ratios were the result of the back calculation of PM-CON from PMxx-PRI records.

Since the state had already provided the PMxx-PRI records, these PM-CON values were not added.

The data source code field was used to identify records that were added to the inventory to complete the set of PM10-PRI and PM25-PRI emissions.

iii. ERP Coordinates

If an S/L agency did not provide corrections for ERP coordinates that map more than 5 km outside of the county boundary, or provide coordinates for ERP records that did not have any coordinates in the S/L inventory, the following procedures were applied to replace the coordinates:

- Coordinates for other ERPs at the same facility, if available, that map within the county;
- Coordinates for the centroid of the zip code for a facility if a valid zip code was provided or could be obtained from the agency if it is not valid; or
- County centroid coordinates.

The zip code was taken from the SI NIF 3.0 table. The zip code was compared to a reference table of valid zip codes to verify that it was an active zip code and existed in the state and county reported in the inventory. If a valid zip code for a facility could not be identified, the centroid for the facility's county was used as a last resort. In some cases, the S/L agency provided confirmation that the S/L coordinates were correct even if the analysis indicated that the coordinates were outside of the county. These coordinates were not changed. Additionally, all coordinates were converted to latitude/longitude measurements.

iv. ERP Parameters

If valid ERP parameters were not provided by the S/L agency, the ERP augmentation procedures that EPA developed for the 2002 point source NEI were applied to the MANE-VU inventory (EPA, 2004b). It has been determined that the augmentation procedures in this document regarding SCC-specific ERP types and temperatures may be difficult to resolve. When this situation occurs, preference was given to the S/L agency -supplied ERP type and SCC. For example, the procedures do not account for cases where an EU has two processes with one defined as a stack source and the other as a fugitive source. Therefore, the S/L-supplied ERP type was used when this situation occurred. If the ERP type was null, and information was not available from the S/L agency, the stack height information was used as a guide. If stack height information was available, the ERP was treated as a stack, if stack height information was not available, the ERP was treated as a fugitive. An additional modification to the augmentation procedure was also implemented. Since in many cases null values were filled in with zeros by S/L local databases when comparing out-of-range velocities and flows (after it was determined that the stack and diameter information was correct) – null and zero values were treated in the same manner to prevent inappropriate replacement of stack parameter values. Additionally, stack parameter values were rounded to 1 decimal place when comparing with range values (just

for the purposes of comparison) to prevent replacement of S/L parameter values based on negligible decimal differences.

v. Control Device Type and Control Efficiency Data

Control efficiencies that were 100% and rule effectiveness of 100% with non-zero emissions were diagnosed as potential errors and sent to the S/L agencies. Where possible these data were updated with S/L data corrections. Decimal control efficiencies were also diagnosed and sent to the S/L agencies. A decimal control efficiency was usually a sign that a control efficiency had not been entered as a percentage as is required by NIF 3.0. Where possible these data was updated with S/L data corrections.

c. QA Review of Final Inventory

Final QA checks were run on the revised point source inventory data set to ensure that all corrections provided by the S/L agencies were incorporated into the S/L inventories and that there were no remaining QA issues that could be addressed during the duration of the project. The EPA QA program was run on the inventory and the QA output was reviewed to verify that all QA issues that could be addressed were resolved. The QA output file was provided in an Access database along with Version 3 of the inventory.

3. Version 3 Emissions Summary

Table II-2 presents a State-level summary of the annual point source emissions in Version 3 of the 2002 MANE-VU inventory. Note that PM10-PRI and PM25-PRI emissions are included in the inventory for all SCCs for which S/L agencies reported any form of PM, PM_{10}, and/or $PM_{2.5}$ emissions. If an agency did not report PM10-PRI and/or PM25-PRI but reported PM-PRI, PM-FIL, PM-CON, PM10-FIL, and/or PM25-FIL, the PM augmentation procedures discussed in the TSD were applied to the form of PM emissions supplied by the agency to calculate emissions for the other forms of PM emissions. If an agency reported PM10-PRI and/or PM25-PRI emissions but not PM10-FIL, PM25-FIL, or PM-CON emissions, the agency's inventory was not augmented to calculate filterable or condensible emissions. Note that PM-CON is associated with only fuel combustion sources.

Table II-2. Version 3 2002 MANE-VU Point Source Emissions by State (Tons/Year)

State	CO	NH_3	NO_x	PM10-FIL	PM10-PRI	PM25-FIL	PM25-PRI	PM-CON	SO_2	VOC
Connecticut	4,053		12,923	738	1,617	0	1,283	389	15,988	4,907
Delaware	9,766	196	16,345	2,466	4,217	1,919	3,666	1,750	73,744	4,755
District of Columbia	248	4	780	91	161	54	132	68	963	69
Maine	17,005	845	19,939	4,535	7,289	2,567	5,787	2,753	23,711	5,319
Maryland	99,024	305	95,328	3,723	9,029	0	5,054	2,018	290,927	6,184
Massachusetts	21,262	1,463	47,086	2,776	5,852	997	4,161	2,984	101,049	8,263
New Hampshire	2,725	74	9,759	1,180	3,332	786	2,938	2,151	46,560	1,599
New Jersey	12,300		51,593	2,928	6,072	2,543	4,779	3	61,217	14,401
New York	66,427	1,861	118,978	1,808	10,392	1,965	7,080	210	294,729	11,456
Pennsylvania	121,524	1,388	297,379	18,044	40,587	6,038	20,116	5,065	995,175	37,323
Rhode Island	2,234	58	2,764	233	300	117	183	68	2,666	1,928
Vermont	1,078		787	130	304	97	267	2	905	1,097
MANE-VU	**357,645**	**6,194**	**673,660**	**38,654**	**89,150**	**17,083**	**55,447**	**17,462**	**1,907,634**	**97,300**

B. State-Specific Methods

For each of the MANE-VU states and two local agencies in Pennsylvania, this section identifies the temporal basis of the emissions included in Version 3 and discusses revisions incorporated into Version 3. In addition, this section also discusses the origin of each S/L agency's emissions included in Version 3. For each agency, a table is provided in Appendix A that lists the data source codes by SCC, emission type period, and pollutant. In addition, an electronic folder is provided for each S/L agency containing the QA Summary Reports prepared during Version 1 and other files documenting revisions included in Versions 2 and 3.

1. Connecticut

Connecticut's Version 3 point source inventory originates from Version 1 except for the following revisions that Connecticut provided for Version 2 and included in Version 3:

- Changed coordinates for AES Thames, Inc. in New London County to -72.3184, 41.4499 (FIPS code 09011, facility identifier 1544).

- Changed values for Hartford Steam (FIPS code 09003, facility identifier 3471), EU P0250, process 02 for summer daily values as follows: Changed actual throughput from 1934 E6FT3 to 1.934 E6FT3, CO summer daily emissions from 53.185 tons to 0.0532 tons, NO_x summer daily emissions from 255.288 tons to 0.1021 tons, and VOC summer daily emissions from 1.2569 tons to 0.0027 tons.

Table II-3 shows the emission type periods for which Connecticut provided emissions.

Table II-3. Connecticut 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20011201	20020228	27
NONANNUAL	20011201	20020228	29
NONANNUAL	20020601	20020831	27
NONANNUAL	20020601	20020831	29

Table A-1 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Connecticut provided the data for CO, NO_x, PM10-PRI, SO_2, and VOC. Connecticut did not provide any data for NH_3. Emissions for PM10-FIL, PM25-PRI, PM25-FIL, and PM-CON were calculated from the PM10-PRI emissions provided by Connecticut using the PM augmentation procedures.

2. Delaware

Delaware's Version 3 point source inventory originates from Version 1 except for some updates to ORIS Boiler IDs in the EU table that were incorporated into Version 2 and included in Version 3. Table II-4 shows the emission type periods for which Delaware provided emissions.

Table II-4. Delaware 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20020601	20020831	29

Table A-2 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Delaware provided the data for CO, NH_3, NO_x, SO_2, and VOC. Delaware also provided much of the PM emissions data but in some cases the PM augmentation procedures were applied to the PM data provided by Delaware to calculate emissions for other forms of PM (e.g., to estimate PM10-PRI from PM10-FIL, PM25-PRI from PM25-FIL, PM10-PRI and PM10-FIL from PM25-PRI and PM25-FIL).

3. District of Columbia

The District of Columbia's Version 3 point source inventory originates from Version 1. Table II-5 shows the emission type period for which the District of Columbia provided emissions.

Table II-5. District of Columbia 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Type

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30

Table A-3 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. The District of Columbia provided the data for CO, NH_3, NO_x, SO_2, and VOC. The District of Columbia provided at least one form of PM emissions and the PM augmentation procedures were applied to the emissions provided by the District of Columbia to calculate emissions for the other forms of PM.

4. Maine

Maine's Version 3 point source inventory originates from Version 1. Table II-6 shows the emission type periods for which Maine provided emissions.

Table II-6. Maine 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20020601	20020831	29

Table A-4 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Maine provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. Maine provided PM10-FIL and/or PM25-FIL emissions data and the PM augmentation procedures were applied to the emissions that Maine provided to calculate emissions for the other forms of PM.

5. Maryland

Maryland's Version 3 point source inventory originates from Version 1 except for some updates to ORIS Boiler IDs in the EU table that were incorporated into Version 2 and included in Version 3. Table II-7 shows the emission type periods for which Maryland provided emissions.

Table II-7. Maryland 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
ANNUAL	20040101	20041231	30
NONANNUAL	20020101	20021231	29
NONANNUAL	20020501	20020930	29
NONANNUAL	20040101	20041231	29

Table A-5 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Maryland provided the emissions data for CO, NH_3, NO_x, SO_2, VOC, PM10-PRI, and PM-PRI. The PM augmentation procedures were applied to the PM10-PRI emissions that Maryland provided to calculate emissions for the other forms of PM. Maryland provided NH_3 emissions for its point sources except for one new facility (state and county FIPS code 24013, facility ID 0012, SCC 30500622, data source code P) for which it used NH_3 emissions for four EUs (preheater kiln/dry process) prepared by MANE-VU.

6. Massachusetts

Massachusetts' Version 3 point source inventory originates from Version 1 except for the some stack parameter revisions that Massachusetts provided and were incorporated into Version 3. For Version 3, Massachusetts provided revisions to stack parameters in the ERP table for six EUs at three facilities. The revisions are listed in the Excel file named "MA Revisions to MANEVU V3 Point EI_040706.xls". Table II-8 shows the emission type periods for which Massachusetts provided emissions.

Table II-8. Massachusetts 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
ANNUAL	20030101	20031231	30

Table A-6 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Massachusetts provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. Massachusetts provided PM-FIL, PM10-FIL, and/or PM25-FIL emissions data and the PM augmentation procedures were applied to the emissions that Massachusetts provided to calculate emissions for the other forms of PM.

7. New Hampshire

New Hampshire's Version 3 point source inventory originates from Version 1.
Table II-9 shows the emission type periods for which New Hampshire provided emissions.

Table II-9. New Hampshire 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20020601	20020831	29

Table A-7 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. New Hampshire provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. New Hampshire provided PM-FIL, PM10-FIL, and/or PM25-FIL emissions data and the PM augmentation procedures were applied to the emissions that New Hampshire provided to calculate emissions for the other forms of PM.

8. New Jersey

New Jersey's Version 3 point source inventory originates from Version 1. In addition to the QA checks discussed previously in this TSD, New Jersey's original inventory submittal to EPA contained several issues with SCCs. For Version 1, per direction provided by New Jersey, SCCs that were less than 8 digits were changed to SCCs with 8 digits. Also, as approved by New Jersey, inactive SCC 39999901 was changed to active SCC 39999999. The invalid unit "GAL" was changed to the valid unit "E6GAL" in the EP table.

Table II-10 shows the emission type periods for which New Jersey provided emissions.

Table II-10. New Jersey 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20011201	20020228	29
NONANNUAL	20020601	20020831	29

Table A-8 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. New Jersey provided the emissions data for CO, NO_x, SO_2, and VOC. New Jersey provided PM-PRI, PM10-PRI, and/or PM25-PRI emissions data and the PM augmentation procedures were applied to the emissions that New Jersey provided to calculate emissions for the other forms of PM. New Jersey did not provide any data for NH_3.

9. New York

New York's Version 3 point source inventory originates from Version 1 except for the following revisions that New York provided and were incorporated into Version 3.

For Version 3, New York provided an Access database named "MANEVU_NY2002_ Point_Corrected_093005.mdb" with revisions to records in the EM table. New York also provided in this database 651 records that were not included in Version 2 of MANE-VU's point source inventory, and, therefore, these records were added to Version 3 of MANE-VU's point source inventory. The new records added emissions for pollutants (not in Version 2) for EUs and processes that existed in Version 2 of MANE-VU's point source inventory.

The records in Version 2 that were revised and the records that were added to Version 3 are listed in the Excel file named "NY Revisions to MANE-VU V3 Point EI_040706.xls".
Table II-11 shows the emission type period for which New York provided emissions.

Table II-11. New York 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Type

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30

Table A-9 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. New York provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. New York provided PM-PRI, PM10-PRI, and/or PM25-PRI emissions data and the PM augmentation procedures were applied to the emissions that New York provided to calculate emissions for the other forms of PM. New York provided NH_3 emissions for its point sources except for four cement kilns for which it used NH_3 emissions from a MANE-VU-sponsored inventory. The following identifies the facilities for which the MAEN-VU-sponsored NH_3 emissions inventory for cement kilns was used.

FIPS Code	Facility ID	SCC	Data Source
36001	4010300016	30500606 (2 kilns/dry process)	P
36001	4012400001	30500706 (1 kiln/wet process)	P
36111	3514800084	30500606 (1 kiln/dry process)	P

10. Pennsylvania (State, Excluding Allegheny and Philadelphia Counties)

The Version 3 point source inventory for the state of Pennsylvania originates from Version 1. The following summary excludes Allegheny and Philadelphia Counties who provided their own point source inventories for Versions 1, 2, and 3.

Table II-12 shows the emission type periods for which Pennsylvania provided emissions. Table A-10 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Pennsylvania provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. Pennsylvania provided PM10-PRI and/or PM25-PRI emissions data and the PM augmentation procedures were applied to the emissions that Pennsylvania provided to calculate emissions for the other forms of PM.

Table II-12. Pennsylvania 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type	Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20020104	30	ANNUAL	20020131	20020812	30
ANNUAL	20020101	20020111	30	ANNUAL	20020131	20021231	30
ANNUAL	20020101	20020120	30	ANNUAL	20020201	20020228	30
ANNUAL	20020101	20020123	30	ANNUAL	20020201	20020424	30
ANNUAL	20020101	20020130	30	ANNUAL	20020201	20020831	30
ANNUAL	20020101	20020131	30	ANNUAL	20020201	20020930	30
ANNUAL	20020101	20020212	30	ANNUAL	20020201	20021030	30
ANNUAL	20020101	20020215	30	ANNUAL	20020201	20021130	30
ANNUAL	20020101	20020221	30	ANNUAL	20020201	20021231	30
ANNUAL	20020101	20020228	30	ANNUAL	20020205	20021223	30
ANNUAL	20020101	20020313	30	ANNUAL	20020213	20020913	30
ANNUAL	20020101	20020329	30	ANNUAL	20020214	20021231	30
ANNUAL	20020101	20020331	30	ANNUAL	20020216	20020331	30
ANNUAL	20020101	20020412	30	ANNUAL	20020301	20020331	30
ANNUAL	20020101	20020414	30	ANNUAL	20020301	20020430	30
ANNUAL	20020101	20020422	30	ANNUAL	20020301	20020531	30
ANNUAL	20020101	20020427	30	ANNUAL	20020301	20021031	30
ANNUAL	20020101	20020430	30	ANNUAL	20020301	20021130	30
ANNUAL	20020101	20020503	30	ANNUAL	20020301	20021231	30
ANNUAL	20020101	20020514	30	ANNUAL	20020311	20021213	30
ANNUAL	20020101	20020517	30	ANNUAL	20020311	20021231	30
ANNUAL	20020101	20020521	30	ANNUAL	20020314	20021209	30
ANNUAL	20020101	20020531	30	ANNUAL	20020318	20021223	30
ANNUAL	20020101	20020603	30	ANNUAL	20020320	20020915	30
ANNUAL	20020101	20020614	30	ANNUAL	20020320	20021231	30
ANNUAL	20020101	20020626	30	ANNUAL	20020328	20021120	30
ANNUAL	20020101	20020628	30	ANNUAL	20020330	20021122	30
ANNUAL	20020101	20020630	30	ANNUAL	20020401	20020430	30
ANNUAL	20020101	20020701	30	ANNUAL	20020401	20020531	30
ANNUAL	20020101	20020731	30	ANNUAL	20020401	20020731	30
ANNUAL	20020101	20020813	30	ANNUAL	20020401	20020930	30
ANNUAL	20020101	20020831	30	ANNUAL	20020401	20021231	30
ANNUAL	20020101	20020909	30	ANNUAL	20020409	20021205	30
ANNUAL	20020101	20020930	30	ANNUAL	20020415	20021117	30
ANNUAL	20020101	20021031	30	ANNUAL	20020415	20021231	30
ANNUAL	20020101	20021101	30	ANNUAL	20020421	20021024	30
ANNUAL	20020101	20021112	30	ANNUAL	20020424	20021016	30
ANNUAL	20020101	20021130	30	ANNUAL	20020428	20021231	30
ANNUAL	20020101	20021213	30	ANNUAL	20020429	20020922	30
ANNUAL	20020101	20021216	30	ANNUAL	20020429	20021031	30
ANNUAL	20020101	20021217	30	ANNUAL	20020501	20020630	30
ANNUAL	20020101	20021220	30	ANNUAL	20020501	20020930	30
ANNUAL	20020101	20021223	30	ANNUAL	20020501	20021013	30
ANNUAL	20020101	20021230	30	ANNUAL	20020501	20021031	30
ANNUAL	20020101	20021231	30	ANNUAL	20020501	20021231	30
ANNUAL	20020102	20020703	30	ANNUAL	20020506	20021202	30
ANNUAL	20020102	20021203	30	ANNUAL	20020511	20021231	30
ANNUAL	20020102	20021215	30	ANNUAL	20020515	20021231	30
ANNUAL	20020102	20021223	30	ANNUAL	20020519	20020727	30
ANNUAL	20020102	20021227	30	ANNUAL	20020525	20021231	30

Table II-12. (Continued)

Emission Type Period	Start Date	End Date	Emission Type	Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020102	20021228	30	ANNUAL	20020601	20020602	30
ANNUAL	20020102	20021229	30	ANNUAL	20020601	20020831	30
ANNUAL	20020102	20021230	30	ANNUAL	20020601	20020930	30
ANNUAL	20020102	20021231	30	ANNUAL	20020601	20021019	30
ANNUAL	20020103	20021126	30	ANNUAL	20020603	20021231	30
ANNUAL	20020103	20021228	30	ANNUAL	20020606	20021127	30
ANNUAL	20020103	20021231	30	ANNUAL	20020629	20021231	30
ANNUAL	20020104	20020930	30	ANNUAL	20020701	20020731	30
ANNUAL	20020104	20021223	30	ANNUAL	20020701	20020930	30
ANNUAL	20020104	20021231	30	ANNUAL	20020701	20021231	30
ANNUAL	20020105	20021218	30	ANNUAL	20020708	20021231	30
ANNUAL	20020105	20021231	30	ANNUAL	20020801	20020831	30
ANNUAL	20020106	20021231	30	ANNUAL	20020801	20020930	30
ANNUAL	20020107	20021231	30	ANNUAL	20020801	20021130	30
ANNUAL	20020108	20021221	30	ANNUAL	20020801	20021231	30
ANNUAL	20020108	20021228	30	ANNUAL	20020802	20021231	30
ANNUAL	20020110	20021204	30	ANNUAL	20020901	20020930	30
ANNUAL	20020111	20021231	30	ANNUAL	20020901	20021231	30
ANNUAL	20020113	20021006	30	ANNUAL	20020920	20021231	30
ANNUAL	20020114	20021203	30	ANNUAL	20021001	20021030	30
ANNUAL	20020115	20020318	30	ANNUAL	20021001	20021231	30
ANNUAL	20020115	20020323	30	ANNUAL	20021028	20021231	30
ANNUAL	20020115	20020326	30	ANNUAL	20021101	20021231	30
ANNUAL	20020115	20020830	30	ANNUAL	20021118	20021231	30
ANNUAL	20020123	20020127	30	ANNUAL	20021201	20021231	30
ANNUAL	20020124	20021127	30				

11. Pennsylvania (Allegheny County, FIPS code 42003)

The Version 3 point source inventory for Allegheny County, Pennsylvania originates from Version 1. Table II-13 shows the emission type periods for which Allegheny County provided emissions.

Table II-13. Pennsylvania - Allegheny County 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20011201	20020228	29
NONANNUAL	20020601	20020831	29

Table A-11 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Allegheny County provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. Allegheny County provided PM-FIL, PM10-FIL, PM25-FIL, and/or PM-CON emissions data and the PM augmentation procedures were applied to the emissions that Allegheny County provided to calculate emissions for the other forms of PM.

12. Pennsylvania (Philadelphia County, FIPS code 42101)

The Version 3 point source inventory for Philadelphia County, Pennsylvania originates from Version 1. Table II-14 shows the emission type periods for which Philadelphia County provided emissions.

Table II-14. Pennsylvania - Philadelphia County 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20011201	20020228	29
NONANNUAL	20020601	20020831	29

Table A-12 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Philadelphia County provided the emissions data for CO, NH_3, NO_x, SO_2, and VOC. Philadelphia County provided PM-FIL, PM10-FIL, and/or PM25-FIL emissions data and the PM augmentation procedures were applied to the emissions that Philadelphia County provided to calculate emissions for the other forms of PM.

13. Rhode Island

Rhode Island requested that their Version 2 inventory be replaced with the CAP and NH_3 inventory in the final 2002 point source NEI that EPA released during March 2006. Therefore, all of Rhode Island's point source data in Version 2 was replaced with the point source data provided in the final 2002 point source NEI. The following provides a summary of the QA issues identified and addressed in Version 1. The Excel file named "RI Revisions to MANE-VU V3 Point EI_040706.xls" provides documentation and correction of each of these issues for Version 3.

The Site table in the NEI did not include the ORIS IDs for all of the EGUs identified in the EGU crosswalk table. Therefore, the crosswalk table was used to add the ORIS IDs to the Site table. Matching of boiler IDs to the EU table for one facility was maintained in the NEI, and, therefore, included in Version 3 of MANE-VU's inventory. However, matching of boiler IDs for other facilities was not available in the crosswalk table.

The data source codes that EPA used in the Rhode Island's point source inventory for the NEI were maintained in the MANE-VU inventory. The following defines the codes:

Code	Description
A	Augmented PM data.
CAMD	Record only in 2002 Emission Tracking System (ETS)/CEM for SO_2, NO_x, and heat input values; other emissions estimated.
SCAMD1	Data were received from the state. The state's NO_x and SO_2 emission values were replaced with the ETS values.
99_PMPRI	Not defined – presumed to mean PM-PRI data originating from the 1999 NEI.
SUM	Primary PM emissions calculated as the sum of the filterable PM and PM-CON emissions
DIFF	PM-CON emissions calculated as the difference between the primary PM and filterable PM emissions

QA of PM emissions was also performed in accordance with the QAPP for the 2002 base year inventory for EM table records that were revised or added for Rhode Island and New York. As a result, it was identified that the emission ton value was not correctly calculated from the emission unit numerator and emission numeric value fields in the NEI file, therefore, the emission ton value was corrected for the MANE-VU inventory. In addition, the final NEI for Rhode Island contained NH_3 emissions for several facilities but no SCCs were provided for the NH_3 emissions; therefore, the NH_3 emissions were removed for the MANE-VU inventory as requested by Rhode Island.

For Version 3 of MANE-VU's inventory, Facility ID EGU1036 and Facility Name MANCHESTER STREET in the final 2002 NEI was changed to Facility ID AIR936 and Facility Name USGEN NEW ENGLAND INC per Rhode Island's request because this is the same facility (with ORIS ID 3236). Also, for State Facility ID AIR594, EU ID 2, ERP 2, and Process ID 2, the SCC was changed from 39000589 to 39000599. In addition, the ORIS IDs reported in the NEI were revised to make them consistent with the crosswalk prepared for MANE-VU that matches state facility IDs to ORIS IDs.

One issue was identified with one record for Rhode Island where the sum of the PM10-FIL and PM-CON emissions was more than the PM10-PRI emissions, and the sum of the PM25-FIL and PM-CON emissions was more than the PM25-PRI emissions for facility ID AIR1248 in County FIPS 44007; SCC 10300601 (External Combustion Boilers : Commercial/Institutional : Natural Gas : > 100 Million Btu/hr). In addition, the PM10-FIL emissions reported was 1.6 tons more than the PM10-PRI emissions reported, and the PM25-FIL emissions reported was 1.6 tons more than the PM25-PRI emissions reported for this facility. The record has very low emissions and it was not clear how the PM consistency issues should be addressed; therefore, due to time and resource constraints, this issue was not corrected in Version 3.

Table II-15 shows the emission type periods for which Rhode Island provided emissions.

Table II-15. Rhode Island 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020601	20020831	29
NONANNUAL	20020601	20020831	29
NONANNUAL	20020601	20020831	30

Table A-13 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Rhode Island provided the emissions data for CO, NO_x, SO_2, VOC, and PM-PRI. The EPA applied PM augmentation procedures to the PM-PRI emissions that Rhode Island provided to calculate emissions for the other forms of PM. The EPA added NH_3 emissions for an EGU from EPA's CAMD data; otherwise, NH_3 emissions are not available for other point sources in Rhode Island.

14. Vermont

Vermont's Version 3 point source inventory originates from Version 1. Table II-16 shows the emission type periods for which Vermont provided emissions.

Table II-16. Vermont 2002 Point, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
NONANNUAL	20020101	20020331	27
NONANNUAL	20020101	20021231	29
NONANNUAL	20020601	20020831	27

Table A-14 in Appendix A identifies the data sources by SCC, emission type period, and pollutant in the Version 3 point source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Vermont provided the emissions data for CO, NO_x, SO_2, and VOC. Vermont provided PM-FIL, PM10-FIL, and/or PM25-FIL emissions data and the PM augmentation procedures were applied to the emissions that Vermont provided to calculate emissions for the other forms of PM. Vermont's inventory does not include NH_3 emissions.

C. What Issues Need to be Addressed in Future Versions?

This section provides a summary of potential revisions to incorporate into future versions of the MANE-VU point source inventory.

All States – A coordinated effort between the S/L agencies should be developed to apply consistent methods to avoid having to apply procedures to augment inventory data to correct for the QA issues and fill in missing data as discussed previously in this chapter. For example, this will ensure that consistent methods are applied across S/L agencies to ensure accurate reporting of stack parameters, PM emissions, and minimize other QA issues that were identified during the development of Versions 1, 2, and 3 of the inventory.

For PM emissions, the S/L agencies should develop and apply a consistent method for including condensible emissions for fuel combustion sources that can be applied when the agencies develop their inventories. This may include compiling the emission factors for all forms of PM into one database, organized by SCC and control type (for filterable emissions), and sharing the database among the MANE-VU S/L agencies. Use of a consistent set of emission factors will help to avoid the PM consistency issues identified in Versions 1, 2, and 3 of the MANE-VU inventory as well as ensure that condensible emissions are included in the primary emissions reported in the inventory.

The EGU crosswalk should be maintained to ensure that State Facility IDs and EU IDs are correctly matched with ORIS IDs and boiler IDs.

State-specific suggestions are as follows:

Connecticut, New Jersey, Rhode Island, and Vermont – Include NH_3 emissions.

New Jersey – Develop a method to translate the SCCs that are less than 8 digits reported by facilities to 8 digit SCCs for reporting in the inventory.

CHAPTER III – AREA SOURCES

A. General Methods for all States

1. What Data Sources Were Used?

Version 1 of the 2002 MANE-VU area source inventory was built on the inventories that the State agencies submitted to EPA from May through July of 2004 as a requirement of the CERR. Except for Rhode Island, all of the MANE-VU States also submitted area source inventories to EPA. Rhode Island elected to use the preliminary 2002 NEI for its area source inventory. The EPA performed some limited QA review of the State inventories to identify format, referential integrity, and duplicate record issues. The EPA revised the inventories to address these issues and made the files available to the State agencies on August 6, 2004. These inventory files were used as the starting point for the MANE-VU inventory. These inventory files were obtained from EPA, consolidated into a single data set, subjected to extensive QA review, and revised (as approved by the MANE-VU State agencies) to address QA issues and fill data gaps identified while preparing Version 1. Subsequently, the following agencies provided revisions to their area source inventories:

- Version 2 – District of Columbia, Massachusetts, Maryland, New Hampshire, New Jersey, New York, and Vermont.

- Version 3 – Massachusetts, Maine, New Jersey, New York, and Rhode Island.

The Version 2 and 3 revisions for these States are discussed in section III.B (State-Specific Methods) of this chapter. In addition, as requested by MANE-VU, revisions were made to Version 3 to (1) add emissions for portable fuel containers (PFCs), industrial adhesives, and outdoor residential wood combustion for some States; (2) decrease the $PM_{2.5}$ emissions for paved and unpaved roads and construction for all States; and (3) remove invalid CE records that originated from the preliminary 2002 NEI for some States. These revisions are explained in section III.A.3 of this chapter.

To track the origin of data, the temporal period of emissions, and to facilitate generation of emission summaries, the following NIF plus fields were added to the EP, PE, EM, and CE tables:

- Data Source Codes:

For the area source inventory data, the data source codes are based on the following 9-character format:

[Data Origin]-[Year]-[Grown/Not Grown/Carried Forward]-[PM Augmentation Code]

Code	**Field Length**
Data Origin	1
Year	3 (including leading hyphen)
Grown/Not Grown/Carried Forward	2 (including leading hyphen)
PM Augmentation	3 (including leading hyphen)

Data Origin Codes

Code	Description
S	State agency-supplied data
L	Local agency-supplied data
R	Tribal agency-supplied data
P	Regional Planning Organization
E	EPA/Emission Factors and Inventory Group (EFIG)-generated data

Year Codes

Year for which data are supplied (e.g., Year = -02 for 2002), or from which prior year data are taken (e.g., Year = -99 for 1999; -01=2001).

Grown/Carried Forward/Not Grown Codes

Code	Description
-G	Used when emissions in a pre-2002 inventory are grown to represent 2002 emissions.
-F	Used when emissions in a pre-2002 inventory are carried forward and included in the 2002 inventory without adjustment for growth.
-X	Used when the emissions are not grown or are not carried forward. For example, X is used when emissions are calculated for the 2002 inventory using 2002 activity, or when data are replaced with 2002 State data.

PM Augmentation Codes

-PA PM Augmented Emissions: Record for PM_{10}/$PM_{2.5}$ emissions that were updated or added using ad-hoc updates.

-PC PM Augmented Emissions: Record added for PM_{10}/$PM_{2.5}$ emissions estimated using the PM Calculator.

-PR PM Augmented Emissions: Record added for PM_{10}/$PM_{2.5}$ emissions estimated using ratios of PM_{10}-to-PM or $PM_{2.5}$-to-PM_{10}. If PM_{10} and $PM_{2.5}$ emissions are equal and one of the pollutants is assigned this code, the ratio is assumed to be 1.

- Revision Date: This field indicates the month and year during which the last revision was made to a record.

- State FIPS: This field indicates the State FIPS code of the submittal.

- County FIPS: This field indicates the county FIPS code of the inventory.

The following NIF plus fields were added to the EM table:

- Emission Ton Value: This field indicates the values of the emissions in tons. This field was used to prepare summaries of emissions on a consistent EU basis.

- Emission Type Period: This field indicates the period of the Emission Type – either ANNUAL, SEASONAL, MONTHLY, or DAILY. Emission table records designated as ANNUAL were used to prepare summaries of annual emissions.

- CAP_HAP: This field identifies records for CAP versus records for HAPs. For the MANE-VU inventory, the flag is CAP for all records.

- Year: This field indicates the year of the data; for this inventory, it is 2002.

2. What Quality Assurance Steps Were Performed?

A QAPP was prepared and approved by MANE-VU/MARAMA and the EPA Regional Office prior to initiating work on Version 1 of the inventory (MANE-VU, 2004a). This QAPP was followed during preparation of all three versions of the inventory. This section provides an overview of the QA checks completed on each version of the inventory. The QA process for each State inventory involved the following steps that are also included in the following discussion:

- Conduct QA checks on each State inventory;
- Prepare a QA Summary Report for submittal to the agency for review;
- Revise the inventory to resolve QA issues as directed by the agency;
- Repeat the QA checks on the revised inventory to verify that the corrections were completed;

- Perform augmentation to correct for missing data; and
- Repeat the QA checks to verify that the augmentation was completed correctly.

a. QA checks for State emission inventories

The following QA checks were run on each State inventory:

i. County and SCC coverage
ii. Pollutant coverage
iii. EPA QA summaries sent to State agencies
iv. Range errors
v. PM emissions consistency and completeness review
vi. Control device type and control efficiency data review
vii. Start and end date checks
viii. Annual and daily emissions comparison

County and SCC Coverage

The county coverage in the State inventories appeared to be reasonable for all States. The SCC coverage was difficult to evaluate simply by showing a count of the number of SCCs by State. Each State inventory was compared to the preliminary 2002 NEI, and area source categories in the NEI but not in a State inventory were sent to each agency for review. Each State agency then selected the NEI categories that were then added to the MANE-VU inventory.

Pollutant Coverage

The pollutant coverage in the State inventories was complete for all pollutants except for PM_{10} and $PM_{2.5}$. Diagnosis and resolution of PM_{10} and $PM_{2.5}$ pollutant emissions is discussed later in section III.A.2.c. The exception was Connecticut who included only VOC, NO_x, and CO emissions in its inventory submittal to EPA.

EPA QA Summaries Sent to State Agencies

Under a separate project with EPA, Pechan performed QA review of the State area source inventories. This QA review involved running EPA's QA program on each data set to identify and resolve QA issues. Using the results of this QA work, Pechan prepared two sets of QA summaries that EPA sent to the State agencies. Pechan contacted each State agency with QA issues identified in the EPA reports to obtain direction for correcting the QA issues identified in the reports. The following explains these two summaries:

High-level Summary of State Inventories Submitted to EPA:

The first summary was an Excel workbook file with four spreadsheets that provided the following information:

- 2002 Nonpoint File Names: This spreadsheet documented names and formats of the files that EPA received from the State agencies and the dates on which they were transferred to Pechan.

- 2002 Nonpoint Summary: This spreadsheet documented the name of the state agency, type of inventory (i.e., CAP, HAP, or both), a comparison of the number of the counties in the inventory to the total number of counties in the State to identify the geographic coverage of the inventory, a unique list of CAP codes, and the total number of area source SCCs. This spreadsheet also indicated if any nonroad or onroad emissions data were moved from the agency's area source inventory to its nonroad or onroad inventory.

- 2002 Nonpoint Emission Sums: This spreadsheet summarized emissions by start date, end date, and emission type and assigned the appropriate code to the emission type period NIF plus field.

- 2002 Nonpoint Error Summary: This spreadsheet provided a copy of the "SummaryStats" table from the EPA QA program (EPA, 2004a). This table provided the count of records for each NIF 3.0 table and identified the number of records with errors by type of error.

Detailed Summary of QA Issues:

This summary (sent to State agencies on August 11) was prepared in a text file that listed by State and NIF table the number of records with errors, and provided corrections for the errors. To support documentation of corrections to some of the errors in the text file, Pechan prepared an Excel workbook file that summarized the following errors and corrections by State: invalid pollutants codes; invalid units; invalid maximum achievable control technology (MACT) codes; and invalid and inactive SCCs. A spreadsheet was also included to show the mapping of standard industrial classification (SIC) codes to North American Industrial Classification System (NAICS) codes. This crosswalk was used to correct invalid NAICS codes if a valid SIC code was available in the State inventories and vice versa.

Additional QA for the MANE-VU Area Source Inventory

The following explains additional QA and data tracking that was performed for the MANE-VU inventory. The following data elements were reviewed to identify QA issues:

- Range Errors;
- PM Emissions Consistency and Completeness;
- Control Device Codes and Control Efficiency Values;
- Start and End Dates;
- Annual and Daily Emissions Comparison; and
- Comparison of State Inventories to the 2002 Preliminary NEI.

For each State inventory for which QA issues were identified, a separate QA Summary Report was prepared in an Excel workbook file, and sent to each State agency for review. The State agencies provided directions in the Excel Workbook file, via e-mail, or by submitting revised records in NIF 3.0 in an Access database to correct the inventories. The QA reports are discussed under section III.A.2.b.

Range Errors

The EPA's QA program contains routines that compare annual emission values, numeric fields in the PE and EP tables, and other temporal numeric fields against a range of values. The QA program flags records that are less than or greater than the range of values for review. Pechan summarized the range errors for the State agencies to review and provide corrections. According to EPA, the ranges to which values in inventories are compared represent "normal" ranges that are based on percentiles from previous inventories. The range values are conservative in that EPA wants to identify suspicious values even though the values may be real (Thompson, 2002).

PM Emissions Consistency and Completeness Review

The following consistency checks were performed at the EM table data key level (for annual emissions) to compare PM emissions:

- If an SCC was associated with a PM emission record, but was missing one or more of the following (as appropriate for the SCC [i.e., PM-CON is associated with fuel combustion only]): PM10-FIL, PM10-PRI, PM25-FIL, PM25-PRI, or PM-CON, the record was flagged for review.

- The following equations were used to determine consistency:

  PM10-FIL + PM-CON = PM10-PRI
  PM25-FIL + PM-CON = PM25-PRI

- The following comparisons were made to determine consistency:

  PM10-PRI >= PM10-FIL
  PM25-PRI >= PM25-FIL
  PM10-PRI >= PM-CON
  PM25-PRI >= PM-CON
  PM10-FIL >= PM25-FIL
  PM10-PRI >= PM25-PRI

If the data failed one of these checks it was diagnosed as an error. If a State agency did not provide corrections to these errors, the errors were corrected/filled in according to an augmentation procedure explained in section III.A.2.c.

For information purposes, all PM-PRI and PM-FIL records were flagged to indicate that these pollutants were included instead of, or in addition to, the standard PM10-PRI/FIL, PM25-PRI/FIL, and PM-CON pollutants.

Control Device Type and Control Efficiency Data Review

The CE codes in the "Primary Device Type Code" and "Secondary Device Type Code" fields were reviewed to identify invalid codes (i.e., codes that did not exist in the NIF 3.0 reference table) and missing codes (e.g., records with a null or uncontrolled code of 000 but with control efficiency data).

QA review of control efficiency data involved diagnosis of two types of errors. First, records were reviewed to identify control efficiency values that were reported as a decimal rather than as a percent value. Records with control efficiencies with decimal values were flagged as a potential error (although not necessarily an error, since the real control efficiency may be less than 1%). Records with a 1% control efficiency value were also identified for review by the State agency to determine if the value was reported as a decimal in its internal data system but rounded to 1% when the data were converted to NIF 3.0.

The second check identified records where 100% control was reported in the CE table, but the emissions in the EM table were greater than zero and the rule effectiveness value in the EM table was null, zero, or 100% (implying 100% control of emissions). Because many agencies did not populate the rule effectiveness field or a default value of zero was assigned, records with null or zero rule effectiveness values were included where the CE was 100% and emissions were greater than zero. For records that met these criteria, Pechan consulted with the State agency to determine if corrections were needed to any of the fields.

Start and End Date Checks

QA review was conducted to identify start and end date values in the PE and EM tables to confirm consistency with the inventory year in the TR table, and to confirm that the end date reported was greater than the start date reported.

Annual and Daily Emissions Comparison

The State inventories were reviewed to determine if any of the following conditions existed:

- Multiple records coded at the SCC level as emission type 30, but with different start and end dates. While not a true duplicate, this may indicate an error or inclusion of both annual and seasonal values.

- Multiple records coded at the SCC level as a daily emission type (27, 29, etc.) but with different start and end dates. While not a true duplicate, this may indicate an error or just inclusion of additional types of daily emissions.

- Multiple records coded at the SCC level with the same start and end date, but different emission types. While not a true duplicate, this may indicate an error or just inclusion of additional types of daily emissions.

- Any "DAILY" type record that was missing its associated "ANNUAL" record was flagged for review.

- Any "DAILY" type record that was greater than its associated "ANNUAL" record was flagged for review.

b. Responses from State Agencies

QA Summary Reports were sent to the State agencies to review the QA issues identified. The State agencies were asked to return these reports to MANE-VU with their corrections documented in the reports. These reports were then used to document revisions to the State inventories. The QA Summary Reports containing the revisions provided by the State agencies are provided in Excel Workbook files with this TSD.

c. Gap Filling and Augmentation

This section explains the methods used to add data for categories and/or pollutants missing in a State's inventory after revising the inventory to address QA issues.

i. MANE-VU sponsored inventories
ii. PM augmentation
iii. Fossil fuel combustion sources
iv. Other sources of PM emissions
v. Merging of NEI data into S/L inventories
vi. Revisions to the preliminary 2002 NEI incorporated into Version 1 of the MANE-VU inventory
vii. Additional work on Area source methods
- Fugitive Dust Emissions from Paved and Unpaved Roads
- Wildfires and Prescribed Burning

The following discusses the augmentation procedures that were applied to the State inventories to improve the inventories or to fill in missing data not supplied by the State agencies.

MANE-VU -Sponsored Inventories

MANE-VU sponsored inventory development for residential wood combustion, open burning, public owned treatment works (POTWs), compositing, and industrial refrigeration. At the beginning of the project for developing Version 1, each State agency was requested to indicate if it (1) included the MANE-VU-sponsored inventory for one or more of these categories in the inventory it submitted to EPA; (2) included its own estimates for a category in the inventory it submitted to EPA; or (3) if it did not include a category in its inventory, if the MANE-VU-sponsored inventory or the 2002 preliminary NEI should be used as the source of data for the category. The results of this Version 1 inventory development request are summarized in Table III-1.

Improvements to fugitive dust emissions for the paved and unpaved road categories were completed after the draft version of the consolidated area source inventory was prepared. Agencies provided guidance on if they wanted the MANE-VU-sponsored inventory for these two categories to replace the paved and unpaved road inventories they had included in their inventories. For paved roads, all States requested that the MANE-VU-sponsored inventory be used; however, New Jersey and Maryland requested that the winter-time sand/silt adjustment not be included in their inventories. For unpaved roads, nine of the 12 States requested that the MANE-VU-sponsored inventory be used. New Jersey requested that its unpaved road inventory be used instead of the MANE-VU-sponsored inventory. In addition, the District of Columbia and Delaware do not have any unpaved road activity and excluded this category from their inventories.

PM Augmentation

Procedures were developed to estimate missing pollutant data from data provided by the State agencies in order to develop a complete set of PM10-PRI and PM25-PRI emissions to support air quality modeling. The following discusses the procedures for fossil fuel combustion sources first followed by the procedures for all other area sources of PM emissions.

Fossil Fuel Combustion Sources

Fossil fuel combustion sources include industrial, commercial/institutional, and residential anthracite coal, bituminous/subbituminous coal, distillate oil and kerosene, residual oil, natural gas, and LPG. All of these sources emit both filterable and condensible emissions. The QA review of the PM emissions data for these sources focused on verifying that the emissions reported in the State inventories included both filterable and condensible emissions. The emissions for these pollutants can be reported in State inventories individually (i.e., as filterable and condensible separately) or as primary emissions (i.e., the sum of the filterable and condensible emissions). The QA review also focused on evaluating the emission factors reported in the State inventories to determine if they were reasonable.

Table III-1. Summary of MANE-VU-Sponsored Inventories Included in Version 1 of the Area Source Consolidated Emissions Inventory

Area Source Category	Pollutant	SCCs	MANE-VU Inventory Included in State's Inventory Submitted to EPA			Not Included in State's Inventory - Add to MANE-VU Inventory			State's Inventory Includes State-Developed Estimates			Not Included in State's Inventory - Add 2002 Preliminary NEI Data to State's Inventory
			Annual	Summer Day	Winter Day	Annual	Summer Day	Winter Day	Annual	Summer Day	Winter Day	Annual
POTWs	NH_3, VOC	2630020010 (Wastewater Treatment)	DE, NJ, PA	DE, NJ, PA		VT	VT		CT, DC, DE, MA, MD, NH, NJ, NY	CT, DC, DE, MA, MD, NH, NJ	NJ	ME, RI
		2630020020 (Biosolids Processes)	DE, NJ, PA	DE, NJ, PA		VT	VT		CT, DC, DE, MA, MD, NH, NJ, NY	CT, DC, DE, MA, MD, NH, NJ	NJ	ME, RI
		2630050000 (Digested Sludge)	DE, NH, NJ, PA	DE, NH, NJ, PA		VT	VT		CT, DC, DE, MA, MD, NY	CT, DC, DE, MA, MD		ME, RI
Composting	NH_3, VOC	2680001000 (Biosolids)	NH, NJ	NH, NJ		CT, DC, MA, ME, PA, VT	CT, DC, MA, ME, PA, VT					
		2680002000 (Mixed Biosolids and Green Waste)	NH, NJ	NH, NJ		CT, DC, MA, ME, PA, VT	CT, DC, MA, ME, PA, VT					
		2680003000 (Composting; Green Waste)				DC, MA, ME	DC, MA, ME					
Industrial Refrigeration	NH_3	2399010000	ME, NH, NJ	ME, NH, NJ		CT, MA, PA, VT	CT, MA, PA, VT					
Residential Wood Combustion	All criteria pollutants/ precursors, and many toxic air pollutants	2104008000 (Indoor)	MA, MD, NH	MA, MD, NH	MA, MD, NH	CT, DE, ME	CT, DE, ME	CT, DE, ME	NJ, NY, VT	NJ	NJ	DC, PA, RI
		2104008070 (Outdoor)	MA, MD, NH	MA, MD, NH	MA, MD, NH	CT, DE, ME	CT, DE, ME	CT, DE, ME				
Open Burning	All criteria pollutants/ precursors, and many toxic air pollutants	2610000100 (Leaves)	MA, MD, NH, PA			DC, DE, NY, VT			NJ	NJ	NJ	ME, RI
		2610000400 (Brush)	MA, MD, PA			CT, DC, DE, NY, VT			NJ	NJ	NJ	ME, NH, RI
		2610030000 (Municipal Solid Waste)	MA, MD, PA			DC, DE, NY			NH, NJ	NH, NJ	NJ	ME, RI, VT
		2610040400 (Municipal Yard Waste)	MA, NY, PA			DC, NY, VT			DE, NJ	DE, NJ	DE, NJ	

Table III-1 (continued)

Notes:

Gray shading identifies categories for which daily emissions are not available.

POTWs:

CT, MD: Provided VOC but not NH_3 emissions in its State inventory.

DC, MA, MD, ME, NH, RI: Reported POTW emissions under SCC 2630020000 (Total Processed).

DE: MANE-VU inventory used for NH_3; DE provided its own VOC emissions under SCC 2630020000 (Total Processed).

NJ: MANE-VU-sponsored inventory used for NH_3 only. NJ included its own inventory for the other criteria pollutants under SCCs 2630010000 and 2630020000.

NY: Reported VOC emissions under SCC 2630000000 (from the preliminary 2002 NEI) and SCC 2630020000 (State-developed inventory). MANE-VU-sponsored NH_3 inventory was not used.

Composting:

CT, NH: SCC 2680003000 is not in the MANE-VU-sponsored composting inventory for these States.

DE: This State does not have composting activity.

MD: State requested that the MANE-VU inventory for this category not be included in its inventory.

NY, RI: Did not include emissions for this category in the 2002 inventory.

Industrial Refrigeration:

DC: Requested that the preliminary 2002 NEI be used but the NEI does not contain any emissions for this category in DC.

DE: State-developed emissions are included in point source inventory.

MD, RI: Did not include emissions for this category in its inventory.

ME: Used the MANE-VU inventory emissions under SCC 2302080002 (Miscellaneous Food and Kindred Products/Refrigeration).

NH: Original inventory submittal to EPA includes SO_2 and PM emissions for SCC 2399000000 from the preliminary 2002 NEI; NH_3 emissions for SCC 2399010000 are from the MANE-VU inventory.

NY: Original inventory submittal to EPA includes SO_2 and PM emissions for SCC 2399000000 from the preliminary 2002 NEI; NY did not use the MANE-VU-sponsored NH_3 inventory for SCC 2399010000.

Residential Wood Combustion:

DC: RWC inventory in 2002 NEI covers seven SCCs and does not include daily emissions.

Open Burning:

CT: Statewide activity for SCC 2610000100 (Leaves) and SCC 2610030000 (Municipal Solid Waste) is negligible.

For SCCs 2610000400 (Brush) and 2610040400 (Municipal Yard Waste), State initially provided VOC, NO_x, and CO emissions under SCC 2610000000 which is no longer a valid SCC in EPA's master SCC list. CT recalculated emissions to include VOC, NO_x, CO, PM10-PRI/-FIL, and PM25-PRI/-FIL, and placed the emissions on valid SCC 2610000500 (Land Clearing Debris) since the majority of the activity is associated with activities covered by this SCC.

MD: The MANE-VU inventory for SCC 2610040400 (Municipal Yard Waste) reports zero emissions indicating that the activity for the category does not occur in MD. MD did not include the SCC in its inventory for this reason.

NH: Did not include NH_3 emissions in MANE-VU inventory for SCC 2610040400 (Municipal Yard Waste).

To support the QA review effort, the uncontrolled PM emission factors shown in Table III-2 were compiled from AP-42. The emission factors reported in the State inventories were compared to the emission factors in this table. Emission factors that appeared too high or too low were flagged for review by the State agency. In addition, inventory data were flagged for review by the State agency if the emissions were reported under the primary PM pollutant codes but the emission factors matched with the emission factors for filterable PM in Table III-2. Finally, if emission factors were not reported in the State agency inventory, the emission factors were back-calculated using the throughput data (if available), emissions, rule effectiveness values, and control efficiency data (if available). The back-calculated emission factors were compared to the factors in Table III-2 to identify data with major difference between the factors. It is emphasized that the uncontrolled emission factors in Table III-2 were used as a reference for reviewing State inventory data. The emission factors in this table should not be construed to be the best available for all State agencies since the emission factors will vary depending on the composition of the boiler population in an agency's area source inventory.

Delaware, Massachusetts, Maryland, New Hampshire, New Jersey, New York, and Pennsylvania provided their own inventory for all fossil fuel combustion categories. Connecticut, the District of Columbia, Maine, Rhode Island, and Vermont used fossil fuel combustion inventory data in the preliminary 2002 NEI for some or all of the categories. The following provides details on the origin of the fossil fuel combustion inventories for these States:

Connecticut supplied VOC, NO_x, and CO emissions from its 1999 inventory for industrial and commercial/institutional fossil fuel combustion. PM10-PRI, PM25-PRI, SO_2, and NH_3 emissions were taken from preliminary NEI estimates (carried forward from Version 3 of the 1999 NEI). For the residential sector, Connecticut's inventory was taken from the preliminary 2002 NEI. Connecticut provided guidance on the counties with natural gas and LPG activity for which to use the NEI estimates.

For the District of Columbia, the preliminary NEI was used to gap fill missing PM10-PRI and PM25-PRI emissions for commercial/institutional bituminous/ subbituminous coal combustion and PM10-PRI, PM25-PRI, SO_2, and NH_3 for commercial/institutional natural gas combustion. The NEI estimates for these commercial/institutional categories were carried forward from Version 3 of the 1999 NEI. The District of Columbia used the NEI estimates for residential bituminous/subbituminous coal combustion.

Maine and Rhode Island used the preliminary 2002 NEI for all three sectors. The NEI estimates for the industrial and commercial/institutional sectors were carried forward from Version 3 of the 1999 NEI, while the residential sector estimates are based on 2000 or 2002 activity estimates prepared by EPA.

Vermont used the preliminary 2002 NEI for the industrial and commercial/ institutional sectors and residential anthracite coal (carried forward from Version 3 of the 1999 NEI), but provided its own inventory for residential distillate oil, natural gas, and LPG.

Table III-2. Area Source Industrial, Commercial/Institutional, and Residential Fossil Fuel Combustion Uncontrolled Emission Factors for PM10-PRI/FIL, PM25-PRI/FIL, and PM-CON

Pollutant1	Uncontrolled Emission Factor (EF)	EF Numerator	EF Denominator	Calculated Uncontrolled EF	Reference
Industrial Boilers: Anthracite Coal (SCC 2102001000)					
PM10-FIL	2.3 x % Ash content of coal	LB	TON	30.77	AP-42 Table 1.2-4 EF calculated from formula of 2.3 * % Ash Content (13.38%). Reference for ash content is EPA, 2002.
PM25-FIL	0.6 x % Ash content of coal	LB	TON	8.03	AP-42 Table 1.2-4 EF calculated from formula of 0.6 * % Ash Content (13.38%) (used Commercial/Institutional emission factors). Reference for ash content is EPA, 2002.
PM-CON	0.08 x % Ash content of coal	LB	TON	1.07	AP-42 Table 1.2-3 Used formula for SCC 10300101, EF calculated from formula of .08 * % Ash Content (13.38%). Reference for ash content is EPA, 2002.
PM10-PRI		LB	TON	31.84	
PM25-PRI		LB	TON	9.10	
Industrial Boilers: Bituminous/Subbituminous Coal (SCC 2102002000)					
PM10-FIL	13.2	LB	TON	13.2	AP-42 Table 1.1-9 EF (used Commercial/Institutional emission factors)
PM25-FIL	4.6	LB	TON	4.6	AP-42 Table 1.1-9 EF (used Commercial/Institutional emission factors)
PM-CON	1.04	LB	TON	1.04	AP-42 Table 1.1-5 (used Commercial/Institutional emission factors)
PM10-PRI		LB	TON	14.24	
PM25-PRI		LB	TON	5.64	
Industrial Boilers and IC Engines: Distillate Oil (SCC 2102004000)					
PM10-FIL	1	LB	E3GAL	1	AP-42 Table 1.3-6
PM25-FIL	0.25	LB	E3GAL	0.25	AP-42 Table 1.3-6
PM-CON	1.3	LB	E3GAL	1.3	AP-42 Table 1.3-2
PM10-PRI		LB	E3GAL	2.30	
PM25-PRI		LB	E3GAL	1.55	
Industrial Boilers: Residual Oil (SCC 2102005000)					
PM10-FIL	7.17 x % Sulfur content of oil	LB	E3GAL	10.683	AP-42 Table 1.3-5. EF calculated from formula of 7.17(A); where A=1.12(S)+0.37; Assumed S=1% for purpose of calculating EF ratios.
PM25-FIL	4.67 x % Sulfur content of oil	LB	E3GAL	6.958	AP-42 Table 1.3-5. EF calculated from formula of 7.17(A); where A=1.12(S)+0.37; Assumed S=1% for purpose of calculating EF ratios.
PM-CON	1.5	LB	E3GAL	1.5	AP-42 Table 1.3-2
PM10-PRI		LB	E3GAL	12.18	
PM25-PRI		LB	E3GAL	8.46	
Industrial Boilers and IC Engines: Natural Gas (SCC 2102006000)					
PM10-FIL	1.9	LB	E6FT3	1.9	AP-42 Table 1.4-2
PM25-FIL	1.9	LB	E6FT3	1.9	AP-42 Table 1.4-2
PM-CON	5.7	LB	E6FT3	5.7	AP-42 Table 1.4-2
PM10-PRI	7.6	LB	E6FT3	7.60	
PM25-PRI	7.6	LB	E6FT3	7.60	

Table III-2 (continued)

Pollutant1	Uncontrolled Emission Factor (EF)	EF Numerator	EF Denominator	Calculated Uncontrolled EF	Reference
Industrial Boilers - Liquified Petroleum Gas (SCC 2102007000)					
PM10-FIL	0.6	LB	E3GAL	0.6	AP-42 Table 1.5-1
PM25-FIL	0.6	LB	E3GAL	0.6	AP-42 Table 1.5-1
PM-CON	0.506	LB	E3GAL	0.506	Used natural gas PM-CON emission factor of 5.7 lb/Million Cubic Feet (for all PM controls and uncontrolled). Used factor of 0.0887 to convert emission factor from lb/Million Cubic Feet of natural gas to lb/1,000 gallons of propane. Reference: AP-42, Table 1.4-2. Conversion factor assumes 1020 Btu/scf for natural gas (AP-42, Table 1.4-2) and 90,500 Btu/gallon for propane (AP-42, Appendix A, page A-5).
PM10-PRI		LB	E3GAL	1.11	
PM25-PRI		LB	E3GAL	1.11	
Industrial Boilers: Kerosene (SCC 2102011000)					
PM10-FIL	1	LB	E3GAL	1	AP-42 Table 1.3-6
PM25-FIL	0.25	LB	E3GAL	0.25	AP-42 Table 1.3-6
PM-CON	1.3	LB	E3GAL	1.3	AP-42 Table 1.3-6
PM10-PRI		LB	E3GAL	2.30	
PM25-PRI		LB	E3GAL	1.55	
Commercial/Institutional Heating: Anthracite Coal (SCC 2103001000)					
PM10-FIL	2.3 x % Ash content of coal	LB	TON	30.77	AP-42 Table 1.2-4 EF calculated from formula of 2.3 * % Ash Content (13.38%). Reference for ash content is EPA, 2002.
PM25-FIL	0.6 x % Ash content of coal	LB	TON	8.03	AP-42 Table 1.2-4 EF calculated from formula of 0.6 * % Ash Content (13.38%). Reference for ash content is EPA, 2002.
PM-CON	0.08 x % Ash content of coal	LB	TON	1.07	AP-42 Table 1.2-3 Used formula for SCC 10300101, EF calculated from formula of 0.08 * % Ash Content (13.38%). Reference for ash content is EPA, 2002.
PM10-PRI		LB	TON	31.84	
PM25-PRI		LB	TON	9.10	
Commercial/Institutional Heating: Bituminous and Lignite (SCC 2103002000)					
PM10-FIL	13.2	LB	TON	13.2	AP-42 Table 1.1-9 EF
PM25-FIL	4.6	LB	TON	4.6	AP-42 Table 1.1-9 EF
PM-CON	1.04	LB	TON	1.04	AP-42 Table 1.1-5 (0.04 lb/MMBtu * 26MMBtu/ton=1.04)
PM10-PRI		LB	TON	14.24	
PM25-PRI		LB	TON	5.64	
Commercial/Institutional Heating: Distillate Oil (SCC 2103004000)					
PM10-FIL	1.08	LB	E3GAL	1.08	AP-42 Table 1.3-7
PM25-FIL	0.83	LB	E3GAL	0.83	AP-42 Table 1.3-7
PM-CON	1.3	LB	E3GAL	1.3	AP-42 Table 1.3-2
PM10-PRI		LB	E3GAL	2.38	
PM25-PRI		LB	E3GAL	2.13	

Table III-2 (continued)

Pollutant[1]	Uncontrolled Emission Factor (EF)	EF Numerator	EF Denominator	Calculated Uncontrolled EF	Reference
Commercial/Institutional Heating: Residual Oil (SCC 2103005000)					
PM10-FIL	5.17 x % Sulfur content of oil	LB	E3GAL	7.703	AP-42 Table 1.3-7. EF calculated from formula of 5.17(A); where A=1.12(S)+0.37; Assumed S=1% for purpose of calculating EF ratios.
PM25-FIL	1.92 x % Sulfur content of oil	LB	E3GAL	2.861	AP-42 Table 1.3-7. EF calculated from formula of 5.17(A); where A=1.12(S)+0.37; Assumed S=1% for purpose of calculating EF ratios.
PM-CON	1.5	LB	E3GAL	1.5	AP-42, Table 1.3-2
PM10-PRI		LB	E3GAL	9.20	
PM25-PRI		LB	E3GAL	4.36	
Commercial/Institutional Heating: Natural Gas (SCC 2103006000)					
PM10-FIL	1.9	LB	E6FT3	1.9	AP-42 Table 1.4-2
PM25-FIL	1.9	LB	E6FT3	1.9	AP-42 Table 1.4-2
PM-CON	5.7	LB	E6FT3	5.7	AP-42 Table 1.4-2
PM10-PRI		LB	E6FT3	7.60	
PM25-PRI		LB	E6FT3	7.60	
Commercial/Institutional Heating: Liquified Petroleum Gas (SCC 2103007000)					
PM10-FIL	0.4	LB	E3GAL	0.4	AP-42 Table 1.5-1 (Propane for Commercial Boilers)
PM25-FIL	0.4	LB	E3GAL	0.4	AP-42 Table 1.5-1 (Propane for Commercial Boilers)
PM-CON	0.506	LB	E3GAL	0.506	Used natural gas PM-CON emission factor of 5.7 lb/Million Cubic Feet (for all PM controls and uncontrolled). Used factor of 0.0887 to convert emission factor from lb/Million Cubic Feet of natural gas to lb/1,000 gallons of propane. Reference: AP-42, Table 1.4-2. Conversion factor assumes 1020 Btu/scf for natural gas (AP-42, Table 1.4-2) and 90,500 Btu/gallon for propane (AP-42, Appendix A, page A-5).
PM10-PRI		LB	E3GAL	0.91	
PM25-PRI		LB	E3GAL	0.91	
Commercial/Institutional Heating: Kerosene (SCC 2103011000)					
PM10-FIL	1.08	LB	E3GAL	1.08	AP-42 Table 1.3-7 Used EF for Distillate Oil (per EIIP)
PM25-FIL	0.83	LB	E3GAL	0.83	AP-42 Table 1.3-7 Used EF for Distillate Oil (per EIIP)
PM-CON	1.3	LB	E3GAL	1.3	AP-42 Table 1.3-2 Used EF for Distillate Oil (per EIIP)
PM10-PRI		LB	E3GAL	2.38	
PM25-PRI		LB	E3GAL	2.13	
Residential Heating: Anthracite Coal (SCC 2104001000)					
PM10-FIL	10	LB	TON	10	EPA, 2002.
PM25-FIL	0.6 x % Ash content of coal	LB	TON	8.03	EF calculated from formula of 0.6 * % Ash Content (13.38%). Reference for EF and ash content is EPA, 2002.
PM-CON	0.08 x % Ash content of coal	LB	TON	1.07	EF calculated from formula of 0.08 * % Ash Content (13.38%). Reference for EF and ash content is EPA, 2002.
PM10-PRI		LB	TON	11.07	
PM25-PRI		LB	TON	9.10	

Table III-2 (continued)

Pollutant[1]	Uncontrolled Emission Factor (EF)	EF Numerator	EF Denominator	Calculated Uncontrolled EF	Reference
Residential Heating: Bituminous and Lignite Coal (SCC 2104002000)					
PM10-FIL	6.2	LB	TON	6.2	AP-42 Table 1.1-11
PM25-FIL	3.8	LB	TON	3.8	AP-42 Table 1.1-11
PM-CON	1.04	LB	TON	1.04	AP-42 Table 1.1-5 (0.04 lb/MMBtu * 26 MMBtu/ton=1.04)
PM10-PRI		LB	TON	7.24	
PM25-PRI		LB	TON	4.84	
Residential Heating: Distillate Oil (SCC 2104004000)					
PM10-FIL	1.08	LB	E3GAL	1.08	AP-42 Table 1.3-7 (Commercial/Institutional EF)
PM25-FIL	0.83	LB	E3GAL	0.83	AP-42 Table 1.3-7 (Commercial/Institutional EF)
PM-CON	1.3	LB	E3GAL	1.3	AP-42 Table 1.3-2
PM10-PRI		LB	E3GAL	2.38	
PM25-PRI		LB	E3GAL	2.13	
Residential Heating: Natural Gas - All types (SCC 2104006000)					
PM10-FIL	1.9	LB	E6FT3	1.9	AP-42 Table 1.4.2
PM25-FIL	1.9	LB	E6FT3	1.9	AP-42 Table 1.4.2
PM-CON	5.7	LB	E6FT3	5.7	AP-42 Table 1.4.2
PM10-PRI		LB	E6FT3	7.60	
PM25-PRI		LB	E6FT3	7.60	
Residential Heating: Liquified Petroleum Gas (SCC 2104007000)					
PM10-FIL	0.4	LB	E3GAL	0.4	AP-42 Table 1.5-1 (Same factor used for Propane for Commercial Boilers; based on EIIP)
PM25-FIL	0.4	LB	E3GAL	0.4	AP-42 Table 1.5-1 (Same factor used for Propane for Commercial Boilers; based on EIIP)
PM-CON	0.506	LB	E3GAL	0.506	Used natural gas PM-CON emission factor of 5.7 lb/Million Cubic Feet (for all PM controls and uncontrolled). Used factor of 0.0887 to convert emission factor from lb/Million Cubic Feet of natural gas to lb/1,000 gallons of propane. Reference: AP-42, Table 1.4-2. Conversion factor assumes 1020 Btu/scf for natural gas (AP-42, Table 1.4-2) and 90,500 Btu/gallon for propane (AP-42, Appendix A, page A-5).
PM10-PRI		LB	E3GAL	0.91	
PM25-PRI		LB	E3GAL	0.91	
Residential Heating: Kerosene (SCC 2104011000)					
PM10-FIL	1.08	LB	E3GAL	1.08	AP-42 Table 1.3-7 Used EF for Distillate Oil (per EIIP)
PM25-FIL	0.83	LB	E3GAL	0.83	AP-42 Table 1.3-7 Used EF for Distillate Oil (per EIIP)
PM-CON	1.3	LB	E3GAL	1.3	AP-42 Table 1.3-2 Used EF for Distillate Oil (per EIIP)
PM10-PRI		LB	E3GAL	2.38	
PM25-PRI		LB	E3GAL	2.13	

1 PM10-PRI EF = sum of PM10-FIL and PM-CON emission factors; PM25-PRI EF = sum of PM25-FIL and PM-CON emission factors.

Revisions to the NEI for residential LPG and kerosene were completed after the preliminary 2002 NEI was released in February 2004. Connecticut, the District of Columbia, Maine, and Rhode Island approved replacement of the preliminary 2002 NEI estimates with the revised estimates for LPG. Connecticut was the only State that elected to use the NEI for the residential kerosene category, and Connecticut approved replacing the preliminary 2002 NEI for this category with the revised inventory prepared by EPA.

Other Sources of PM Emissions

For States that provided only PM10-FIL and PM25-FIL emissions, PM10-PRI emissions were set equal to PM10-FIL emissions and PM25-PRI emissions were set equal to PM25-FIL emissions. The PM10-PRI and PM25-PRI emissions that were added to the inventory were assigned a data source code of S-02-X-PR where S-02-X represents the code assigned to the PM10-FIL and PM25-FIL emissions provided by the State agency and the "-PR" indicates that the ratio was applied to estimate the primary emissions (in this case, the ratio of primary to filterable emissions is "1").

PM25-PRI emissions missing from State inventories were estimated by applying a ratio of PM25-PRI-to-PM10-PRI emissions to the PM10-PRI emissions provided by the State agency. Table III-3 identifies the agencies with SCCs for which ratios were applied to estimate PM25-PRI emissions. This table also shows the ratios and the reference for the ratios.

Table III-3. SCCs for which PM25-PRI Emissions were Estimated by Applying a Ratio to the PM10-PRI Emissions in the State inventory

SCC	SCC Description	Agency	Ratio of PM25-PRI to PM10-PRI	Reference
2309100010	Industrial Processes: Fabricated Metals: SIC 34: Coating, Engraving, and Allied Services: Electroplating	NY	0.947	AP-42 emission factors for hard chrome plating tank controlled with mist eliminator. AP-42 (Table 12.20-3) shows 94.7% of total PM as less than 2.35 micrometers. Applied factor to State-supplied PM10-PRI emissions to estimate PM25-PRI emissions.
2461023000	Solvent Utilization: Miscellaneous Non-industrial: Commercial: Asphalt Roofing: Total: All Solvent Types	MA	1	No data available; assumed PM25-PRI equals PM10-PRI.
2601000000	Waste Disposal, Treatment, and Recovery: On-site Incineration: All Categories: Total	MD, NH	1	No data available; assumed PM25-PRI equals PM10-PRI.
2610000100	Waste Disposal, Treatment, and Recovery: On-site Incineration: All Categories: Yard Waste - Leaf Species Unspecified	NH	1	No data available; assumed PM25-PRI equals PM10-PRI.
2810001000	Miscellaneous Area Sources: Other Combustion: Forest Wildfires: Total	MD	1	No data available; assumed PM25-PRI equals PM10-PRI.
2810015000	Miscellaneous Area Sources: Other Combustion: Prescribed Burning for Forest Management: Total	MD	1	No data available; assumed PM25-PRI equals PM10-PRI.
2810020000	Miscellaneous Area Sources: Other Combustion: Prescribed Burning of Rangeland: Total	MD	0.86	Based on ratio of PM25-PRI to PM10-PRI for same SCC used by States in 2002 NEI.
2810030000	Miscellaneous Area Sources: Other Combustion: Structure Fires: Total	MD, NH	0.91	NEI Method.
2810050000	Miscellaneous Area Sources: Other Combustion: Motor Vehicle Fires: Total	MD, NH	0.91	NEI Method.

d. 2002 NEI

Merging of NEI Data into State Inventories

The area source inventory provided by each State agency was compared to the 2002 NEI to identify categories in the NEI that were not in each State inventory. The list of categories identified was provided to each State agency and each agency then selected the NEI categories to be added to its inventory. Identification of categories included in the 2002 NEI but not in a State inventory involved a two-step process. First, Pechan identified the categories in the NEI that did not have an electronic match on the data key of the EM table between the State inventory and the NEI. Then, Pechan manually compared the NEI categories without an electronic match to the State inventory to identify and eliminate NEI categories that were in the State inventory but had a different SCC. For example, a State inventory may use a general SCC for a category while the NEI may use different SCCs to breakout emissions at a finer detail. Examples of categories where this typically occurred include the residential wood combustion, open burning of land clearing debris, solvent utilization, and petroleum marketing and transportation categories. In

addition, if a State agency requested that a MANE-VU-sponsored inventory be added to its inventory, the NEI categories that overlapped with the MANE-VU -sponsored categories were removed from the list of NEI categories considered for incorporation into a State inventory.

The source categories in the 2002 NEI that were added to a State inventory can be identified where the data source code starts with "E". These categories can be identified using the data source code field in the NIF 3.0 files or in the summary of area source emissions that contains the data source code.

Revisions to the Preliminary 2002 NEI

During preparation of the MANE-VU inventory, EPA completed revisions to the emissions for six categories in the preliminary 2002 NEI released in February 2004. As agreed to with each State agency, the revised emissions were used in the MANE-VU inventory in lieu of the preliminary 2002 NEI emissions if the agency requested that the category be included.

- Non-Residential Construction (SCC 2311020000): 2002 emissions data replaced data in preliminary 2002 NEI that were carried forward from 1999 NEI.

- Highway Construction (SCC 2311030000): 2002 emissions data replaced data in preliminary 2002 NEI that were carried forward from 1999 NEI.

- Open Burning of Land Clearing Debris (SCC 2610000500): 2002 emissions data replaced data in preliminary 2002 NEI that were carried forward from 1999 NEI. The activity for this category was based on activity prepared for the non-residential and highway construction categories. For 2002, emissions were set to zero for counties with a population that was 80% urban or more based on 2000 Census data. This was not done for the 1999 NEI. For the NEI method, it was assumed that highly urban counties do not allow this activity to take place. Note that 2002 emissions data were already included in the preliminary 2002 NEI for the open burning of residential municipal solid waste, open burning of yard waste, and the residential construction categories.

- Residential LPG Combustion (SCC 2104007000): 2000 emissions data replaced data in the preliminary 2002 NEI that were carried forward from 1999 NEI.

- Residential Kerosene Combustion (SCC 2104011000): 2000 emissions data replaced data in the preliminary 2002 NEI that were carried forward from 1999 NEI.

- Residential Wood Combustion (SCCs starting with 2104008xxx; 4 SCCs for fireplaces and 3 SCCs for woodstoves): The preliminary 2002 NEI emissions were revised to:

- Correct the CO, PM10-PRI, and PM25-PRI emission factors for fireplaces without inserts (this change doubled the emission factors associated with correcting an error in converting the values from g/kg to lb/ton);

- Correct the climate zone map for allocating national activity to States;

- Replace 1997 total residential wood consumption with 2001 estimates (this change reduced wood consumption for fireplaces with inserts and woodstoves);

- Update urban/rural population data to reflect 2002 estimates based on year 2002 total county population and year 2000 county ratios of urban/rural population to total population; and

- Change the data source code from E-02-X (this was incorrect) to E-01-X to reflect 2001 activity data adjusted to 2002.

e. QA Review of Final Inventory

Final QA checks were run on the revised data set to ensure that all corrections provided by the State agencies were incorporated into the State inventories and that there were no remaining QA issues that could be addressed during the duration of the project. After exporting the inventory in Oracle to an Access database in NIF 3.0, the EPA's QA program was run on the Access database and the QA output was reviewed to verify that all QA issues that could be addressed were resolved (EPA, 2004a).

The output file from the EPA's QA program run on the area source inventory is provided in an Access 2000 database along with the Access database containing the area source inventory in NIF 3.0.

Additional Work on Area Source Methods

- Fugitive Dust Emissions from Paved and Unpaved Roads

Review of Methods

This work involved compiling and summarizing information on emission estimation methods and data sources from the MANE-VU State agencies, RPOs, and EPA for the following fugitive dust area source categories: windblown dust, paved and unpaved roads, agricultural tiling and harvesting, and construction activities. A short survey form was prepared and sent to the MANE-VU State agencies to collect information on whether an agency had activity for each category during 2002. For each agency for which activity occurred in its jurisdiction during 2002, information was requested on the methods and data sources it used to prepare its 2002 inventory for each category. This information was used to prioritize the categories (e.g., work on agricultural field burning was eliminated from further consideration if MANE-VU State agencies

did not have activity for this category). The methods and data applied by RPOs other than MANE-VU were obtained from RPO websites and discussions with the RPOs.

The results of this review were documented in a technical memorandum (MANE-VU, 2004b). Based on the results of the review, MANE-VU decided to proceed with developing a paved and unpaved road fugitive dust inventory that incorporated improvements to activity data used in the NEI methodology.

Methods for Improving Paved and Unpaved Road Fugitive Dust Inventory

Fugitive dust emissions from paved and unpaved roads are classified under SCCs 2294000000 and 2296000000, respectively. Fugitive dust emissions from paved and unpaved road traffic were estimated for PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL. Since these categories are not sources of PM-CON, PM10-PRI emissions are equal to PM10-FIL emissions and PM25-PRI emissions are equal to PM25-FIL. The following provides a summary of the methods.

Paved Roads

Several changes were made in the paved road fugitive dust emission calculations to improve these estimates over those prepared for EPA's 2002 NEI. First, the monthly precipitation data representing the number of days in a month with at least 0.01 inches of precipitation were developed at the county level. In comparison, a single monthly precipitation value was used to model an entire State in the 2002 NEI. Thus, the resulting MANE-VU county-specific paved road fugitive dust emission estimates should be more representative of each county than the NEI data since precipitation events can vary significantly from one part of the State to another.

The second improvement made to the paved road fugitive dust emission calculations was the use of county and road-type-specific average vehicle weights. This is an improvement over the NEI where a single average vehicle weight is applied nationwide. Thus, in the MANE-VU inventory, county/road type combinations with significant heavy truck traffic have a higher average vehicle weight and a corresponding emission factor compared to county/road type combinations with primarily lighter vehicle traffic.

The final improvement made to the MANE-VU paved road emission calculations was the use of the winter silt loading adjustments. These adjustments account for the application of sand and salt on the roads during months with frozen precipitation. The 2002 NEI does not include any wintertime silt loading adjustments. The effect of the wintertime silt loading adjustments is an increase in the paved road emission factors during the months in which it is applied. The months during which this adjustment was applied varied by State in the MANE-VU inventory.

Unpaved Roads

The county-specific precipitation data used in the paved road fugitive dust calculations were also used to improve the unpaved road fugitive dust calculations. As with the paved roads, this represents an improvement over the State-specific precipitation data used in the 2002 NEI

unpaved road emission inventory. The other improvement made to the unpaved roads was the use of State-supplied unpaved road mileage data by county for Maine.

- Wildfires and Prescribed Burning

Review of Methods

This work involved compiling and summarizing information on emission estimation methods and data sources from the MANE-VU State agencies, RPOs, and EPA for the following area source categories: wildfires, prescribed burning, slash burning, and agricultural field burning. The approach previously described for the fugitive dust categories was used to collect and compile data from the MANE-VU State agencies, RPOs other than MANE-VU, and EPA for the fire categories. All of the information collected from these various information sources was summarized in a technical memorandum (MANE-VU, 2004c).

Results of Methods Review

MANE-VU recognized the need to improve the methods for estimating emissions for the fire categories. The most important revision would be to inventory fire events as point sources rather than as area sources at the county-level. However, due to resource constraints, it was decided not to pursue improvements to the methods for estimating emissions from the fire categories. It should be noted that during this project, some of the MANE-VU States provided revisions to their wildfire and prescribed burning inventories to add PM25-PRI emissions and to improve the spatial allocation of activity data at the county level. These improvements were incorporated into the MANE-VU area source inventory.

3. Version 3 Revisions

The following explains revisions to Version 3 that applied to several or all of the MANE-VU States.

Gap Filling

In Version 2 of MANE-VU's inventory, emissions for PFCs, industrial adhesives, and residential outdoor wood burning existed for some States but were missing for other States. Since these are categories for which SIP rules may be developed, it was determined that emissions for these categories should be added to Version 3. The following provides a summary of the Version 3 revisions to address missing data concerns for these categories:

- PFCs: MANE-VU estimated default 2002 emissions for these States using a per capita emission factor and county population data for each State. The derivation of the emission factor, population data, and calculation of annual and daily VOC emissions for PFCs is provided in an Excel file named "PFC_Adhesive Calcs for 2002_022106.xls" along with this TSD.

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont elected to use MANE-VU's default inventory which was added to Version 3. Massachusetts elected to use the per capita emission factor but provided revisions to the population data, used 2002 owner occupied units to allocate the emissions to counties, and then allocated emissions between the commercial (16%) and residential (84%) sectors. Massachusetts' calculations are provided in the spreadsheet named "Version 3 Revisions" in the Excel file named MA_AR_QA_Report_030806.xls" provided with this TSD.

- Industrial Adhesives: Emissions for industrial adhesives were missing in Version 2 for Connecticut, the District of Columbia, Delaware, Maryland, Massachusetts, and Rhode Island. MANE-VU estimated default 2002 emissions for these States using a per capita emission factor and county population data for each State. The derivation of the emission factor, population data, and calculation of annual and daily VOC emissions for industrial adhesives is provided in an Excel file named "PFC_Adhesive Calcs for 2002_022106.xls" along with this TWD.

  Massachusetts elected to use MANE-VU's gap-filling inventory which was added to Version 3. The rest of the States elected to use EPA's 2002 inventory which is based on a top-down, mass balance methodology where national industrial adhesive solvent estimates were allocated to counties using industrial employment. The EPA estimates were adjusted to remove uncontrolled VOC emissions included in the final 2002 point source NEI. The point-source adjustments were conducted at the county level. Note that the point-source-adjusted emissions for Rhode Island are zero for all three counties.

  Note New Jersey is the only State that prepared its own 2002 inventory for this category that is included in Version 3. The industrial adhesive inventory data for the rest of the MANE-VU States originates from the 1999 NEI. These States were contacted to determine if they wanted the 1999 data replaced with the default estimates or with the EPA's 2002 inventory for industrial adhesives. Maine commented that the 1999 estimates are more realistic of the solvent emissions for their State than the 2002 NEI or MANE-VU default estimates. The other States did not indicate that they wanted their data replaced. Therefore, the 1999 NEI data for Maine, New Hampshire, New York, Pennsylvania, and Vermont was not changed in Version 3 of MANE-VU's inventory.

- Residential Wood Burning: Residential outdoor wood burning emissions were missing in Version 2 of the MANE-VU inventory for the District of Columbia, Pennsylvania, Rhode Island, and Vermont. In Versions 1 and 2, New Jersey's and New York's emissions for outdoor wood burning were included with their inventory for indoor wood burning. The District of Columbia, Rhode Island, and Vermont elected to use MANE-VU's outdoor wood burning inventory which was added to Version 3. In addition, per direction provided by New Jersey, its wood burning inventory was replaced with the MANE-VU-sponsored indoor wood burning inventory in Version 3, and the MANE-VU outdoor wood burning inventory was added to Version 3.

New York's inventory in Version 2 included emissions for both residential indoor and outdoor wood burning. For Version 3, New York provided revisions that lowered its overall emissions relative to Version 2 and broke out its inventory to show emissions for fireplaces, woodstoves, and outdoor equipment separately. New York also added NH_3 emissions to its inventory for Version 3.

Adjustments to $PM_{2.5}$ Emissions for Fugitive Dust Categories

Information developed by the Western Governors' Association, Western Regional Air Partnership (WRAP) Dust Emissions Joint Forum and EPA indicates that, for paved and unpaved roads and the construction nonpoint source categories, the $PM_{2.5}$-to-PM_{10} ratio is lower than the ratio used in the EPA method to estimate PM25-PRI/-FIL emissions from PM10-PRI/-FIL emissions (WRAP, 2005). Therefore, for the final 2002 NEI, EPA applied an adjustment factor to the PM25-PRI/-FIL emissions to correct for overestimates of PM25-PRI/-FIL emissions for these categories. Because the $PM_{2.5}$-to-PM_{10} ratio used for the MANE-VU States is based on the EPA method, this information was communicated to the MANE-VU States and all of the States agreed that these adjustments should be made to the MANE-VU inventory. Table III-4 identifies the categories to which this adjustment was applied, the old and new $PM_{2.5}$-to-PM_{10} ratios, and the adjustment factors applied to the PM25-PRI/-FIL emissions in Version 3 of MANE-VU's inventory. Note that these adjustments to $PM_{2.5}$ emissions were applied prior to applying the transport adjustment factors for PM_{10} and $PM_{2.5}$ emissions. The modelers applied the transport adjustment factors to the mass emissions in Version 3. Documentation of the file containing the transport adjustment factors is provided under "Speciation Profiles" section of Table VII-1 in Chapter VII.

For the construction categories, the EPA assumed an original $PM_{2.5}$-to-PM_{10} ratio of 0.15 and an adjustment factor of 0.67. However, the original $PM_{2.5}$-to-PM_{10} ratio used for both the NEI method and MANE-VU's inventory for construction is 0.2. Based on discussions with EPA, the goal is to revise the original $PM_{2.5}$ emissions such that the $PM_{2.5}$-to-PM_{10} ratio is 0.1. Therefore, for Version 3 of MANE-VU's 2002 area source inventory, an adjustment factor of 0.5 (ratio of 0.1-to-0.2) was applied to adjust the $PM_{2.5}$ emissions.

Note that based on Pechan's discussions with EPA during the week of March 6, 2006 concerning the application of the paved road $PM_{2.5}$ adjustment factor, it was determined that adjusting the emissions by applying the factor (shown in Table III-4) to the $PM_{2.5}$ emissions is a simplistic approach. The EPA noted that it is evaluating this issue and will be issuing guidance in the near future for revising the equation for estimating $PM_{2.5}$ emissions which, when applied, will likely yield different results. Because EPA was unable to provide guidance on how to address this issue before Version 3 needed to be completed during the week of March 6, the adjustment factor shown in Table III-4 was applied to the $PM_{2.5}$ emissions for paved roads because this adjustment will provide a better estimate of $PM_{2.5}$ emissions than the unadjusted emissions.

Table III-4. Revisions to PM25-PRI and PM25-FIL Emissions for Paved and Unpaved Roads and Construction

SCC	SCC Description	Original $PM_{2.5}$-to-PM_{10} Ratio	Revised $PM_{2.5}$-to-PM_{10} Ratio	Adjustment Factor[1,2]
2294000000	Mobile Sources : Paved Roads : All Paved Roads : Total: Fugitives	0.25	0.15	0.6
2296000000	Mobile Sources : Unpaved Roads : All Unpaved Roads : Total: Fugitives	0.15	0.1	0.67
2296005000	Mobile Sources : Unpaved Roads : Public Unpaved Roads : Total: Fugitives	0.15	0.1	0.67
2296010000	Mobile Sources : Unpaved Roads : Industrial Unpaved Roads : Total: Fugitives	0.15	0.1	0.67
2311000000	Industrial Processes : Construction: SIC 15 - 17 : All Processes : Total	0.2	0.1	0.50
2311010000	Industrial Processes : Construction: SIC 15 - 17 : Residential : Total	0.2	0.1	0.50
2311010040	Industrial Processes : Construction: SIC 15 - 17 : Residential : Ground Excavations	0.2	0.1	0.50
2311020000	Industrial Processes : Construction: SIC 15 - 17 : Industrial/Commercial/Institutional : Total	0.2	0.1	0.50
2311020040	Industrial Processes : Construction: SIC 15 - 17 : Industrial/Commercial/Institutional : Ground Excavations	0.2	0.1	0.50
2311030000	Industrial Processes : Construction: SIC 15 - 17 : Road Construction : Total	0.2	0.1	0.50

[1] For these categories, filterable and primary emissions are equal because they are not sources of condensible emissions. The adjustment factor was applied to both the PM25-PRI and PM25-FIL emissions and emission factors in the MANE-VU inventory.
[2] See text for discussion of issue concerning the adjustment factor for paved road $PM_{2.5}$ emissions. Also, for construction, see text for explanation of $PM_{2.5}$ adjustment factor shown in this table.

Removal of Invalid CE Records

For the following SCCs, Version 2 contained invalid CE records for Connecticut, the District of Columbia, Maine, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont that were removed in Version 3:

SCC	SCC Description
2311020000	Construction: SIC 15 - 17 : Industrial/Commercial/Institutional : Total
2311030000	Construction: SIC 15 - 17 : Road Construction : Total
2610000100	Open Burning : All Categories : Yard Waste - Leaf Species Unspecified
2610000400	Open Burning : All Categories : Yard Waste - Brush Species Unspecified
2610030000	Open Burning : Residential : Household Waste

The CE records all originate from the preliminary 2002 NEI that have been removed from the final 2002 nonpoint NEI. They are invalid because they have a control efficiency value of 100% and corresponding records in the EM table with rule effectiveness and rule penetration values of 100% (implying that the emissions are zero), but with emissions greater than zero. The Excel spreadsheet file named "CE_records_removed from V3.xls" provides the CE records by State and county FIPS, SCC, and pollutant code that were removed in Version 3.

4. Version 3 Emissions Summary

Table III-5 presents a State-level summary of the annual area source emissions in Version 3 of the 2002 MANE-VU inventory. Note that PM10-PRI and PM25-PRI emissions are included in the inventory for all SCCs for which State agencies reported any form of PM, PM_{10}, and/or $PM_{2.5}$ emissions. If an agency did not report PM10-PRI and/or PM25-PRI but reported PM-PRI, PM-FIL, PM-CON, PM10-FIL, and/or PM25-FIL, the PM augmentation procedures discussed in the TSD were applied to the form of PM emissions supplied by the agency to calculate emissions for the other forms of PM emissions. If an agency reported PM10-PRI and/or PM25-PRI emissions but not PM10-FIL, PM25-FIL, or PM-CON emissions, the agency's inventory was not augmented to calculate filterable or condensible emissions. Note that PM-CON is associated with only fuel combustion sources.

For NH_3, the area source inventory includes emissions for natural sources for the following States: SCCs 28060xxxxx for domestic cats and dogs in Delaware, Massachusetts, and New Jersey; 28070xxxxx for wild animals in Delaware, Massachusetts, New Jersey, and New York; and SCC 2810010000 for human perspiration in Delaware, Massachusetts, and New Jersey. The area source inventory also includes NH_3 biogenic emissions (SCC 2701420000) for Massachusetts.

Table III-5. Version 3 2002 MANE-VU Area Source Emissions by State (Tons/Year)

State	CO	NH_3	NO_x	PM10-FIL	PM10-PRI	PM25-FIL	PM25-PRI	PM-CON	SO_2	VOC
Connecticut	70,198	5,318	12,689	37,790	48,281	4,038	14,247	846	12,418	87,302
Delaware	14,052	13,279	2,608	12,910	13,039	3,075	3,204	128	1,588	15,519
District of Columbia	2,300	14	1,644	5,745	6,293	507	1,029	147	1,337	6,432
Maine	109,223	8,747	7,360	155,237	168,953	19,090	32,774	686	13,149	100,621
Maryland	141,178	25,834	15,678	31,116	95,060	3,375	27,318	611	12,393	120,254
Massachusetts	136,552	18,809	31,358	150,046	192,839	23,354	42,067	1,156	54,923	162,016
New Hampshire	79,647	2,158	10,960	32,138	43,328	6,688	17,532	449	7,072	65,370
New Jersey	97,657	17,572	26,692	37,282	61,601	2,811	19,350	476	10,744	167,882
New York	356,254	67,422	98,803	288,991	369,595	30,894	87,154	102	130,409	507,292
Pennsylvania	266,935	79,911	47,591	363,173	391,897	51,792	74,925	266	63,679	240,785
Rhode Island	8,007	883	3,886	7,090	8,295	887	2,064	336	4,557	31,402
Vermont	43,849	9,848	3,208	51,392	56,131	6,729	11,065	180	4,087	23,265
MANE-VU	**1,325,853**	**249,795**	**262,477**	**1,172,909**	**1,455,311**	**153,243**	**332,729**	**5,383**	**316,357**	**1,528,141**

B. State-Specific Methods

For each of the MANE-VU States, this section identifies the temporal basis of the emissions included in Version 3 and discusses revisions incorporated into Version 3. In addition, this section also discusses the origin of each State agency's emissions included in Version 3. For each agency, a table is provided in Appendix B that lists the data source codes by SCC, emission type period, and pollutant. In addition, an electronic folder is provided for each State agency containing the QA Summary Reports prepared for Versions 1, 2, and/or 3 and other files documenting revisions included in Versions 2 and 3. Except for Rhode Island, a QA Summary Report was prepared for Version 1. Subsequently, a QA Summary Report was prepared for States that provided Version 2 or 3 revisions. Rhode Island elected to use EPA's draft 2002 NEI for Versions 1 and 2 but provided revisions for Version 3; therefore, a QA Summary Report is available for Version 3 only for Rhode Island.

1. Connecticut

Table III-6 shows the emission type periods for which Connecticut provided emissions.

Table III-6. Connecticut 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29

Table B-1 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Connecticut provided 2002 emissions for many of the area source categories in Version 3. Connecticut elected to use the EPA's 2002 inventory for industrial adhesives. Connecticut elected to use MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor residential wood combustion;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily NH_3 emissions for industrial refrigeration processes;
- Annual and daily VOC emissions for PFCs; and
- Annual and daily VOC and NH_3 emissions for composting.

Emissions for the remaining area source categories were taken from the draft 2002 NEI. For Connecticut, these emissions are either based on 2002 data prepared by EPA or carried forward

from final Version 3 of the 1999 NEI. Data carried forward from the 1999 NEI originate from either State data included in the 1999 NEI or EPA data developed for the 1999 NEI.

2. Delaware

Table III-7 shows the emission type periods for which Delaware provided emissions.

Table III-7. Delaware 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type	Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20020831	30	DAILY	20011201	20020228	27
ANNUAL	20020101	20021231	30	DAILY	20020101	20020831	27
ANNUAL	20020512	20020512	30	DAILY	20020512	20020512	27
ANNUAL	20020629	20020629	30	DAILY	20020601	20020831	27
ANNUAL	20021029	20021029	30	DAILY	20020629	20020629	27
ANNUAL	20021104	20021104	30	DAILY	20021029	20021029	27
ANNUAL	20021205	20021205	30	DAILY	20021104	20021104	27
				DAILY	20021205	20021205	27

Table B-2 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Delaware provided 2002 emissions for the majority of the area source categories in Version 3, and used 2002 data that EPA prepared for the draft 2002 NEI or MANE-VU-sponsored inventories for the remaining categories. Delaware elected to use the EPA's 2002 inventory for industrial adhesives, and prepared its own inventory for PFCs. Delaware elected to use data from MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved roads (note: there are no unpaved roads in Delaware);
- Annual and daily NH_3 emissions for POTWs; and
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM10-FIL, PM25-PRI, PM25-FIL, and SO_2 emissions for open burning categories.

3. District of Columbia

Table III-8 shows the emission type periods for which the District of Columbia provided emissions.

Table III-8. District of Columbia 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27

Table B-3 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. The District of Columbia provided 2002 emissions for the majority of the area source categories in Version 3. The District of Columbia provided annual VOC emissions for PFCs for Version 2 that were kept in Version 3. The District of Columbia elected to use the EPA's 2002 inventory for industrial adhesives and indoor wood burning. The exception is for the following categories for which the District of Columbia elected to use data from MANE-VU-sponsored inventories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved roads (note: there are no unpaved roads in the District of Columbia);
- Annual and daily VOC and NH_3 emissions for composting; and
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for open burning categories.

4. Maine

Table III-9 shows the emission type periods for which Maine provided emissions.

Table III-9. Maine 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29
DAILY	20020601	20020929	29

Table B-4 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Maine provided 2002 emissions for many of the area source categories in Version 3. Maine's inventory for industrial adhesives originates from the 1999 NEI. Maine provided annual and daily VOC and annual NH_3 emissions for industrial wastewater treatment that were added to Version 3. Maine elected to use data from MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily VOC emissions for PFCs; and
- Annual and daily VOC and NH_3 emissions for composting.

5. Maryland

Table III-10 shows the emission type periods for which Maryland provided emissions. Table B-5 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC.

Table III-10. Maryland 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type	Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30	MONTHLY	20020101	20020131	30
SEASONAL	20020401	20020930	30	MONTHLY	20020201	20020228	30
SEASONAL	20020401	20021031	30	MONTHLY	20020301	20020331	30
SEASONAL	20020601	20020831	30	MONTHLY	20020401	20020430	30
DAILY	20011201	20020228	27	MONTHLY	20020501	20020531	30
DAILY	20020101	20021231	29	MONTHLY	20020601	20020630	30
DAILY	20020401	20020930	29	MONTHLY	20020701	20020731	30
DAILY	20020401	20021031	29	MONTHLY	20020801	20020831	30
DAILY	20020601	20020831	27	MONTHLY	20020901	20020930	30
DAILY	20020601	20020831	29	MONTHLY	20021001	20021031	30
				MONTHLY	20021101	20021130	30
				MONTHLY	20021201	20021231	30

Maryland provided 2002 annual, seasonal, and daily emissions for the majority of the area source categories in Version 3 and used 2002 data that EPA prepared for the draft 2002 NEI for industrial adhesives and commercial cooking. Maryland prepared its own inventory for PFCs.

Maryland elected to use data from MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM10-FIL, PM25-PRI, PM25-FIL, and SO_2 emissions for open burning categories; and
- Annual and monthly NH_3 emissions for agricultural crop fertilizers.

For Version 2, Maryland provided revisions to annual, seasonal, and daily VOC emissions for SCC 2505030120 (Storage and Transport : Petroleum and Petroleum Product Transport : Truck : Gasoline). Maryland also removed PM10-FIL and PM25-FIL annual, seasonal, and daily records for open burning of land clearing debris (SCC 2610000500). Maryland had revised the PM10-PRI and PM25-PRI emissions in an earlier version of the MANE-VU inventory but not the PM10-FIL and PM25-FIL. As a result of revising the primary emissions, the filterable emissions were no longer met the consistency check as compared to the primary emissions.

QA of PM emissions in Version 3 identified one record for Maryland in county 510 for SCC 2801000003 (Agriculture - Crops : Tilling) where PM10-PRI annual emissions are 2317.2 tons and PM25-PRI annual emissions are 0 tons. For the other counties in Maryland with this SCC, PM25-PRI emissions are about 20% of the PM10-PRI emissions. This issue was not addressed due to time and resource constraints for completing revisions to Version 3.

6. Massachusetts

Table III-11 shows the emission type periods for which Massachusetts provided emissions.

Table III-11. Massachusetts 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29

Table B-6 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Massachusetts provided 2002 annual and daily emissions for the majority of the area source categories in Version 3 and used 2002 data that EPA prepared for the draft 2002 NEI for residential coal combustion, asphalt roofing, and agricultural livestock (NH_3).

Massachusetts elected to use data from MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily VOC emissions for industrial adhesives and PFCs;
- Annual and daily NH_3 emissions for industrial refrigeration processes;
- Annual and daily VOC and NH_3 emissions for composting; and
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM10-FIL, PM25-PRI, PM25-FIL, and SO_2 emissions for open burning categories.

For Version 2, Massachusetts revised annual and summer day VOC emissions for 14 counties for the following categories: aircraft refueling, surface coating, degreasing, miscellaneous non-industrial: consumer and commercial products and pesticides, and gasoline service stations (stage 1: balanced submerged fill). Massachusetts also revised annual and daily emissions for 14 counties for forest wildfires, revised annual emissions for four counties for residential open burning of brush using the correct rule penetration factors for the counties, and revised control efficiency and control device data for selected categories in the CE table.

For Version 3, Massachusetts revised annual and summer day VOC emissions for 14 counties for auto refinishing. In the CE table, Massachusetts changed control device code 102 (low-solvent coatings) to 000 (uncontrolled) and associated control efficiency values were set to null for all counties. Massachusetts also added annual and summer day VOC emissions for 14 counties for gasoline service stations (stage 2: displacement loss/controlled).

For PFCs, Massachusetts elected to use the per capita emission factor but provided revisions to the population data, used 2002 owner occupied units to allocate the emissions to counties, and then allocated emissions between the commercial (16%) and residential (84%) sectors. Massachusetts' calculations are provided in the spreadsheet named "Version 3 Revisions" in the Excel file named MA_AR_QA_Report_030806.xls".

7. New Hampshire

Table III-12 shows the emission type periods for which New Hampshire provided emissions. Table B-7 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. New Hampshire provided 2002 emissions for many of the area source categories in Version 3. New Hampshire's inventory for industrial adhesives originates from the 1999 NEI.

Table III-12. New Hampshire 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29
MONTHLY	20020101	20020131	30
MONTHLY	20020201	20020228	30
MONTHLY	20020301	20020331	30
MONTHLY	20020401	20020430	30
MONTHLY	20020501	20020531	30
MONTHLY	20020601	20020630	30
MONTHLY	20020701	20020731	30
MONTHLY	20020801	20020831	30
MONTHLY	20020901	20020930	30
MONTHLY	20021001	20021031	30
MONTHLY	20021101	20021130	30
MONTHLY	20021201	20021231	30

New Hampshire elected to use data from MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily VOC emissions for PFCs;
- Annual and daily NH_3 emissions for industrial refrigeration processes and POTWs;
- Annual and daily VOC and NH_3 emissions for composting;
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for open burning categories; and
- Annual and monthly NH_3 emissions for agricultural crop fertilizers and livestock.

Emissions for the remaining area source categories were taken from the draft 2002 NEI; these emissions are either based on 2002 data prepared by EPA or EPA data carried forward from final Version 3 of the 1999 NEI.

New Hampshire provided revisions to Version 2 that were kept in Version 3. For Version 2, New Hampshire revised annual and daily VOC emissions for the gasoline storage and transport sector to reflect revisions it made to the 2002 inventory that EPA prepared for the 2002 NEI. The categories revised include bulk plant breathing losses, gasoline service stations (stages 1 and 2 total and underground tank breathing and emptying losses), and gasoline tank trucks.

8. New Jersey

Table III-13 shows the emission type periods for which New Jersey provided emissions.

Table III-13. New Jersey 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20011201	20020228	29
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29

Table B-8 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. New Jersey provided 2002 emissions for the majority of the area source categories. New Jersey provided its own 2002 inventory for industrial adhesives and PFCs. Emissions for the remaining area source categories were taken from the draft 2002 NEI (that are either based on 2002 data prepared by EPA or EPA data carried forward from final Version 3 of the 1999 NEI) or MANE-VU-sponsored inventories. New Jersey elected to use MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for indoor and outdoor residential wood combustion (replacing New Jersey's indoor residential wood combustion inventory provided in Versions 1 and 2);
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved roads;
- Annual and daily NH_3 emissions for industrial refrigeration processes and POTWs; and
- Annual and daily VOC and NH_3 emissions for composting.

For Version 3, New Jersey added annual and summer day VOC emissions for 21 counties for SCC 2501060100 (gasoline service stations : stage 2: total). The emissions are summarized in the spreadsheet named "Version 3 Revisions" in the Excel file named "NJ_AR_QA_Report_ 030806.xls". New Jersey provided 2002 emissions data for the industrial adhesives and PFC categories in Version 1. For Version 2, New Jersey corrected PM25-PRI emissions that were greater than PM10-PRI emissions for SCC 2601000000 (on-site incineration : all categories : total).

9. New York

Table III-14 shows the emission type periods for which New York provided emissions. Table B-9 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination or

because emissions are not reported for all pollutants for the same SCC and emission type period combination.

Table III-14. New York 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
MONTHLY	20020101	20020131	30
MONTHLY	20020201	20020228	30
MONTHLY	20020301	20020331	30
MONTHLY	20020401	20020430	30
MONTHLY	20020501	20020531	30
MONTHLY	20020601	20020630	30
MONTHLY	20020701	20020731	30
MONTHLY	20020801	20020831	30
MONTHLY	20020901	20020930	30
MONTHLY	20021001	20021031	30
MONTHLY	20021101	20021130	30
MONTHLY	20021201	20021231	30

New York provided revisions to annual emissions for all 62 counties for the categories and pollutants shown in Table III-15. This revision completely replaced the 2002 emissions that New York provided in Version 2. Table III-15 also identifies categories and pollutants for which emissions were added to Version 3 (i.e., not in Version 2). The emissions are summarized in the spreadsheet named "Version 3 Revisions" in the Excel file named NY_AR_QA_Report_030806.xls".

New York's inventory in Version 2 included emissions for both residential indoor and outdoor wood burning. For Version 3, New York provided revisions that lowered its overall emissions relative to Version 2 and broke out its inventory to show emissions for fireplaces, woodstoves, and outdoor equipment separately. New York also added NH_3 emissions to its inventory for Version 3. New York's inventory for industrial adhesives originates from the 1999 NEI. New York provided its own 2002 inventory for PFCs. Emissions for the remaining area source categories were taken from the draft 2002 NEI (that are either based on 2002 data prepared by EPA or EPA data carried forward from final Version 3 of the 1999 NEI) or MANE-VU-sponsored inventories.

New York elected to use MANE-VU-sponsored inventories for the following source categories:

- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily NH_3 emissions for agricultural livestock; and
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for open burning categories.

A QA issue that may affect the use of the MANE-VU inventory for air quality modeling and revisions to the projection year inventory is the addition of SCCs 2103004001 and 2103004002 by New York that are not in EPA's master SCC list used by the EPA QA program. These SCCs are defined in Table III-15. In addition, the QA program shows SCCs for PFCs and outdoor wood burning as invalid because EPA has not updated the master list to include these SCCs for the EPA QA program. These SCCs were included in Version 2 and should have been assigned speaciation profiles and included in the projection year inventory prepared from Version 2.

Table III-15. Summary of New York's Revisions to Version 3 of MANE-VU's Area Source Inventory

SCC	SCC Description	Pollutant	Type of Revision to Emissions
Revisions to Waste Disposal, Treatment, and Recovery : Wastewater Treatment			
2630020000	Public Owned : Total Processed	VOC	Revised emissions for all pollutants
Revisions to Stationary Source Fuel Combustion : Residential : Wood			
2104008001	Fireplaces: General	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added NH3, revised emissions for rest of pollutants
2104008052	Non-catalytic Woodstoves: Low Emitting	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants
2104008070	Outdoor Wood Burning Equipment	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants
Revisions to Stationary Source Fuel Combustion : Electric Utility			
2101001000	Anthracite Coal : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	No change to emissions
2101002000	Bituminous/Subbituminous Coal : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2101004000	Distillate Oil : Total: Boilers and IC Engines	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2101005000	Residual Oil : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2101006000	Natural Gas : Total: Boilers and IC Engines	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
Revisions to Stationary Source Fuel Combustion : Industrial			
2102001000	Anthracite Coal : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	No change to emissions
2102002000	Bituminous/Subbituminous Coal : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2102004000	Distillate Oil : Total: Boilers and IC Engines	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2102005000	Residual Oil : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2102006000	Natural Gas : Total: Boilers and IC Engines	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2102007000	Liquified Petroleum Gas (LPG) : Total: All Boiler Types	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2102008000	Wood : Total: All Boiler Types	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	No change to emissions
2102011000	Kerosene : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants
Revisions to Stationary Source Fuel Combustion : Commercial/Institutional			
2103001000	Anthracite Coal : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	No change to emissions
2103002000	Bituminous/Subbituminous Coal : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2103005000	Residual Oil : Total: All Boiler Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2103004000	Residual Oil : Total: Boilers and IC Engines	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Removed and replaced with data for SCCs 2103004001 and 2103004002
2103004001	Distillate Oil : Boilers	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants
2103004002	Distillate Oil : IC Engines	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants
2103006000	Natural Gas : Total: Boilers and IC Engines	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2103007000	Liquified Petroleum Gas (LPG) : Total: All Combustor Types	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2103008000	Wood : Total: All Boiler Types	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2103011000	Kerosene : Total: All Combustor Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants

Table III-15. Summary of New York's Revisions to Version 3 of MANE-VU's Area Source Inventory (Continued)

SCC	SCC Description	Pollutant	Type of Revision to Emissions
Revisions to Stationary Source Fuel Combustion : Residential			
2104001000	Anthracite Coal : Total: All Combustor Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	No change to emissions
2104002000	Bituminous/Subbituminous Coal : Total: All Combustor Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2104004000	Distillate Oil : Total: All Combustor Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2104006010	Natural Gas : Residential Furnaces	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2104007000	Liquified Petroleum Gas (LPG) : Total: All Combustor Types	VOC, NOX, CO, SO2, PM10-PRI, PM25-PRI	Revised emissions for all pollutants
2104011000	Kerosene : Total: All Heater Types	VOC, NOX, CO, NH3, SO2, PM10-PRI, PM25-PRI	Added emissions for all pollutants

10. Pennsylvania

Table III-16 shows the emission type periods for which Pennsylvania provided emissions.

Table III-16. Pennsylvania 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type	Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30	MONTHLY	20020101	20020131	30
DAILY	20011201	20020228	27	MONTHLY	20020201	20020228	30
DAILY	20020601	20020831	27	MONTHLY	20020301	20020331	30
				MONTHLY	20020401	20020430	30
				MONTHLY	20020501	20020531	30
				MONTHLY	20020601	20020630	30
				MONTHLY	20020701	20020731	30
				MONTHLY	20020801	20020831	30
				MONTHLY	20020901	20020930	30
				MONTHLY	20021001	20021031	30
				MONTHLY	20021101	20021130	30
				MONTHLY	20021201	20021231	30

Table B-10 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Note that some SCC and emission type period combinations are listed more than once because the data source codes are different for more than one SCC and emission type period combination. Pennsylvania provided 2002 emissions for the majority of the area source categories. Pennsylvania provided its own 2002 inventory for PFCs and residential indoor wood burning. Pennsylvania's inventory for industrial adhesives originates from the 1999 NEI. Emissions for the remaining area source categories were taken from the draft 2002 NEI (that are either based on 2002 data prepared by EPA or EPA data carried forward from final Version 3 of the 1999 NEI) or MANE-VU-sponsored inventories.

Pennsylvania elected to use MANE-VU-sponsored inventories for the following source categories:

- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily NH_3 emissions for industrial refrigeration processes and agricultural crop fertilizers and livestock;
- Annual and daily VOC and NH_3 emissions for POTWs and composting; and
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for open burning categories.

11. Rhode Island

Table III-17 shows the emission type periods for which Rhode Island provided emissions.

Table III-17. Rhode Island 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29

Table B-11 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Rhode Island provided 2002 annual VOC emissions for several solvent utilization categories (surface coating, degreasing, graphic arts, rubber/plastics, and industrial adhesive); annual and daily VOC emissions for petroleum and petroleum product storage (gasoline service stations and all transport types); and annual VOC emissions for POTWs. Rhode Island's indoor wood burning inventory originates from the draft 2002 NEI. Emissions for the remaining area source categories were taken from the draft 2002 NEI (that are either based on 2002 data prepared by EPA or EPA data carried forward from final Version 3 of the 1999 NEI) or MANE-VU-sponsored inventories.

Rhode Island elected to use MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads; and
- Annual and daily VOC emissions for PFCs.

12. Vermont

Table III-18 shows the emission type periods for which Vermont provided emissions.

Table III-18. Vermont 2002 Area, Version 3: Unique List of Start Date, End Date, and Emission Types

Emission Type Period	Start Date	End Date	Emission Type
ANNUAL	20020101	20021231	30
DAILY	20011201	20020228	27
DAILY	20020601	20020831	27
DAILY	20020601	20020831	29

Table B-12 in Appendix B identifies the data sources by SCC, emission type period, and pollutant in the Version 3 area source inventory. This table also shows the number of counties by SCC. Vermont provided 2002 annual VOC, NO_x, CO, PM10-PRI or PM10-FIL, PM25-PRI or PM25-FIL, and SO_2 emissions for residential fuel combustion (distillate oil, natural gas, LPG, and indoor wood burning); annual VOC emissions for gasoline service stations and breathing losses at bulk terminals; annual VOC, NO_x, CO, PM10-PRI, PM25-PRI, and SO_2 emissions for residential open burning; annual VOC, NO_x, CO, NH_3, PM10-PRI, and PM25-PRI emissions for forest fires, and annual VOC, NO_x, CO, PM10-PRI, and PM25-PRI emissions for structure fires. Vermont's inventory for industrial adhesives originates from the 1999 NEI.

For Version 2, Vermont provided revisions to EPA's draft 2002 inventory for SCC 2501050120 (bulk stations and terminals : breathing loss : gasoline) to incorporate the effects of vapor balance controls not accounted for in the EPA estimates. The revised inventory for this category was added to Version 2 (and kept in Version 3) that did not include this category. Control records were added to the NIF 3.0 CE table for the counties with vapor balance controls. In addition, Vermont provided emissions for three counties (i.e., county FIPS codes 50015, 50017, and 50019) that were not in EPA's inventory. Emissions for the remaining area source categories were taken from the draft 2002 NEI (that are either based on 2002 data prepared by EPA or EPA data carried forward from final Version 3 of the 1999 NEI) or MANE-VU-sponsored inventories. Vermont elected to use MANE-VU-sponsored inventories for the following source categories:

- Annual and daily VOC, NO_x, CO, NH_3, PM10-PRI, PM25-PRI, and SO_2 emissions for outdoor wood burning;
- Annual PM10-PRI, PM10-FIL, PM25-PRI, and PM25-FIL emissions for paved and unpaved roads;
- Annual and daily NH_3 emissions for industrial refrigeration processes and POTWs;
- Annual and daily VOC emissions for PFCs;
- Annual and daily VOC and NH_3 emissions for composting; and
- Annual VOC, NO_x, CO, NH_3, PM10-PRI, PM10-FIL, PM25-PRI, PM25-FIL, and SO_2 emissions for open burning categories.

C. What Issues Need to be Addressed in Future Versions?

This section provides a summary of potential revisions to incorporate into future versions of the MANE-VU area source inventory.

All States – A coordinated effort between the State agencies should be developed to apply consistent methods to avoid having to apply procedures to augment inventory data to correct for the QA issues and fill in missing data as discussed previously in this chapter. For example, this will ensure that consistent methods are applied across State agencies to ensure consistent and accurate reporting of source categories using the same SCCs across States, PM emissions, and minimize other QA issues that were identified during the development of Versions 1, 2, and 3 of the inventory.

For PM emissions, the State agencies should develop and apply a consistent method for including condensible emissions for fuel combustion sources that can be applied when the agencies develop their inventories. This may include compiling the emission factors for all forms of PM into one database, organized by SCC and control type (for filterable emissions), and sharing the database among the MANE-VU State agencies. Use of a consistent set of emission factors will help to avoid the PM consistency issues identified in Versions 1, 2, and 3 of the MANE-VU inventory as well as ensure that condensible emissions are included in the primary emissions reported in the inventory.

State-specific suggestions are as follows:

Delaware: Revise the residential wood combustion emissions inventory with the latest revisions sponsored by MARAMA.

Rhode Island: This State felt that the area sources (from the nonpoint inventory EPA prepared) which they had changed to zeros in Version 3 would revert back to the Version 2 numbers which were from the EPA report. Rhode Island would like to see this change in the next version of the inventory. (Table with changes can be received upon request).

New Jersey:

- Why is the EPA VOC emission factor for fireplaces completely out of proportion with the other emission factors? The ratio of conventional wood stoves/fireplaces = 0% to 10% for other pollutants and is 77% for VOC. It is discussed in the Pechan Technical Memo #5, 9/3/03, page 19, how a study of the accuracy of the emission factors showed the VOC should be more like 10 to 30 lb/ton, instead of 229 lb/ton and the woodstove emission factors (certified) should be higher than Emission Inventory Improvement Program guidance.

- The summer seasonal adjustment factors for indoor wood burning used in the model appear high. This combined with the very high VOC emission factor results in high ozone season wood burning emissions.

- In general, the accuracy of the very large residential wood burning numbers, all pollutants.

- The large fugitive dust inventory numbers don not correlate to dust found in monitors, even with the latest 30% to 40% reduction in paved and unpaved road emissions.

- We need consistent guidance from the EPA for adhesives and sealants, PFC, and commercial cooking.

CHAPTER IV – NONROAD SOURCES

A. General Methods for all States

This section provides an overview of the data sources and QA steps used in preparing the 2002 nonroad sector inventory for the MANE-VU States. The nonroad sector is comprised of nonroad engines included in EPA's NONROAD model, as well as other engines not modeled in NONROAD, including aircraft, commercial marine vessels and locomotives.

1. What Data Sources Were Used?

Data sources used for the various nonroad categories are described below.

a. Aircraft, Commercial Marine, and Locomotive Categories

As a starting point, aircraft, commercial marine vessel and locomotive inventories were prepared using the inventories that State agencies submitted to the EPA in June 2004 as a requirement of the CERR. In addition, some States provided data directly to MANE-VU for use in this inventory that were not submitted for the CERR.

Missing data were supplemented with estimates from EPA's preliminary 2002 NEI. For the aircraft and commercial marine vessel source categories, the 2002 NEI CAP emissions were estimated by carrying over the 2001 estimates. 2001 emissions were estimated using the methodologies described in EPA's *Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory* (EPA, 2003b). The 2002 locomotive emissions were calculated using 2002 activity data and the methodologies described in the EPA, 2003b documentation.

Table IV-1 provides a summary of the aircraft, commercial marine, and locomotive emission SCCs reported in the MANE-VU inventory. Table IV-2 provides a summary of the basis for these nonroad subsector emissions by State.

Table IV-1. List of Unique Aircraft, Commercial Marine, and Locomotive SCCs Reported by States in MANE-VU Inventory

SCC	SCC Description 1	SCC Description 2	SCC Description 3	SCC Description 4
2275000000	Mobile Sources	Aircraft	All Aircraft Types and Operations	Total
2275001000	Mobile Sources	Aircraft	Military Aircraft	Total
2275020000	Mobile Sources	Aircraft	Commercial Aircraft	Total: All Types
2275050000	Mobile Sources	Aircraft	General Aviation	Total
2275060000	Mobile Sources	Aircraft	Air Taxi	Total
2275070000	Mobile Sources	Aircraft	Aircraft Auxiliary Power Units	Total
2280000000	Mobile Sources	Marine Vessels, Commercial	All Fuels	Total, All Vessel Types
2280002000	Mobile Sources	Marine Vessels, Commercial	Diesel	Total, All Vessel Types
2280002010	Mobile Sources	Marine Vessels, Commercial	Diesel	Ocean-going Vessels
2280002020	Mobile Sources	Marine Vessels, Commercial	Diesel	Harbor Vessels
2280002100	Mobile Sources	Marine Vessels, Commercial	Diesel	Port emissions
2280002200	Mobile Sources	Marine Vessels, Commercial	Diesel	Underway emissions
2280003100	Mobile Sources	Marine Vessels, Commercial	Residual	Port emissions
2280003200	Mobile Sources	Marine Vessels, Commercial	Residual	Underway emissions
2285000000	Mobile Sources	Railroad Equipment	All Fuels	Total
2285002000	Mobile Sources	Railroad Equipment	Diesel	Total
2285002005	Mobile Sources	Railroad Equipment	Diesel	Total Line Haul Locomotives
2285002006	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Class I Operations
2285002007	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Class II / III Operations
2285002008	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Passenger Trains (Amtrak)
2285002009	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Commuter Lines
2285002010	Mobile Sources	Railroad Equipment	Diesel	Yard Locomotives

Table IV-2. Summary of Basis for 2002 MANE-VU Aircraft, Commercial Marine, and Locomotive Inventory

FIPSST	State	Basis for Subsector of Nonroad Inventory		
		Aircraft	Commercial Marine Vessels	Locomotives
09	Connecticut	2002 Preliminary NEI	2002 Preliminary NEI	State supplied in March 2006
10	Delaware	June 2004 CERR Submittal; State supplied revisions in Sep 2004	June 2004 CERR Submittal	June 2004 CERR Submittal
11	District of Columbia	Not supplied by State and not available from NEI	2002 Preliminary NEI	June 2004 CERR Submittal
23	Maine	State supplied in Oct 2004	State supplied in Oct 2004	State supplied in Oct 2004
24	Maryland	June 2004 CERR Submittal; State supplied revisions in Sep 2004	June 2004 CERR Submittal; State supplied revisions in Oct 2004	June 2004 CERR Submittal
25	Massachusetts	June 2004 CERR Submittal	State-supplied for June 2004 CERR Submittal, with revisions as directed by State	June 2004 CERR Submittal
33	New Hampshire	June 2004 CERR Submittal	2002 Preliminary NEI	June 2004 CERR Submittal
34	New Jersey	June 2004 CERR Submittal	June 2004 CERR Submittal	June 2004 CERR Submittal
36	New York	2002 Preliminary NEI	State supplied in Oct 2004	2002 Preliminary NEI
42	Pennsylvania	State supplied to Pechan in June 2004	State supplied to Pechan in June 2004	State supplied to Pechan in June 2004; State supplied revisions in Aug 2005
44	Rhode Island	State-supplied for June 2004 CERR Submittal, with revisions as directed by State	State-supplied for June 2004 CERR Submittal, with revisions as directed by State	State-supplied in Oct 2004
50	Vermont	2002 Preliminary NEI	Not supplied by State and not available from NEI	Not supplied by State and not available from NEI

b. NONROAD Model Categories

NONROAD model categories include equipment such as recreational marine and land-based vehicles, farm and construction machinery, and lawn and garden equipment. Aircraft ground support equipment (GSE) and rail maintenance equipment are also included in NONROAD. These equipment are powered by diesel, gasoline, compressed natural gas (CNG) and LPG engines.

EPA released a final version of NONROAD during December 2005 called NONROAD2005 (EPA, 2005a). To reflect the updates made to EPA's final NONROAD model, all MANE-VU Version 2 NONROAD model estimates were replaced with updated NONROAD2005 emission estimates.

EPA also released an updated version of its NMIM, which incorporates the final NONROAD2005 model. EPA's NMIM2005 is a consolidated modeling system that incorporates the NONROAD and MOBILE models, along with a county database of inputs (EPA, 2005b). The NMIM county database contains monthly input data to reflect county-specific fuel parameters and temperatures. Because incorporating revised monthly inputs for use in NMIM2005 is more efficient than preparing county-specific monthly option files needed to run NONROAD2005 independently, Pechan used NMIM2005 for most MANE-VU States. The two exceptions were for the District of Columbia and Maine due to the differences in oxygenated fuel inputs used for NMIM versus NONROAD.

As a first step, Pechan compiled fuel input data available from NMIM2005 by county and by month for all MANE-VU states for 2002. Pechan developed a spreadsheet that summarized the gasoline RVP, gasoline weight percent oxygen, and gasoline and diesel sulfur content proposed as inputs to the updated runs. Values consistent with State-supplied MOBILE6 inputs used for the development of 2002 MANE-VU highway vehicle inventories were presented for use where they differed from NMIM. Pechan requested that States confirm the use of these data for the NONROAD model runs, or provide alternative inputs.

The final county, monthly NMIM inputs provided or confirmed by the States for RVP, weight percent oxygen, and gasoline sulfur are presented in Appendix C, Table C-1. Pechan used NMIM's 2002 default value for nonroad diesel sulfur content. This value is 2,457 parts per million (ppm) for land-based equipment, and 2,767 ppm for recreational marine, for all MANE-VU counties.

Pechan also requested that States provide any local activity data in the format of updated NONROAD external data files. These include data files which specify activity parameters such as equipment populations, equipment annual hours of use, county allocation factors, and monthly allocation profiles.

Pechan updated the NMIM county database for 2002 to add in new gasoline profiles to reflect the monthly and county fuel input values provided by States. Pechan also updated the NMIM county database to cross reference the State-supplied NONROAD data files that replaced default

NONROAD2005 inputs. Pechan then ran NMIM/NONROAD2005 at the county and monthly level for 2002 and generated the results in NIF 3.0.

c. NONROAD2005 Model Runs

The majority of the model runs were performed using NMIM2005. NMIM and NONROAD have differences in the required format of the oxygenated fuel inputs. For NONROAD, this variable is required to be expressed as a composite weight percent oxygen that accounts for the market share and the percent oxygen of all contributing oxygenates. Since NMIM models HAP emissions, the volume percent and market share of each of four oxygenates must be entered as fuel inputs. These oxygenates include methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), ethanol (ETOH), and tertiary amyl methyl ether (TAME). In cases where only one known oxygenate is present, this is straightforward to reflect in NMIM, as weight percent can be easily converted to volume percent. However, two States (the District of Columbia and Maine) provided a composite weight percent value for more than one oxygenate, but could not provide the corresponding volume percent and market share for each oxygenate to use in NMIM. As such, Pechan used NONROAD2005 for both the District of Columbia and Maine so that their submitted values for weight percent oxygen could be used directly. The 2002 minimum, maximum, and average hourly temperatures included in NMIM2005 were used to calculate average monthly temperature inputs to NONROAD for both States.

Pechan developed monthly NONROAD option files and ran these files through NONROAD2005 to generate monthly emissions that were then summed to develop an annual 2002 inventory. Pechan performed additional calculations using NMIM emission factors and fuel consumption to calculate NH_3, since NONROAD does not calculate NH_3 emissions.

2. What Quality Assurance Steps Were Performed?

The final MANE-VU nonroad inventory was comprised of emission estimates that were either: 1) submitted by States for the June 2004 CERR submittal or as additional revisions after this date; 2) developed using NONROAD model inputs provided or approved by States; or 3) reported by EPA in the preliminary 2002 NEI. As such, the QA steps were tailored to each of these types of submittals. Note that a Quality Assurance Plan was prepared prior to initiating work on Version 1 (MANE-VU, 2003). This plan was applied during development of all three versions of the MANE-VU inventory.

a. Summary of QA checks for State emission submittals

Nonroad emission submittals were accepted as part of the June 2004 CERR submittals to EPA or as direct submittals to MANE-VU. Upon receipt of an emissions submittal, Pechan prepared spreadsheets providing a unique list of errors identified by running the EPA NIF 3.0 QA software tool on the nonroad source inventory (EPA, 2004a). Notes were provided to identify the NIF 3.0 tables in which the errors appeared, as well as clarification as to where an error occurred (e.g., for what SCC and pollutant). For many of the errors, Pechan provided a potential correction, and States indicated whether they agreed with the correction, or provided their own

instructions for correcting the error. These spreadsheets served to document each state's direction on how to correct errors and the state's representative authorizing the correction.

The list of general QA checks include the following:

- Duplicate records (i.e., only one record allowed for each unique county/SCC/ pollutant)
- Invalid record type
- Mandatory field is not populated
- Invalid field length
- Invalid data type (e.g., invalid SCCs or pollutants)
- "Out-of-range" emission values
- Referential integrity (i.e., the presence of widow or orphan records in the NIF 3.0 relational tables)

Note that EPA's NIF 3.0 QA software tool also checks for other specific QA issues by field not listed above. See EPA's User Guide, Appendix A for a listing of all potential errors that are checked by the program, and EPA's guidance for how they should be resolved.

Pechan also performed other general QA procedures outside of EPA's NIF 3.0 QA software tool, including pollutant augmentation, SCC reconciliation, and completeness and reasonableness checks.

Pechan performed pollutant augmentation in cases where the complete set of CAPs and NH_3 were not provided by a State. For example, several States did not provide PM25-PRI, but did provide PM10-PRI, so that PM25-PRI was estimated using EPA-published particle-size multipliers. Where multipliers were not available from EPA documentation, Pechan used available pollutant emission estimates reported by all other MANE-VU States to develop "emission ratios" for a given SCC. These "emission ratios" were then used to multiply available pollutant estimates to estimate values for the missing pollutants. Specific values used for a given State and SCC are cited in the "State-Specific Methods" section below.

In addition, SCC assignments were reviewed and reassigned after clarification from States as to what the specific SCC estimate represented. For example, a State may have reported all aircraft activity under one of the specific aircraft type SCCs (e.g., commercial or general aviation), when it should more accurately be reported under the general SCC 2275000000 (All Aircraft Types and Operations).

Finally, completeness checks were performed on the inventory to determine that emissions for nonroad categories known to operate in a State or county were being reported. Note that emissions may not be reported for all NONROAD SCCs for all counties in the MANE-VU RPO, and will depend on the geographic allocation methods used by the model, or specific allocation data provided by a State.

NONROAD model category estimates originally provided by States for the June 2004 submittal were replaced by emission estimates developed using NMIM/NONROAD 2005. As such, this

TSD will not document corrections made by Pechan to these original NONROAD model estimates, since they were replaced for Version 3.

b. Data input summary spreadsheets for State review

As mentioned above for NONROAD model categories, Pechan prepared the MANE-VU emission estimates using EPA's final NMIM/NONROAD2005 model. An important QA step in running NONROAD is to ensure that the inputs used for fuel specifications and temperatures for a given county and month in 2002 are representative. As such, Pechan compiled the RVP, percent oxygen, and gasoline sulfur inputs reported by NMIM2005 by county and month for States to review. If a State had previously submitted input data for the MANE-VU onroad inventory, these data were proposed in lieu of NMIM data. States either confirmed use of the default NMIM/onroad MANE-VU inputs, or provided alternate data in the specified format to replace the proposed inputs. Pechan updated the *gasoline* table in the NMIM county database to add in new gasoline profiles to reflect revised fuel input values provided by States. These profiles were then cross-referenced to the appropriate county and month in a separate table called *countyyearmonth*. Pechan performed QA checks of these NMIM county database tables for each State to ensure that the correct fuel data were input by county and by month as requested by the State.

c. QA of final mass emissions

After performing QA of the inputs, Pechan ran NMIM/NONROAD2005 at the county and monthly level for 2002 and generated the results in NIF 3.0. As a QA step, Pechan ran EPA's NIF 3.0 QA software tool on the NIF 3.0 files. Errors identified were resolved and checked to ensure they were corrected in the final files.

As part of final processing of the inventories, and to assist in tracking revisions and preparing emission summaries, Pechan added the following NIF plus fields to each table:

TblCE : State FIPS, County FIPS, Data Source, Revision Date
TblEM : State FIPS, County FIPS, Data Source, Revision Date, CAP/HAP, Year, Emission Ton Value, Emission Type Period
TblEP : State FIPS, County FIPS, Data Source, Revision Date
TblPE : State FIPS, County FIPS, Data Source, Revision Date
TblTR : State FIPS, County FIPS, Revision Date

Data source codes are included to document the origin of the emissions data, which assists in tracking and quality-assuring revisions made to the emission estimates. Table IV-3 provides a listing of the data source codes included in the MANE-VU nonroad inventories, as well as a definition of each code. State FIPS and County FIPS are separated out to assist in developing area-specific emission summaries, and the Emission Ton Value places all emissions on the same basis. The Emission Type Period describes the temporal basis of the estimates (in this case, they are all annual). Finally, the Revision Date tracks when record-specific changes are made.

Table IV-3. Data Source Code Descriptions

Data Source Code	Description
E-02-F	E = EPA-generated data; -02 = year 2002; -F = emissions are carried forward for inclusion in the 2002 base year
E-02-X	E = EPA-generated data; -02 = year 2002; -F = emissions are not grown or carried forward
P-02-X	P = RPO-generated data; -02 = year 2002; -X = emissions are not grown or carried forward
S-02-X	S = State data; -02 = year 2002 data; -X = emissions are not grown or carried forward

3. Version 3 Emission Summaries

Table IV-4 presents a summary of the annual 2002 nonroad sector pollutant emissions for each MANE-VU State, as well as a regional total. These emissions include SCCs for all NONROAD model engines, as well as aircraft, commercial marine vessel, and locomotive categories, where applicable, for each State. Table IV-5 presents the emission results for NONROAD model equipment only, while Table IV-6 provides emission estimates for aircraft, commercial marine vessel, and locomotive categories separately.

Table IV-4. Annual 2002 Nonroad Sector Emissions by MANE-VU State (Tons/Year)

State	CO	NH_3	NO_x	PM10-PRI	PM25-PRI	SO_2	VOC
Connecticut	276,773.0	16.6	25,460.2	1,952.1	1,793.9	2,087.4	33,880.2
Delaware	68,782.0	5.2	16,226.5	1,021.4	925.6	3,983.3	8,010.1
District of Columbia	18,844.7	2.4	3,571.3	310.2	298.7	375.4	2,072.5
Maine	153,423.6	11.4	9,820.4	1,436.8	1,329.4	916.8	31,144.1
Maryland	437,400.3	28.2	37,472.2	4,936.0	4,357.1	7,941.6	56,330.4
Massachusetts	461,514.3	28.2	42,768.5	3,531.2	3,226.4	3,791.2	56,748.5
New Hampshire	130,782.2	9.1	9,912.1	1,057.8	965.4	891.0	22,376.5
New Jersey	704,396.4	43.0	63,479.0	5,495.1	4,997.2	15,686.0	83,918.9
New York	1,233,968.3	79.3	109,878.3	9,605.3	8,820.9	12,919.7	157,611.7
Pennsylvania	931,978.0	55.0	103,824.2	9,737.9	8,440.1	7,915.0	102,331.0
Rhode Island	73,012.7	4.1	5,001.5	500.2	443.1	377.2	7,779.7
Vermont	62,248.1	4.5	4,217.1	529.9	485.8	372.1	10,547.6
Total MANE-VU	**4,553,123.5**	**286.9**	**431,631.3**	**40,113.9**	**36,083.6**	**57,256.6**	**572,751.3**

Table IV-5. Annual 2002 NONROAD2005 Model Emissions by MANE-VU State (Tons/Year)

State	CO	NH_3	NO_x	PM10-PRI	PM25-PRI	SO_2	VOC
Connecticut	274,387.6	16.6	17,897.0	1,712.9	1,577.6	1,376.6	33,519.0
Delaware	65,954.1	4.9	5,798.3	570.4	525.1	513.0	7,530.5
District of Columbia	18,774.9	2.4	3,066.4	298.4	287.8	341.3	2,052.9
Maine	148,555.3	11.4	8,228.9	1,204.2	1,135.1	771.8	30,741.0
Maryland	424,776.8	28.2	27,789.1	3,118.7	2,870.4	2,569.2	53,035.0
Massachusetts	448,398.7	28.2	30,046.7	2,887.2	2,658.8	2,428.1	54,835.8
New Hampshire	128,571.5	9.1	8,149.5	946.8	871.7	672.7	22,237.8
New Jersey	692,547.9	43.0	43,515.2	4,285.4	3,950.5	3,524.9	81,900.4
New York	1,219,308.7	79.3	78,648.3	8,338.9	7,677.1	6,966.3	155,475.1
Pennsylvania	903,167.7	55.0	62,265.2	6,281.5	5,784.3	5,292.4	99,240.9
Rhode Island	71,573.1	4.1	4,563.9	402.8	371.1	335.5	7,698.7
Vermont	61,732.1	4.5	4,169.9	517.6	476.6	367.6	10,520.4
Total MANE-VU	**4,457,748.6**	**286.6**	**294,138.2**	**30,564.8**	**28,186.1**	**25,159.4**	**558,787.4**

Table IV-6. Annual 2002 Aircraft, Commercial Marine, and Locomotive Emissions by MANE-VU State (Tons/Year)

State	CO	NH_3	NO_x	PM10-PRI	PM25-PRI	SO_2	VOC
Connecticut	2,385.4	0.0	7,563.2	239.2	216.4	710.8	361.2
Delaware	2,827.9	0.3	10,428.2	451.1	400.5	3,470.3	479.6
District of Columbia	69.7	0.0	505.0	11.8	10.9	34.1	19.7
Maine	4,868.3	0.0	1,591.5	232.6	194.3	145.0	403.1
Maryland	12,623.5	0.0	9,683.2	1,817.3	1,486.7	5,372.3	3,295.4
Massachusetts	13,115.6	0.0	12,721.7	644.0	567.6	1,363.1	1,912.7
New Hampshire	2,210.7	0.0	1,762.5	111.0	93.7	218.3	138.6
New Jersey	11,848.5	0.0	19,963.9	1,209.7	1,046.7	12,161.1	2,018.6
New York	14,659.6	0.0	31,230.0	1,266.4	1,143.8	5,953.4	2,136.6
Pennsylvania	28,810.2	0.0	41,559.0	3,456.4	2,655.8	2,622.7	3,090.2
Rhode Island	1,439.6	0.0	437.6	97.4	72.1	41.7	81.0
Vermont	516.0	0.0	47.3	12.2	9.2	4.5	27.2
Total MANE-VU	**95,374.9**	**0.3**	**137,493.1**	**9,549.1**	**7,897.4**	**32,097.3**	**13,963.9**

B. State-Specific Methods

The following sections describe the methods used and QA issues addressed for each MANE-VU State in developing Version 3.0 of MANE-VU's nonroad sector inventory.

1. Connecticut

a. What Data Sources Were Used?

Pechan ran EPA's NMIM2005 to generate NONROAD model SCC emission estimates. Pechan incorporated Connecticut-supplied data for gasoline sulfur content and RVP into the NMIM database. Pechan used NMIM defaults for diesel sulfur content and for weight percent oxygenate values. The final input data by county and by month are summarized in Table B-1.

Aircraft and commercial marine vessel emissions are based on the preliminary 2002 nonroad NEI. In March 2006, Connecticut provided county-level emission estimates for VOC, NO_x, and CO for all line-haul and switchyard locomotive SCCs.

b. What QA Issues were Identified and Addressed?

For commercial aircraft (SCC 2275020000), PM10-PRI and PM25-PRI were not reported in the EPA's NEI. For completeness, Pechan estimated PM10-PRI emissions by applying an average PM10-PRI/NO_x emission ratio of 0.058 to available NO_x emissions. Commercial aircraft PM25-PRI emissions were estimated by multiplying PM10-PRI emissions by a particle size multiplier of 0.976 (ERG, 2004).

c. What Issues Need to be Addressed in Future Versions?

Because EPA's NEI does not include locomotive category emission estimates for Connecticut, and since Connecticut only provided emission estimates for VOC, NO_x, and CO, estimates are still missing for PM10-PRI, PM25-PRI, and SO_2.

2. Delaware

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. Delaware approved of the fuel inputs used in NMIM2005. The final fuel input data by county and by month are summarized in Table B-1. Delaware provided updated files listed in Table IV-7 to replace the default files used in NMIM. These included county allocation files for five nonroad categories, and a revised equipment population file with updated populations for specific SCCs.

Table IV-7. Delaware NONROAD External Data Files

County NR File Name	File Type
10000air.alo	County allocation for airport GSE
10000gc.alo	County allocation for golf carts
10000hou.alo	County allocation for lawn & garden
10000log.alo	County allocation for logging
10000rvp.alo	County allocation for land-based recreational
10000.pop	Equipment population

Pechan used Delaware's June 2004 CERR submittal as the basis for aircraft, locomotive and commercial marine vessel category estimates in the 2002 MANE-VU inventory.

i. What Revisions Were Requested by State?

In September 2004, Delaware provided corrections to the general aviation emissions (SCC 227505000) for all pollutants for Kent County to add in general aviation activity at Dover Air Force Base.

b. What QA Issues were Identified and Addressed?

Pechan performed QA of the file, and revised the file to address QA issues as approved by Delaware. Commercial aircraft (SCC 2275020000) included emission estimates for all pollutants except PM25-PRI. Pechan calculated commercial aircraft PM25-PRI emissions using the assumption that 97.6% of PM10-PRI is PM25-PRI (ERG, 2004).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

3. District of Columbia

a. What Data Sources Were Used?

Pechan developed NONROAD Model SCC emissions for District of Columbia using NONROAD2005. NONROAD2005 was used directly instead of NMIM2005 to incorporate State-supplied weight percent oxygen data. The District of Columbia also requested changes to the default NMIM RVP and gasoline values for some months. The final fuel input data by county and by month are summarized in Table B-1.

The 2002 minimum, maximum, and average hourly temperatures included in NMIM were used to calculate average monthly temperature inputs to NONROAD. Pechan developed monthly NONROAD2005 option files for the District of Columbia. Pechan ran the option files through NONROAD2005 to generate monthly emissions that were then summed to develop an annual 2002 inventory. Pechan performed additional calculations using NMIM emission factors and NONROAD2005 fuel consumption to calculate NH_3, since NONROAD does not calculate NH_3 emissions. NMIM reports NH_3 emission factors of 116 grams NH_3 per gallon gasoline for gasoline engines, and 83 grams NH_3 per gallon fuel for diesel engines.

The District of Columbia provided locomotive emissions for their nonroad sector June 2004 CERR submittal.

b. What QA Issues were Identified and Addressed?

Pechan performed QA of the file, and revised the file to address QA issues as approved by the District of Columbia. PM emissions in the inventory were not identified as either PM_{10} or $PM_{2.5}$, nor were the emissions identified as primary or filterable. The District of Columbia authorized Pechan to change PM to PM10-PRI. Locomotive PM25-PRI emissions were estimated using the assumption that 90 percent of PM_{10} is $PM_{2.5}$ (EPA, 2003b). Hydrocarbon (HC) pollutant emissions were also removed from the inventory, as this is not a valid pollutant code in NIF3.0.

Pechan added commercial marine vessel emissions from the preliminary 2002 Nonroad NEI. There are no aircraft emission estimates in the NEI for the District of Columbia, since there are not airports located in the District of Columbia.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

4. Maine

a. What Data Sources Were Used?

Pechan developed NONROAD model SCC emissions using NONROAD2005. For Maine, weight percent oxygen values were submitted based on actual fuel survey results by county and by month, but Maine had not tracked the corresponding oxygenate volume percent and market share. As such, Pechan used NONROAD2005 so that Maine's values for weight percent oxygen could be reflected. Maine also provided revisions to the RVP and gasoline sulfur values reported in NMIM2005. Pechan developed NONROAD2005 monthly option files for two county groups in Maine that shared values for all three fuel inputs (see Appendix C, Table C-1). The 2002 minimum, maximum, and average hourly temperatures included in NMIM were used to calculate average monthly temperature inputs to NONROAD. Pechan ran the option files through NONROAD2005 to generate monthly emissions that were then summed to develop an annual 2002 inventory. Pechan performed additional calculations using NMIM emission factors and fuel consumption to calculate NH_3, since NONROAD does not calculate NH_3 emissions. NMIM reports NH_3 emission factors of 116 grams NH_3 per gallon gasoline for gasoline engines, and 83 grams NH_3 per gallon fuel for diesel engines.

i. What Revisions Were Requested by State?

In October 2004, Maine provided aircraft, commercial marine vessel, and locomotive SCC emissions to be added to their inventory. Commercial marine emissions submitted by Maine only represented in-port emissions. Diesel and residual commercial marine underway emissions (SCCs 2280002200 and 2280003200) were based on EPA's 2002 preliminary NEI.

b. What QA Issues were Identified and Addressed?

PM25-PRI estimates were missing from all aircraft SCC records provided by Maine. Pechan estimated general aviation, military aircraft, and air taxi PM25-PRI emissions by multiplying PM10-PRI emissions by a particle size multiplier of 0.69 (EPA, 2003b). Commercial aircraft PM25-PRI emissions were estimated by multiplying PM10-PRI emissions by a particle size multiplier of 0.976 (ERG, 2004). In-port commercial marine emissions (SCC 2280002100) were missing estimates for PM10-PRI and PM25-PRI. Pechan estimated PM10-PRI emissions by applying a PM10-PRI/NO_x emission ratio of 0.042 to available NO_x emissions. PM25-PRI emissions were estimated by multiplying PM10-PRI emissions by a particle size multiplier of 0.92 (EPA, 2003b).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

5. Maryland

a. What Data Sources Were Used?

Pechan used NMIM2005 to prepare NONROAD model SCC emission estimates. Maryland reviewed the default NMIM inputs and provided revisions to the input values for RVP and weight percent oxygen for all months. Maryland requested that a value of 2.1 percent oxygen be used for all counties and months. This weight percent value was then converted to a volume percent of 11.8 percent for use in NMIM, assuming MTBE was the only oxygenate. In addition, gasoline sulfur content revisions were incorporated into NMIM for select counties for the months of April through September. The final fuel input data by county and by month are summarized in Table B-1.

Maryland also provided updated files listed in Table IV-8 to replace the default files used in NMIM. These included county allocation files for several nonroad categories.

Table IV-8. Maryland NONROAD External Data Files

County NR File Name	File Type
24000pop.alo	County allocation for several nonroad categories (population)
24000con.alo	County allocation for construction
24000hou.alo	County allocation for lawn & garden

Pechan used Maryland's nonroad sector CERR submittal as the basis for the MANE-VU inventory for the aircraft, locomotive and commercial marine vessel categories.

i. What Revisions Were Requested by State?

In September 2004, Maryland provided revised aircraft and commercial marine vessel emission estimates. Pechan replaced the aircraft and commercial marine vessel emissions from their CERR submittal with the revised emissions.

b. What QA Issues were Identified and Addressed?

Pechan performed QA of the file, and revised the file to address QA issues as approved by Maryland. Maryland did not provide PM25-PRI aircraft emissions in their inventory. Pechan estimated general aviation, military aircraft, and air taxi PM25-PRI emissions by multiplying PM10-PRI emissions by a particle size multiplier of 0.69 (EPA, 2003b). Commercial aircraft PM25-PRI emissions were estimated by multiplying PM10-PRI emissions by a particle size multiplier of 0.976 (ERG, 2004).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

6. Massachusetts

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. Massachusetts reviewed the NMIM inputs and approved of the fuel input values for RVP and gasoline sulfur content. NMIM2005 reported a weight percent oxygen of 2.1 percent for all months for all counties in Massachusetts, and the State requested a value of 1.5 percent be used for all counties from October through April. This weight percent value was then converted to a volume percent of 8.4 percent for use in NMIM, given that MTBE was the only oxygenate. Final fuel input data by county and by month are presented in Table B-1.

Massachusetts provided annual emissions for aircraft, locomotive and commercial marine vessel categories for their nonroad sector CERR submittal. These inventories included all CAP.

i. What Revisions Were Requested by State?

Massachusetts requested that Pechan incorporate revisions supplied for annual emissions for in-port diesel commercial marine (SCC 2280002010) for Dukes County (25007).

b. What QA Issues were Identified and Addressed?

Pechan changed the aircraft SCC "2275050000" to "2275000000," since Massachusetts verified that this emission record represents all aircraft types, not just general aviation.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

7. New Hampshire

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. New Hampshire reviewed and approved of the fuel inputs used in NMIM2005. See Table B-1 for a summary of the final fuel input data by county and month.

Pechan used New Hampshire's nonroad sector CERR submittal as the basis for the MANE-VU aircraft and locomotive inventory. Pechan added commercial marine vessel emissions from the preliminary 2002 Nonroad NEI.

b. What QA Issues were Identified and Addressed?

Pechan performed QA of the file, and revised the file to address QA issues as approved by New Hampshire. New Hampshire did not provide PM_{10} and $PM_{2.5}$ aircraft emissions in their inventory. New Hampshire authorized Pechan to develop aircraft PM_{10} emissions for all aircraft types by applying an average PM10/NO_x emission ratio to the aircraft NO_x emissions in their inventory. The PM_{10}/NO_x ratios used were 3.819 for military and air taxi, 3.642 for general aviation, and 0.058 for commercial aircraft. Pechan estimated general aviation, military aircraft, and air taxi PM25-PRI emissions by multiplying PM10-PRI emissions by a particle size multiplier of 0.69 (EPA, 2003b). For commercial aircraft, Pechan estimated PM25-PRI emissions using the assumption that 97.6% of PM_{10} is $PM_{2.5}$ (ERG, 2004).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

8. New Jersey

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. New Jersey approved of the default fuel inputs used in NMIM2005. See Table B-1 for a summary of the final fuel input data by county and month. New Jersey provided an updated data input file

containing revised equipment populations (34000.pop) for specific SCCs for the NMIM model runs.

Pechan used New Jersey's nonroad sector CERR submittal as the basis for the aircraft, locomotive and commercial marine vessel categories. These inventories included all CAPs.

b. What QA Issues were Identified and Addressed?

Pechan performed QA of the file, and revised the file to address QA issues as approved by New Jersey. The only QA issue identified was the inclusion of carbon dioxide (CO_2) in the inventory, which is not a valid pollutant code in NIF3.0, so these records were removed.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

9. New York

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. New York reviewed the default NMIM inputs and provided revisions to the input values for RVP and gasoline sulfur for all months. New York also requested revisions to weight percent oxygen values for all counties and months. These weight percent values were then converted to a volume percent for use in NMIM, based on MTBE as the only oxygenate for all counties, with the exception of four counties. These included Cattaraugus, Chautauqua, Erie, and Niagara counties, which use ETOH as the oxygenate. The final fuel input data by county and by month are summarized in Table B-1.

For the aircraft and locomotive categories, Pechan used emissions reported in the preliminary 2002 Nonroad NEI.

i. What Revisions Were Requested by State?

In October 2004, New York provided commercial marine vessel emissions to be added to their inventory. New York did not provide PM-2.5 commercial marine vessel emissions for some counties in their inventory. Pechan estimated the commercial marine vessel PM25-PRI emissions from PM10-PRI using the assumption that 92% of PM_{10} is $PM_{2.5}$ (EPA, 2003b).

b. What QA Issues were Identified and Addressed?

Commercial aircraft (SCC 2275020000) emissions for PM10-PRI and PM25-PRI were not reported in the EPA's preliminary 2002 NEI. Pechan estimated PM10-PRI emissions by applying a PM10-PRI/NO_x emission ratio of 0.058 to available NO_x emissions for this SCC. Commercial aircraft PM25-PRI emissions were estimated by multiplying PM10-PRI emissions by a particle size multiplier of 0.976 (ERG, 2004).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

10. Pennsylvania

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. Pennsylvania approved of the fuel inputs provided, which were based on the onroad MOBILE6 inputs. Since these differed from the values in NMIM2005, Pechan updated the NMIM profiles accordingly. See Table B-1 for a summary of the final fuel input data by county and month. Pennsylvania provided one county allocation file for the lawn and garden category (42000hou.alo) to replace the default file used in NMIM.

Pennsylvania submitted an aircraft, locomotive, and commercial marine vessel emissions inventory to MANE-VU after the CERR submittal date.

i. What Revisions Were Requested by State?

In August 2005, Pennsylvania provided Pechan with county-level updates to SCC 2285002006 (Line Haul Locomotives: Class I Operations) emissions for all pollutants. Pechan updated all emission records for this SCC in Pennsylvania's inventory.

b. What QA Issues were Identified and Addressed?

Pennsylvania authorized Pechan to remove the CO_2 emission records from their inventory. In addition, the following data augmentation was performed to add missing SCCs and pollutants. Pennsylvania did not provide commercial aircraft emissions in their inventory. Pechan added commercial aircraft emissions from the 2002 preliminary NEI to Pennsylvania's inventory. Pennsylvania did not provide PM10-PRI and PM25-PRI aircraft emissions in their inventory. Pechan developed aircraft PM_{10} emissions for all aircraft types by applying an average PM_{10}/ NO_x emission ratio to Pennsylvania's available aircraft NO_x emissions. The PM_{10}/NO_x ratios used were 3.819 for military and air taxi, 3.642 for general aviation, and 0.058 for commercial aircraft. Pechan estimated general aviation, military aircraft, and air taxi PM25-PRI emissions by multiplying PM10-PRI emissions by a particle size multiplier of 0.69 (EPA, 2003b). For commercial aircraft, Pechan estimated PM25-PRI emissions using the assumption that 97.6% of PM_{10} is $PM_{2.5}$ (ERG, 2004).

Pennsylvania also did not provide SO_2 general aviation and air taxi emissions in the inventory. Pechan estimated the SO_2 emissions by applying a SO_2/NO_x emission ratio to the general aviation and air taxi NO_x emissions, using ratios of 0.154 and 0.095, respectively.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

11. Rhode Island

a. What Data Sources Were Used?

Pechan used NMIM2005 to generate NONROAD model SCC emission estimates. Rhode Island approved of the fuel inputs used in NMIM2005. See Table B-1 for a summary of the final fuel input data by county and month. Rhode Island provided a revised equipment population file (44000.pop) with updated populations for specific SCCs to replace the default file used in NMIM.

Rhode Island provided emissions for aircraft, locomotive and commercial marine vessel categories for their nonroad sector CERR submittal.

i. What Revisions Were Requested by State?

Rhode Island provided updates in September 2004 to their county-level railroad equipment emissions. The new emissions fall under SCC 2285002005 and replace all line haul locomotive emissions provided in their CERR submittal. Emission estimates for yard locomotives were also provided (SCC 2285002010).

b. What QA Issues were Identified and Addressed?

Pechan performed QA of the file, and revised the file to address QA issues as approved by Rhode Island.

PM_{10} was not identified as either primary or filterable. Rhode Island authorized Pechan to change it to PM10-PRI. To avoid double counting, Pechan removed the following SCCs from Rhode Island's inventory: 2275000000, 2280002000, 2280002020, 2280003000, and 2280003020. These emissions are accounted for under more specific SCCs for aircraft, and more aggregate SCCs for commercial marine.

Rhode Island did not provide PM10-PRI and PM25-PRI aircraft emissions in their inventory. Pechan developed aircraft PM_{10} emissions for all aircraft types by applying an average PM_{10}/NO_x emission ratio to the aircraft NO_x emissions in their inventory. The PM_{10}/NO_x ratios used were 3.819 for military and air taxi, 3.642 for general aviation, and 0.058 for commercial aircraft. Pechan estimated general aviation, military aircraft, and air taxi PM25-PRI emissions by multiplying PM10-PRI emissions by a particle size multiplier of 0.69 (EPA, 2003b). For

commercial aircraft, Pechan estimated PM25-PRI emissions using the assumption that 97.6% of PM_{10} is $PM_{2.5}$ (ERG, 2004).

Rhode Island did not provide yard locomotive, and commercial marine vessel PM25-PRI emissions in their inventory. Pechan estimated the yard locomotive PM25-PRI emissions from PM10-PRI using the assumption that 90% of PM_{10} is PM25 (EPA, 2003b). Pechan estimated the commercial marine vessel PM25-PRI emissions from PM10-PRI using the assumption that 92% of PM_{10} is $PM_{2.5}$ (EPA, 2003b).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

12. Vermont

a. What Data Sources Were Used?

Pechan developed NONROAD model SCC emissions for Vermont using NMIM2005. Vermont approved of the default fuel input values used in NMIM2005 for weight percent oxygen, but requested that the RVP and gasoline sulfur values reflect values used for onroad mobile source emissions.

Pechan added aircraft emissions for Vermont from the preliminary 2002 Nonroad NEI.

b. What QA Issues were Identified and Addressed?

Commercial aircraft (SCC 2275020000) emissions for PM10-PRI and PM25-PRI were not reported in the EPA's preliminary 2002 NEI. Pechan estimated PM10-PRI emissions by applying an average PM10-PRI/NO_x emission ratio of 0.058 to available NO_x emissions. Commercial aircraft PM25-PRI emissions were estimated by multiplying PM10-PRI emissions by a particle size multiplier of 0.976 (ERG, 2004).

c. What Issues Need to be Addressed in Future Versions?

Note that there are no locomotive or commercial marine vessel emissions in the NEI for Vermont. Where activity for any of these SCCs occurs in Vermont, these categories are not represented in the State's inventory.

CHAPTER V – ONROAD SOURCES

A. General Methods for All States

This section provides an overview of the data sources and QA steps used in preparing the 2002 onroad sector inventory for the MANE-VU States and in preparing the corresponding modeling inputs for the MANE-VU Version 3 modeling inventory. The onroad sector is comprised of all motorized vehicles that travel on the public highways including passenger cars, light-duty trucks, minivans, sport utility vehicles, heavy-duty trucks, and buses. It should be noted that, unlike the other emission sectors, the modeling inventory inputs for the onroad sector do not include any emissions data. The primary modeling inputs for the onroad sector instead are the activity inputs (vehicle miles traveled (VMT)) and SMOKE-formatted MOBILE6 input files. The SMOKE model then generates full MOBILE6 input files using the MOBILE6 inputs, speed inputs, and meteorological inputs for the episode(s) to be modeled, runs the MOBILE6 emission factor model to calculate the appropriate emission factors, and calculates emissions using the supplied VMT and additional temporal allocation factors for the VMT.

1. Data Sources

a. Source of default model data

The MANE-VU 2002 onroad emissions inventory was compiled from data supplied by the MANE-VU State agencies in the form of onroad emissions input data or emissions inventories either directly to MANE-VU or to EPA through their CERR submittal. States provided information in one or more of the following ways: (1) an onroad emission inventory submittal to EPA, (2) MOBILE6 inputs and VMT data in NMIM format to EPA, (3) portions of MOBILE6 inputs or full MOBILE6 input files and supporting files plus VMT to EPA, or (4) portions of MOBILE6 inputs or full MOBILE6 input files and supporting files plus VMT to MANE-VU. Different procedures were followed in developing the MANE-VU 2002 onroad emission inventory depending upon how the data were submitted.

As discussed above, the primary data needed in preparing the inputs for the onroad modeling files were the VMT data and MOBILE6 input files. All of the MANE-VU States provided VMT data, which were incorporated in the SMOKE modeling. The level of detail of the supplied VMT data and any additional processing of the VMT data are discussed individually by State, below, in Section B: State-Specific Methods. Therefore, no default data were needed for the VMT inputs. Default model inputs for the SMOKE MOBILE6 input files were needed in some cases. The source of default information to be included in these input files was the NMIM national county database, as this was also the default source of data for EPA in preparing the 2002 NEI. This database includes information on monthly fuel data by county, control program information by county, such as inspection and maintenance (I/M) program inputs, and other fleet information, such as vehicle registration distributions, that may have been supplied by the States. Additionally, vehicle speed information is needed in the SMOKE modeling files. Some States supplied this information. In cases where no speed data were supplied, the default speeds used by EPA in calculating the NEI were used. These speeds differ by road class group and by vehicle class group.

For the SMOKE modeling, Pechan did not provide any ambient data such as temperature or humidity. Instead, the SMOKE model needs meteorological input data specific to the episode(s) being modeled. Thus, although the SMOKE MOBILE6 input files do include temperature data and in some cases humidity data, these inputs will be replaced by the SMOKE model with the appropriate episode-specific data.

b. Model inputs and revisions provided by States

The model inputs and revisions provided by the States are discussed in detail in Section B, below. These inputs include VMT data, VMT temporal data, vehicle speeds, I/M program inputs, registrations distributions, and other MOBILE6 input data.

c. Model inputs provided vs. model inputs used

Pechan prepared the following model input files for Version 3 of the MANE-VU modeling inventory:

- MANEVU_2002_mbinv_02022006.txt—contains VMT and speeds by county and SCC;
- MANEVU_2002_mtpro_02022006.txt—contains VMT temporal profiles;
- MANEVU_2002_mtref_02022006.txt—contains cross references between temporal profiles and county/SCC;
- MANEVU_2002_vmtmix_02022006.txt—contains VMT vehicle mix fractions;
- MANEVU_2002_mcref_02022006.txt—contains cross reference between MANE-VU counties and the SMOKE MOBILE6 input files;
- MANEVU_2002_mvref_02022006.txt—contains general county-level information for SMOKE;
- MANEVU_2002_spdpro.txt—contains hourly speed profiles (SPDPRO);
- MANEVU_2002_spdref.txt—contains cross references between speed profiles and MANE-VU county/SCC;
- MANEVU_2002_mcodes.txt—contains information on SCCs used in MBINV file;
- MANEVU_SMOKE_M6Inputs_MA_NJ_02022006.zip—contains monthly SMOKE-formatted MOBILE6 input files for Massachusetts and New Jersey, updated for Version 3;
- MANEVU_2002_SMOKE_M6_InputFiles032004.zip—contains monthly SMOKE-formatted MOBILE6 input files for all MANE-VU States. Files for Massachusetts and New Jersey from this zip file should be replaced by the Version 3 files dated 02/02/2006.
- MANEVU_2002_SMOKE_M6_ExternalFiles.zip—contains external data files called by the SMOKE MOBILE6 input files.

2. What Quality Assurance Steps were Performed?

This section provides a brief summary of the QA steps and processes that were performed in the development of the onroad sector modeling inputs for MANE-VU. The initial QA procedures were performed on the emissions and input data used to calculate the MANE-VU 2002 onroad

emission inventory. Some of these QA procedures are also relevant here to the modeling inventory as many of the inputs are either the same or start with common information.

For States submitting onroad emission inventories to EPA, Pechan performed QA checks on the State-provided emission inventory data to ensure completeness, referential integrity, and correct formatting of the data. Where necessary as a result of these QA checks, and with the approval of the affected State, Pechan revised the inventories to meet the necessary inventory standards. For the modeling inventory, the VMT checks included in these QA checks are relevant. Note that a Quality Assurance Plan was prepared prior to initiating work on Version 1 (MANE-VU, 2003). This plan was applied during development of all three versions of the MANE-VU inventory.

a. Data input summary spreadsheets for State review

In reviewing the data submitted for both the annual onroad inventory and the onroad modeling files, Pechan prepared a State QA report for each State. These reports were in the form of Excel spreadsheets. In each of the State QA reports, a page was included that summarized the modeling inputs. This included MOBILE6 input parameters, such as I/M data, registration data, and fuel data. Columns were included indicating the data file name, data coverage (e.g., statewide or for specific counties), data source, any comments regarding the data, an indication of whether any guidance was requested from the State agency before proceeding, and columns for State agency approval of the listed inputs. These reports were provided to each State agency and the State could either approve the inputs summarized or provide an alternate data source or calculation method. For States that had submitted emission inventories in NIF format, results of the NIF QA checks were also included in these State QA reports for the states to review and approve and provide alternate data or methods. This table also include information on the VMT data source and any proposed methodologies needed for processing the VMT.

b. Responses from State Agencies

The appropriate State agency staff reviewed the State QA reports and provided direction for correcting QA issues either in the QA Summary Report Excel file or via e-mail. The modeling inputs were then revised to incorporate responses from the agencies.

3. Version 3 Emission Summaries

Table V-1 presents a summary of the annual 2002 Version 3 MANE-VU onroad sector pollutant emissions for each MANE-VU State, as well as a regional total. Differences between these Version 3 annual emission totals and the Version 2 totals documented in the January 2005 MANE-VU mobile sources inventory report are the result of updated data provided by New Jersey and Massachusetts. Emissions for the remaining states have not changed. It should be noted that these emission results are from the annual inventory modeling. These will differ from the results obtained by the SMOKE onroad modeling. Additionally, the emissions in this table do not reflect VMT updates from Vermont that were provided after the Version 2 MANE-VU annual inventory had been calculated, but were included in the SMOKE Version 2 and Version 3 modeling inputs.

Table V-1. Annual 2002 Onroad Sector Emissions by MANE-VU State (Tons/Year)

State	VOC	NO_x	CO	SO_2	PM10-PRI	PM25-PRI	NH_3
Connecticut	31,755.3	68,816.2	562,124.0	1,666.9	1,580.0	1,041.6	3,293.9
Delaware	10,563.8	21,340.5	160,760.4	583.9	581.1	414.9	902.8
District of Columbia	4,895.3	8,902.0	66,017.6	271.1	222.0	153.0	397.8
Maine	23,037.4	54,686.8	410,957.8	1,803.9	1,239.1	934.4	1,467.5
Maryland	61,846.7	122,210.0	1,000,762.8	4,057.6	3,168.3	2,200.4	5,594.3
Massachusetts	57,185.5	143,367.6	1,039,100.1	4,398.8	3,407.5	2,409.9	5,499.1
New Hampshire	16,762.3	33,283.0	306,792.5	776.9	814.3	561.8	1,447.0
New Jersey	89,752.9	152,076.1	1,273,513.1	3,648.6	3,725.3	2,469.0	7,382.0
New York	287,845.2	319,732.5	3,711,149.6	10,639.5	8,457.5	5,897.7	14,680.9
Pennsylvania	176,090.3	346,471.5	2,784,196.5	10,924.1	7,351.5	5,331.2	10,532.3
Rhode Island	12,537.8	16,677.2	186,196.8	425.3	345.1	210.5	852.6
Vermont	17,287.8	20,669.9	248,247.6	893.8	669.6	482.8	934.1
Total MANE-VU	**789,560.3**	**1,308,233.3**	**11,749,818.8**	**40,090.5**	**31,561.3**	**22,107.2**	**52,984.3**

B. State-Specific Methods

The following sections describe what modeling inputs were used for each State and how these inputs were developed.

1. Connecticut

a. What Data Sources Were Used?

Table V-2 summarizes the onroad SMOKE input files that were prepared containing information for the State of Connecticut. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

The VMT inputs provided by Connecticut were in the form of three sets of data. This included a file with VMT by county and four road types (Expressway, Arterial/Collector, Local, and Ramp), a set of Statewide VMT mixes at the 16 vehicle type-level for each of the four Connecticut road types, and a Statewide hourly VMT distribution file. Additional data provided by Connecticut showing the correspondence between the four Connecticut road types and the 12 Highway Performance Monitoring System (HPMS) road types were used to first distribute the county VMT to the 12 road types. Average daily miles were converted to annual miles by multiplying the average daily miles by 365. Pechan then developed a simple MOBILE6 input file that used the Connecticut registration distribution and with a separate scenario for each of the VMT mixes provided at the 16 vehicle type level. Pechan used the resulting MOBILE6 output file to extract the 28 vehicle type VMT mix corresponding to each of the four Connecticut road types. The VMT data by county and 12 road types were then multiplied by the 28 vehicle type VMT fractions to obtain a VMT file at the 28 vehicle type level and 12 road type level by county (for use in calculating the annual emission inventory). VMT from these 28 vehicle types were

then aggregated to the 12 vehicle types needed for the SMOKE MBINV input file. The VMT mix fractions by vehicle type for each county and road type were also calculated for inclusion in the SMOKE VMTMIX file.

Table V-2. Connecticut Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	CT
Speeds	MANEVU_2002_mbinv_02022006.txt	Road type/3 vehicle groups	Default NEI
Speed profiles	MANEVU_2002_spdpro.txt and MANEVU_2002_spdref.txt	County/hour/road type	CT
VMT mix	MANEVU_2002_vmtmix_02022006.txt	Statewide/road type	CT
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

For Connecticut, speed information is contained in both the MBINV SMOKE file as well as in the SMOKE speed profile (SPDPRO) and speed cross reference file (SPDREF) files. The speed information contained in the MBINV file is simply the default NEI speed data. The actual speed data to be used in the modeling inventory for Connecticut are contained in the SMOKE SPDPRO and SPDREF. The speed data from these two files should overwrite the default speed information contained in the MBINV file during the SMOKE modeling. The data used to develop the speed profiles were provided by Connecticut in the form of NMIM speed input files with the fraction of VMT occurring within each of 14 speed bins. These speed distributions differ by hour of day and by freeways versus arterials and collectors. Separate speed distribution files were provided by Connecticut for each county. Pechan then converted these speed data into the speed profile format needed for SMOKE—hourly average speeds by county and the two specified road types.

Connecticut provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Statewide registration distribution;
- Hourly VMT distributions;
- Statewide I/M program inputs and Anaerobic Thermal Processor (ATP); and
- RVP and fuel program data.

The data submitted by Connecticut indicated that Federal Northern reformulated gasoline is in place in the State, with an ozone season RVP of 6.8 pounds per square inch (psi). Based on the NMIM modeling that was performed for the annual emission inventory, the reformulated gasoline program was modeled in the SMOKE MOBILE6 input files using the combination of the FUEL PROGRAM: 4 command (indicating user-supplied gasoline sulfur inputs), RVP command, and the OXYGENATED FUELS command. The monthly oxygenated fuel and gasoline sulfur inputs, and the non-ozone season monthly RVP values were obtained from the

NMIM national county database for Connecticut. During the ozone season months, the RVP value submitted by Connecticut of 6.8 psi was modeled. The fuel data obtained from NMIM are the same for all counties in Connecticut, except Fairfield, which shows different fuel properties, but all represent reformulated gasoline. These values for both Fairfield and the remaining counties differed by season (i.e., the ozone season from May through September, transition months of March, April, October, and November, and the winter months of December, January, and February). Statewide diesel sulfur values modeled from NMIM were 367 ppm sulfur in the summer months (June, July, and August), 340 ppm sulfur in the winter months (December, January, and February), and 353 ppm sulfur in the spring and fall months.

Data provided by Connecticut indicated that the State follows the OTC low emission vehicle (LEV) program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for Connecticut.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

2. Delaware

a. What Data Sources Were Used?

Table V-3 summarizes the onroad SMOKE input files that were prepared containing information for the State of Delaware. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Delaware provided VMT data in the form of the NEI NIF PE table as well as in the NMIM BaseYearVMT table format. Additionally, Delaware provided monthly VMT fractions developed from VMT counts on a variety of road types. These monthly VMT fractions were provided for each of the Delaware counties. Since the data in the NEI NIF PE table were at the level of detail needed for the SMOKE MBINV file, the format of the VMT data was simply converted from the NIF format to the SMOKE MBINV format. Similarly, the monthly VMT fractions were converted to the profile format needed in the SMOKE MTPRO file, with the appropriate cross references in the MTREF file. The average speeds provided by Delaware at the county/road type level were included in the SMOKE MBINV file.

Table V-3. Delaware Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	DE
Speeds	MANEVU_2002_mbinv_02022006.txt	County/road type	DE
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Monthly by county/road type	DE
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

The fuel data submitted by Delaware was based on the NMIM defaults with the NMIM October data replaced by the NMIM November data. The reformulated gas fuel parameters were modeled in the SMOKE MOBILE6 input files by using the combination of the OXYGENATED FUELS, FUEL RVP, and FUEL PROGRAM (for gasoline sulfur contents) commands for each month. Statewide diesel sulfur values modeled from NMIM were 300 ppm sulfur in the summer months (June, July, and August), 280 ppm sulfur in the winter months (December, January, and February), and 290 ppm sulfur in the spring and fall months.

Data provided by Delaware indicated that the State follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for Delaware.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

3. District of Columbia

a. What Data Sources Were Used?

Table V-4 summarizes the onroad SMOKE input files that were prepared containing information for the District of Columbia. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-4. District of Columbia Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	DC
Speeds	MANEVU_2002_mbinv_02022006.txt	Road type	DC
VMT mix	MANEVU_2002_vmtmix_02022006.txt	Road type	DC
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

The District of Columbia provided 2002 VMT data in the form of the NMIM BaseYearVMT table. This table included VMT at the 28 vehicle type level for each of the six urban road types in the District of Columbia. VMT from these 28 vehicle types were then aggregated to the 12 vehicle types needed for the SMOKE MBINV input file. The VMT mix fractions by vehicle type for each county and road type were also calculated for inclusion in the SMOKE VMTMIX file. The District also provided a spreadsheet including the daily average weighted speed by roadway class. These speeds were incorporated in the SMOKE MBINV file. The District of Columbia provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- District-wide registration distribution;
- I/M program and ATP inputs; and
- Weekday trip length distribution file.

The District of Columbia specified that the NMIM fuel program default data for the District should be used for the MANE-VU modeling. This included reformulated gasoline district wide, modeled using the FUEL RVP, and FUEL PROGRAM (for gasoline sulfur contents) commands for each month. Statewide diesel sulfur values modeled from NMIM were 329 ppm sulfur in the summer months (June, July, and August), 324 ppm sulfur in the winter months (December, January, and February), and 326 ppm sulfur in the spring and fall months.

Data provided by the District of Columbia indicated that the District follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for the District of Columbia.

c. What Issues Need to be Addressed in Future Versions?

The SMOKE MOBILE6 files for the District of Columbia should include the OXYGENATED FUELS command to fully model reformulated gasoline in the District of Columbia. This command was inadvertently left out of the SMOKE MOBILE6 files.

4. Maine

a. What Data Sources Were Used?

Table V-5 summarizes the onroad SMOKE input files that were prepared containing information for the State of Maine. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-5. Maine Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	ME
Speeds	MANEVU_2002_mbinv_02022006.txt	County/road type	ME
VMT mix	MANEVU_2002_vmtmix_02022006.txt	Statewide/road type	Default
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

Maine provided 2002 average daily VMT by county and 12 roadway types. Maine had no information available on the distribution of VMT among vehicle types. Therefore, Pechan developed the VMT by county, roadway type, and vehicle type by using the default MOBILE6 2002 VMT mix by vehicle type. These VMT data were converted to annual VMT by multiplying the average daily VMT by 365. The MOBILE6 VMT default mix fractions by vehicle type for 2002 were included for Maine in the SMOKE VMTMIX file. Maine also provided average speed data by county and roadway type. These data were included in the SMOKE MBINV file.

Maine provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- I/M program inputs and ATP inputs for Cumberland County only; and
- Monthly average RVP data.

Statewide diesel sulfur values were obtained from the NMIM defaults for Maine. A diesel sulfur value of 390 ppm sulfur was modeled in the summer months (June, July, and August), 338 ppm sulfur in the winter months (December, January, and February), and 364 ppm sulfur in the spring and fall months.

Data provided by Maine indicated that the State follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for Maine.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

5. Maryland

a. What Data Sources Were Used?

Table V-6 summarizes the onroad SMOKE input files that were prepared containing information for the State of Maryland. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Maryland submitted annual VMT data in the form of a NIF tblMobilePE table. This included VMT by county, 12 vehicle types, and 12 road types. These VMT data were then converted to the format needed for the SMOKE MBINV file. Pechan calculated VMT mix fractions from the VMT data supplied by Maryland to obtain the VMT mixes by county and road type contained in the SMOKE VMTMIX file. In addition, Maryland provided monthly VMT distribution data by road type. Pechan converted these data to the format needed for the SMOKE MTPRO and MTREF files. The same set of monthly temporal profiles were applied to all counties in Maryland. Maryland also provided a spreadsheet showing the average speed Statewide for each of the 12 roadway types. These speed data were included in the SMOKE MBINV file.

Maryland provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- County-specific registration distribution;
- County-specific diesel sales fractions;
- I/M program inputs and ATP inputs to be applied in the 14 I/M counties; and
- Statewide monthly diesel sulfur content data.

Maryland indicated that the NMIM default fuel parameters for Maryland should be used in the MANE-VU modeling. This fuel data includes reformulated gasoline in 14 of the Maryland counties. The reformulated gasoline program was modeled using the FUEL RVP, and FUEL PROGRAM (for gasoline sulfur contents) commands for each month. Maryland provided monthly Statewide diesel sulfur values. These values ranged from 455 ppm sulfur to 500 ppm

sulfur. These values were included in the corresponding monthly SMOKE MOBILE6 input files.

Table V-6. Maryland Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	MD
Speeds	MANEVU_2002_mbinv_02022006.txt	County/road type	MD
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	MD
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Statewide monthly by road type	MD
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

Data provided by Maryland indicated that the State follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for Maryland affecting the modeling inventory files.

c. What Issues Need to be Addressed in Future Versions?

The SMOKE MOBILE6 files for Maryland should include the OXYGENATED FUELS command to fully model reformulated gasoline in the Maryland counties that implement the reformulated gasoline program. This command was inadvertently left out of the Maryland SMOKE MOBILE6 files.

6. Massachusetts

a. What Data Sources Were Used?

Table V-7 summarizes the onroad SMOKE input files that were prepared containing information for the State of Massachusetts. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-7. Massachusetts Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	MA
Speeds	MANEVU_2002_mbinv_02022006.txt	County/road type	MA
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	Default
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Monthly by county	MA
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

The Version 3 MANE-VU onroad modeling for Massachusetts differed from the Version 2 modeling, based on updates provided by Massachusetts in December 2005. The primary changes for Massachusetts from Version 3 is the use of updated 2002 VMT data and vehicle speed date. Massachusetts provided a spreadsheet containing revised VMT values and vehicle speeds for 2002 by county and SCC. Pechan prepared the revised Massachusetts VMT data and the speed data in the format of the SMOKE MBINV file. Using the revised VMT data by SCC, Pechan calculated the updated VMT mixes by vehicle type for each county and road type in Massachusetts and formatted the resulting data to be included in the SMOKE VMTMIX file.

The original VMT data submitted by Massachusetts included VMT for each of the four seasons. Pechan used these data to develop monthly VMT temporal profiles. Seasonal VMT was assigned to the months in that season based on the ratio of the number of days in a specific month to the number of days in the season. Pechan then formatted the monthly temporal VMT allocation factors for inclusion in the SMOKE MTPRO and MTREF files.

Massachusetts provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Statewide registration distribution;
- Statewide I/M program inputs and ATP inputs;
- RVP and fuel program data;
- Diesel sulfur content of 350 ppm sulfur year-round and statewide; and
- Massachusetts-specific LEV and Tier 2 implementation files.

Northern reformulated gasoline was modeled statewide throughout the State, with a RVP value of 6.7 psi during the ozone season and 13.5 psi during the remaining months, based on inputs provided by Massachusetts. The section below on QA issues for Massachusetts discusses the fuel inputs modeled in the Version 3 SMOKE MOBILE6 input files in more detail. Massachusetts provided the necessary inputs to model the State's LEV implementation schedule and Tier 2 data, which differ from the OTC-LEV program and from the default MOBILE6 Tier 2 data.

b. What QA Issues were Identified and Addressed?

In addition to the VMT updates, Pechan revised the SMOKE MOBILE6 input files for Massachusetts for Version 3. This was done because Version 2 of the MANE-VU modeling inventory was prepared using the default setting of MOBILE6 to model reformulated gasoline (i.e., using the command line "FUEL PROGRAM : 2 N"). Since the time that the Version 2 inventory was created, EPA found a bug with the sulfur content values used when the default reformulated gasoline command is used. To eliminate this problem, Pechan created revised SMOKE MOBILE6 input files for Massachusetts that model reformulated gasoline by explicitly setting the RVP, gasoline sulfur contents, and gasoline oxygen contents. The gasoline sulfur contents and gasoline oxygen contents were set according to the default parameters laid out in the MOBILE6 user's guide. The summer (May through September) sulfur content is 129 ppm in 2002 and the winter sulfur content is 279 ppm in 2002. The summer gasoline contains 2.1 percent oxygen, with MTBE as the oxygenate. The winter gasoline contains 1.5 percent oxygen in 70 percent of the fuel having MTBE as the oxygenate, and 3.5 percent oxygen in 30 percent of the fuel having ETOH as the oxygenate. The RVP values were not changed from those modeled in Version 2 (6.7 psi in the summer and 13.5 psi in the winter).

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

7. New Hampshire

a. What Data Sources Were Used?

Table V-8 summarizes the onroad SMOKE input files that were prepared containing information for the State of New Hampshire. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-8. New Hampshire Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	NH
Speeds	MANEVU_2002_mbinv_02022006.txt	County/road type	NH
VMT mix	MANEVU_2002_vmtmix_02022006.txt	Statewide	NH
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

The VMT inputs provided by New Hampshire were in the form of summer day VMT by county or nonattainment area and roadway type. In addition, New Hampshire provided a Statewide VMT mix distribution by 16 vehicle types in the MOBILE6 files provided by the State. Pechan then developed a simple MOBILE6 input file that used the New Hampshire Statewide registration distribution and the Statewide VMT mix by vehicle type. Pechan used the resulting MOBILE6 output file to extract the 28 vehicle type VMT mix to be applied Statewide to the county/roadway type VMT data. Summer day miles were converted to annual miles by using national data from the Federal Highway Administration's Travel Volume Trends which provides 2002 monthly VMT for groups of road categories. Additionally, the VMT data from the three New Hampshire nonattainment areas represented four counties. To allocate these VMT by county, Pechan first totaled the VMT data from these three nonattainment areas by roadway type. Then, using ratios developed from the preliminary 2002 NEI VMT, Pechan allocated the grouped VMT by county and roadway type. With VMT for the entire State at the county/roadway type level of detail, Pechan then multiplied the VMT data by the 28 vehicle type VMT fractions to obtain a VMT file at the 28 vehicle type level and 12 roadway type level by county for use in preparing the annual onroad emission inventory. VMT from these 28 vehicle types were then aggregated to the 12 vehicle types needed for the SMOKE MBINV input file. The VMT mix fractions by vehicle type for each county and road type were also calculated for inclusion in the SMOKE VMTMIX file. New Hampshire also provided a spreadsheet including the average speed by roadway class for each county or county group. These speeds were incorporated in the SMOKE MBINV file.

New Hampshire provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Statewide registration distribution; and
- Statewide ATP inputs.

New Hampshire specified that the NMIM fuel program default data for New Hampshire should be used for the MANE-VU modeling. This included reformulated gasoline in four counties, modeled using the FUEL RVP, and FUEL PROGRAM (for gasoline sulfur contents) commands for each month. Statewide diesel sulfur values modeled from NMIM were 400 ppm sulfur in the

summer months (June, July, and August), 340 ppm sulfur in the winter months (December, January, and February), and 370 ppm sulfur in the spring and fall months.

Data provided by New Hampshire indicated that the State follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

Through the State QA report process, New Hampshire provided updated inputs for VMT and speeds that were incorporated in the modeling inventory inputs.

c. What Issues Need to be Addressed in Future Versions?

The SMOKE MOBILE6 files for the four New Hampshire that implement reformulated gasoline should include the OXYGENATED FUELS command to fully model the benefits reformulated gasoline. This command was inadvertently left out of the SMOKE MOBILE6 files.

8. New Jersey

a. What Data Sources Were Used?

Table V-9 summarizes the onroad SMOKE input files that were prepared containing information for the State of New Jersey. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-9. New Jersey Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	NJ
Speeds	MANEVU_2002_mbinv_02022006.txt	Road type/3 vehicle groups	Default NEI
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	NJ
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Monthly by 3 county groups and weekday/weekend	NJ
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

Updates were made to the Version 2 MOBILE6 SMOKE inputs for New Jersey in December 2005 to create Version 3, based on revised data provided by the State. New Jersey provided the following files:

- a set of SMOKE MOBILE6 input files by county and month;
- NJ_2002_mbinv.txt file that contained revised VMT and speeds by county and SCC, generated by NJDEP in August 2005, in SMOKE format;
- amptref.m3.manevu.vistascem.032805_NJVMT.txt—a SMOKE-formatted file containing county/SCC-level temporal profile cross-references;
- amptro.m3.manevu.vistascem.032805_NJVMT.txt—a SMOKE-formatted file containing county-specific VMT temporal profiles prepared by NJDEP in August 2005; and
- zip files containing external files needed to run the SMOKE MOBILE6 files.

After an initial review of these files, Pechan did not note any differences in the SMOKE MOBILE6 files from the Version 2 files. Pechan then confirmed with New Jersey that the only changes from the Version 2 date were in the VMT data. The VMT and speed data by county and SCC in the MBINV file provided by New Jersey were copied to the MANE-VU SMOKE MBINV file, replacing the VMT and speed data from the Version 2 SMOKE MBINV file for New Jersey. The speed data included by New Jersey are the default NEI speeds by road type and vehicle type. Using the new VMT data provided by New Jersey, Pechan calculated a revised set of VMT mix fractions by vehicle type and included these in the Version 3 SMOKE VMTMIX file. Pechan pasted the temporal profiles provided for New Jersey into the SMOKE MTPRO file. This included monthly temporal profiles and diurnal temporal profiles. The diurnal temporal profiles were applied to both weekdays and weekends. Similarly the temporal cross reference data included in the file provided by New Jersey was pasted into the SMOKE MTREF file for MANE-VU Version 3.

The following New Jersey-provided were included in the monthly MOBILE6 input files for the SMOKE modeling:

- Statewide registration distribution;
- Statewide diesel sales fractions;
- Statewide I/M program and ATP inputs; and
- Diesel sulfur content data (340 ppm statewide).

Northern reformulated gasoline was modeled statewide throughout the State, using NMIM fuel program input defaults for New Jersey. The section below on QA issues for New Jersey discusses the fuel inputs modeled in the Version 3 SMOKE MOBILE6 input files in more detail.

Data provided by New Jersey indicated that the State follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

As discussed above for New Jersey, the Version 2 New Jersey SMOKE MOBILE6 input files modeled reformulated gasoline using the command line "FUEL PROGRAM : 2 N", which is the default method for modeling reformulated gasoline with MOBILE6. To eliminate the effects

of the MOBILE6 reformulated gasoline bug from the SMOKE MOBILE6 inputs, Pechan explicitly modeled the reformulated gasoline program in the New Jersey MOBILE6 input files by explicitly modeling the appropriate settings of the RVP, oxygenated fuel content commands, and gasoline sulfur commands. The values for oxygenated fuel settings and gasoline sulfur contents by month were extracted from the NMIM county-level database used in developing the annual emissions inventory for the MANE-VU Version 2 onroad emissions inventory.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

9. New York

a. What Data Sources Were Used?

Table V-10 summarizes the onroad SMOKE input files that were prepared containing information for the State of New York. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-10. New York Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	NY
Speeds	MANEVU_2002_mbinv_02022006.txt	Road type/3 vehicle groups	Default NEI
Speed profiles	MANEVU_2002_spdpro.txt and MANEVU_2002_spdref.txt	County/hour/road type	NY
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	NY
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Monthly by 3 county groups	NY
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

VMT for New York was provided in the form of a NIF PE table. These VMT data were extracted and included in the SMOKE MBINV file. VMT mix fractions by vehicle type were calculated from these VMT data and included in the SMOKE VMTMIX file.

New York provided a spreadsheet with average speeds in each of four daily time periods by county and road type. Pechan converted these speed data to the SMOKE SPDPRO format, assigning the speed for a given time period to all hours included in that time period. Pechan also prepared the SMOKE SPDREF file to appropriately cross reference each county and road type to the corresponding hourly speed profile. Because these more detailed speed files were provided for New York, the average speed by road type and county in the MBINV file was populated with default NEI speeds.

New York also provided spreadsheets showing monthly VMT by county and roadtype. After processing these VMT values to develop monthly temporal factors, Pechan observed that there were only three unique monthly profiles in this data set. These three profiles were then added to the SMOKE MTPRO file. Pechan then matched each county and road type in the State to the corresponding monthly VMT profile in the SMOKE MTREF file.

New York provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Registration distributions—one for the New York metropolitan area and one for the rest of the State;
- Diesel sales fractions—one for the New York metropolitan area and one for the rest of the State;
- Statewide mileage accumulation rate input;
- Monthly RVP data—one set for the New York metropolitan area and one for the rest of the State;
- Reformulated gasoline program inputs for affected counties modeled with MOBILE6 defaults (i.e., "FUEL PROGRAM : 2 N");
- I/M program inputs for affected counties;
- Statewide ATP inputs;
- Hourly VMT distributions by county group;
- Start distributions by county;
- Diesel sulfur content data (400 ppm statewide).

New York also provided the necessary input files to model the State's LEV program implementation schedule, which differs from the OTC LEV program. New York also provided MOBILE6 Tier 2 modeling files to be used along with the New York LEV program inputs. These inputs were included in the SMOKE MOBILE6 modeling.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for New York affecting the modeling inventory files.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

10. Pennsylvania

a. What Data Sources Were Used?

Table V-11 summarizes the onroad SMOKE input files that were prepared containing information for the State of Pennsylvania. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-11. Pennsylvania Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	PA
Speeds	MANEVU_2002_mbinv_02022006.txt	County/road type	PA
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	PA
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Monthly by county	PA
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

Pennsylvania provided a database file (NEIANN02.dbf) that contained the VMT and speed data by county, roadway type, and vehicle type. This included the same VMT used in the calculation of the annual onroad inventory submitted by Pennsylvania for MANE-VU. Pechan converted the data from this database file into VMT and speed data in the format of the SMOKE MBINV file. From the VMT data, Pechan calculated VMT fractions by vehicle type by county and road type for inclusion in the SMOKE VMTMIX file. Pennsylvania also provided estimates of VMT by month for each county. Pechan converted these data to monthly allocation factors in the format needed by the SMOKE MTPRO and MTREF files. A separate monthly profile was developed for each county, but applied to all road types within that county.

Pennsylvania provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Registration distributions for each individual county;
- I/M program and ATP inputs for affected Philadelphia and Pittsburgh area counties (inputs differ for the two areas);
- Monthly RVP data for all counties including 7.8 psi RVP program from May through September for Pittsburgh counties;
- Reformulated gasoline for the 5-county Philadelphia area modeled with MOBILE6 defaults (i.e., “FUEL PROGRAM : 2 N”); and
- Diesel sulfur content data (500 ppm statewide).

Data provided by Pennsylvania indicated that the State follows the OTC-LEV program vehicle implementation schedule. Therefore, the OTC-LEV program LEV implementation schedule was included in the MOBILE6 SMOKE input files, starting implementation in the 1999 model year followed by a full implementation of the National LEV program in the 2001 model year.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for Pennsylvania affecting the modeling inventory files.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

11. Rhode Island

a. What Data Sources Were Used?

Table V-12 summarizes the onroad SMOKE input files that were prepared containing information for the State of Rhode Island. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-12. Rhode Island Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	RI
Speeds	MANEVU_2002_mbinv_02022006.txt	County group/road type	RI
VMT mix	MANEVU_2002_vmtmix_02022006.txt	Statewide	RI
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

Rhode Island provided a spreadsheet with the 2002 VMT as well as Statewide 2002 VMT fractions by 16 vehicle types. Pechan prepared a simple MOBILE6 input file including this Rhode Island 2002 VMT mix by vehicle type and the 2002 Rhode Island registration distribution. The VMT mix in the MOBILE6 output file at the 28 vehicle type level was then used to distribute the VMT by vehicle category. The 2002 daily VMT was at the State level, broken down by the 12 roadway types. To allocate these VMT data to the county/road type level of detail, Pechan summed the VMT from the preliminary version of EPA's 2002 NEI for Rhode Island first by State and roadway type and then by county and roadway type. Pechan calculated county/roadway type VMT fractions by dividing the VMT at the county/roadway type level by the State/roadway type VMT for the same roadway type. These fractions were then multiplied by the VMT supplied by Rhode Island at the State/roadway type level of detail to obtain county/roadway type VMT data. These county/roadway type VMT data were then multiplied by the 28 vehicle type VMT fractions to obtain VMT at the level of detail needed to populate the NMIM BaseYearVMT table for calculating the annual inventory and were then summed to the 16-vehicle type level of detail for use in the SMOKE MBINV file. The data were also converted from daily VMT to annual by multiplying the average daily VMT by 365. VMT mix fractions

from this final data set were then formatted in the SMOKE VMTMIX format at the State level of detail. Statewide speeds by road type, as provided by Rhode Island, were included in the SMOKE MBINV file.

Rhode Island provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Statewide registration distribution; and
- Statewide I/M program inputs.

Data for fuel parameters were obtained from the NMIM national county database for Rhode Island. This included reformulated gasoline Statewide, modeled using the FUEL RVP, and FUEL PROGRAM (for gasoline sulfur contents) commands for each month. These values differed by season, but were consistent Statewide. Statewide diesel sulfur values modeled from NMIM were 400 ppm sulfur in the summer months (June, July, and August), 340 ppm sulfur in the winter months (December, January, and February), and 370 ppm sulfur in the spring and fall months.

The NMIM default LEV program for Rhode Island was modeled, which includes the OTC-LEV program LEV implementation schedule.

b. What QA Issues were Identified and Addressed?

No QA issues were identified for Rhode Island.

c. What Issues Need to be Addressed in Future Versions?

The Rhode Island SMOKE MOBILE6 input files did not include the OXYGENATED FUELS command. This should have been used to fully characterize the parameters of reformulated gasoline that is used Statewide in Rhode Island.

12. Vermont

a. What Data Sources Were Used?

Table V-13 summarizes the onroad SMOKE input files that were prepared containing information for the State of Vermont. This table notes the level of detail of the data included as well as the source of the original information used to create these data files.

Table V-13. Vermont Onroad Data in SMOKE Input Files

	Final MANE-VU Version 3 SMOKE Input File	Level of Detail	Data Source
VMT	MANEVU_2002_mbinv_02022006.txt	County/SCC	VT
Speeds	MANEVU_2002_mbinv_02022006.txt	Road type/vehicle group (light-duty vs. heavy-duty)	VT
VMT mix	MANEVU_2002_vmtmix_02022006.txt	County/road type	VT
Temporal profiles	MANEVU_2002_mtpro_02022006.txt and MANEVU_2002_mtref_02022006.txt	Monthly statewide	
SMOKE MOBILE6 file listing	MANEVU_2002_mcref_02022006.txt	County	
SMOKE MOBILE6 file listing	MANEVU_2002_mvref_02022006.txt	County	

Vermont submitted VMT data in the format of the NIF PE table. Vermont then provided updated VMT data for three road classifications (rural minor collectors, rural local roads, and urban local roads) in December 2004, after the time that these changes could be included in the MANE-VU annual onroad emission inventory. However, the updated VMT were included in the MANE-VU Version 3 onroad SMOKE modeling files. This VMT change resulted in a Statewide decrease in VMT from about 9.5 billion miles to about 7.8 billion miles. As a result, the SMOKE modeling performed by MANE-VU will not match the MANE-VU emission inventory for Vermont. The VMT data were converted to the SMOKE MBINV file format. VMT mix fractions were calculated from the VMT data and included in the SMOKE VMTMIX file. Vermont also provided information on the temporal allocation of VMT. From these data, Pechan prepared a monthly VMT profile for Vermont and included the data in the SMOKE MTPRO and MTREF files.

Vermont provided information on Statewide speeds by roadway type. These speeds differed for light-duty vehicles and heavy-duty vehicles. Pechan incorporated this speed information into the SMOKE MBINV file.

Vermont provided the following data that were incorporated into the monthly MOBILE6 input files for the SMOKE modeling:

- Statewide registration distribution;
- Statewide I/M program inputs; and
- RVP data.

The RVP data provided by Vermont were based on data from a local gasoline tank farm and resulted in an RVP value of 8.5 psi during the ozone season months (May through September) and 9.47 psi for the remaining months. Data for fuel parameters other than RVP (e.g., diesel and gasoline fuel sulfur content) were obtained from the NMIM national county database for Vermont. These values differed by season, but were consistent Statewide. Statewide diesel

sulfur values modeled from NMIM were 300 ppm sulfur in the summer months (June, July, and August), 290 ppm sulfur in the winter months (December, January, and February), and 295 ppm sulfur in the spring and fall months.

The NMIM default LEV program for Vermont was modeled, which includes Vermont's State-specific LEV implementation schedule.

b. What QA Issues were Identified and Addressed?

Through the State QA report process, Vermont provided a missing registration data file, RVP data and revised VMT.

c. What Issues Need to be Addressed in Future Versions?

None identified by the State.

CHAPTER VI – BIOGENIC SOURCES

A. General Methods for all States

1. What Data Sources Were Used?

Biogenic emissions for the time period from January 1, 2002 – December 31, 2002 were calculated by the New York State Department of Environmental Conservation (NYSDEC) for all of the MANE-VU states using the Biogenic Emissions Inventory System (BEIS) version 3.12 integrated within SMOKE2.1. The inventory was prepared at the state-level for CO, nitrous oxide (NO), and VOC.

General information about BEIS is available at http://www.epa.gov/AMD/biogen.html while documentation about biogenic emissions processing within SMOKE2.1 is available at http://cf.unc.edu/cep/empd/products/smoke/version2.1/html/ch06s10.html and http://cf.unc.edu/cep/empd/products/smoke/version2.1/html/ch06s17.html. Note that the SMOKE documentation refers to BEIS3.09 and has not yet been updated for BEIS3.12. This affects the number of species modeled as well as the use of different speciation profiles. However, the general processing approach has not changed from BEIS3.09 to BEIS3.12. In short, this processing approach is as follows and was utilized by NYSDEC for its biogenic emission processing for MANE-VU and the OTC modeling:

- **Normbeis3** reads gridded land use data and emissions factors and produces gridded normalized biogenic emissions for 34 species/compounds. The gridded land use file utilized by NYSDEC includes the fractional coverage of 230 different land use types for each of the 172 * 172 12-km grid cells in the MANE-VU/OTC modeling domain. In a separate BEIS3.12 input file, both summer and winter emissions factors for each species/compound are provided for each of the 230 land use types. On output, **Normbeis3** generates a file `B3GRD` which contains gridded summer and winter emission fluxes for the modeling domain that are normalized to 30 °C and a photosynthetic active radiation (PAR) of 1000 μmol/m^2s. In addition, gridded summer and winter leaf area indices (LAI) are also written to `B3GRD`.

- **Tmpbeis3** reads the gridded, normalized emissions file B3GRD and meteorological data from the MCIP-processed MM5 meteorological fields generated by the University of Maryland for MANE-VU/OTC modeling. Specifically, the following MM5/MCIP meteorological variables are used by **Tmpbeis3** to compute hour-specific, gridded biogenic emissions from the normalized emission fluxed contained in B3GRD: layer-1 air temperature ("TA"), layer-1 pressure ("PRES"), total incoming solar radiation at the surface ("RGRND"), and convective ("RC") and non-convective ("RN") rainfall. Additionally, the emissions for the 34 species/compounds modeled by BEIS3.12 are converted to CO, NO, and the CB-IV VOC species utilized in CMAQ via the use of the BEIS3.12-CB-IV speciation profile. Furthermore, an external file, BIOSEASON, was utilized to decide whether to use summer or winter emissions factors for any given grid cell on any given day. This file was generated by the SMOKE2.1 utility **Metscan** based on MM5 layer-1 air

temperatures to determine the date of the last spring frost and first fall frost at each grid cell. Summer emission factors are used by **Tmpbeis3** for the time period between the day of the last spring frost and the day of the first fall frost at any given grid cell, and winter emission factors are used for the remaining time period. Documentation for the **Metscan** utility is available at http://cf.unc.edu/cep/empd/products/smoke/version2.1/html/ch05s07.html. An animated GIF file showing the BIOSEASON file used by NYSDEC can be found at ftp://ftp.dec.state.ny.us/dar/air_research/chogrefe/biog_reports/b3season_movie.gif.

- For reporting purposes, the hourly, speciated, gridded emissions were aggregated to the county level for each day. For any given grid cell, emissions were distributed among the counties intersecting this grid cell in proportion to the area of each of these counties within the grid cell. The area gridding surrogates needed for this aggregation are based on a file obtained from EPA via http://www.epa.gov/ttn/chief/emch/spatial/new/bgpro.2km_041604.us.gz, followed by windowing for the MANE-VU/OTC modeling domain.

2. Version 3 Emissions Summary

Table VI-1 presents a State-level summary of the annual biogenic source emissions in Version 3 of the 2002 MANE-VU inventory. The annual emissions are based on the sum of the daily emissions prepared using the modeling approach previously discussed.

Table VI-1. Version 3 2002 MANE-VU Biogenic Source Emissions by State (Tons/Year)

State	CO	NO	VOC*
Connecticut	6,889	560	64,017
Delaware	4,274	990	46,343
District of Columbia	150	30	1,726
Maine	64,936	2,018	600,205
Maryland	18,351	2,934	210,104
Massachusetts	11,594	1,257	113,958
New Hampshire	14,306	482	141,894
New Jersey	14,058	1,813	181,617
New York	63,436	8,313	492,487
Pennsylvania	59,946	8,646	585,272
Rhode Island	1,764	211	19,233
Vermont	14,745	1,142	118,377
MANE-VU	274,451	28,396	2,575,232

* VOC emissions were calculated by adding the emissions for the following pollutants: ALD2, ETH, FORM, ISOP, NR, OLE, PAR, TERB, TOL, XYL.

B. State-Specific Methods

No state-specific methods were used in Version 3 of the MANE-VU inventory for biogenic emissions.

CHAPTER VII. TEMPORAL, SPECIATION, AND SPATIAL ALLOCATION PROFILES AND PREPARATION OF SMOKE (IDA) AND RPO DATA EXCHANGE PROTOCOL (NIF 3.0) FORMATS

Table VII-1 provides a summary of the file names and documentation used for modeling inputs for Version 3 of MANE-VU's 2002 inventory for point, area, nonroad, and onroad sources. The final input files used for temporal allocation, speciation, and spatial allocation of emissions were developed for Version 1 of the 2002 inventory and delivered to MARAMA during January 2005 (MANE-VU, 2005). These files were developed starting with the latest model input files available from EPA and then revised to include updates needed for the MANE-VU region or to add SCCs and profile assignments not included in the initial EPA data sets. The files were revised between September 2004 and January 2005 to incorporate comments provided by MANE-VU. Files in Table VII-1 with a date that is later than January 2005 were prepared to support modeling for Version 3. The notes column in the table identifies the modifications made to the files if the files were changed after this date. Otherwise, files with a date later than January 2005 were either provided by a state agency or were obtained from EPA and used for modeling Version 3.

The remainder of this chapter provides a brief summary of the revisions made to the EPA data sets prepared for Version 1 of the 2002 MANE-VU inventory and subsequently carried for the modeling for Version 3. Sections A, B, and C of this chapter discuss how the temporal allocation, speciation, and spatial allocation profiles, respectively, were developed. Section D of this chapter describes how the emissions inventory data were prepared in the SMOKE (IDA) and RPO Data Exchange Protocol (NIF 3.0) Formats.

A. Temporal Profiles

1. Point and Area Sources

The most recent SMOKE temporal cross-reference files available from EPA during the summer of 2004 were used as the starting point for developing the cross-reference files for point and area sources. The following 3 classes of modifications were completed to improve the temporal allocation input files:

- Update temporal cross-reference to assign an existing profile in the default SMOKE profiles for SCCs in the MANE-VU inventory
- Create a new temporal cross-reference to an existing profile in the default SMOKE profiles for SCCs in the MANE-VU inventory; the cross-reference did not previously exist in the default SMOKE files but the profile did exist.
- Create new temporal profiles and cross-references for SCCs in the MANE-VU inventory; neither the cross-reference nor profiles for the MANE-VU SCCs previously existed in the default SMOKE files.

a. Point Sources

A total of 30 point SCCs existed in the MANE-VU point source inventory that were not in the point source cross-reference file; therefore, the SCCs were added to the cross-reference file and assigned to existing profiles based on the assignment of similar SCCs already assigned to the profiles. Table II-2 lists the SCCs along with the state and county FIPS where they occurred in the MANE-VU inventory. Temporal profiles could not be identified for the SCCs listed in Table VII-3 due to either the SCC being shorter than 8-digits or the lack of information about the source categories for identifying an appropriate profile assignment. These SCCs were assigned the default profile by SMOKE.

b. Area Sources

For area sources, the improvements to the EPA cross-reference file included updates to existing profiles in the file based on MANE-VU-specific data (see Table VII-4), addition of SCCs that were assigned to existing profiles based on the assignment of similar SCCs already assigned to the profiles (see Table VII-5), and addition of new SCCs and profiles based on MANE-VU- or RPO-specific data (see Table VII-6).

Additional cross-referencing information used to revise the temporal cross-reference file included MANE-VU county-level information for residential wood combustion, monthly temporal profiles developed for NH_3 source categories using the Carnegie Mellon University (CMU) model, and a Delaware-specific cross-reference file associated with the Delaware inventory. The additions of new SCCs and new profiles shown in Table VII-6 mostly apply to the state of Delaware (State FIPS=10). For the FIPS column, the "-9" designation means the cross-reference is applied for all counties that do not have a county or state-specific SCC cross-reference record. These changes to the temporal cross-reference file allowed for the assignment of a non-flat temporal profile (262= uniform monthly, 7=uniform weekly and 24=uniform diurnal) to 95% of the SCCs in the area inventory.

2. Nonroad Sources

Nonroad sources used the same temporal profile and cross-reference files as area sources.

3. Onroad Sources

For onroad sources, the following States provided their own data to update the default temporal profile files and the temporal cross reference files: Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and Vermont. Each of these States provided VMT information that could be used to develop monthly temporal profiles. The data were provided in a variety of formats, ranging from monthly or seasonal VMT to SMOKE-formatted monthly VMT temporal profiles. Where necessary, the monthly or seasonal VMT data were converted into the SMOKE monthly temporal profile format. In addition, New Jersey provided information for diurnal temporal profiles. However, the level of detail or variability provided in these monthly profiles varied by State. Connecticut's and Delaware's profiles each varied by county and road type. Maryland's profiles applied Statewide, with variability in the

profiles by road type. Massachusetts' profiles varied by county, road type, and vehicle type. Both New Jersey and New York provided information for three monthly temporal profiles, each used throughout one of the three county groups in each State. The Pennsylvania profiles varied by county, but not by road type. Vermont provided information for a single monthly temporal profile to be used throughout the State.

B. Speciation Profiles

1. Point and Area Sources

The most recent SMOKE speciation cross-reference files available from EPA during the summer of 2004 were used as the starting point for developing the cross-reference files for point and area sources. These files were revised to complete SCC assignments for the Carbon Bond IV (CB-IV) with PM mechanism for point and area sources. In addition, sulfur tagging species were added to the REMSAD7 CB-IV with PM mechanism (see Table VII-1).

a. Point Sources

Thirty-one SCCs in the MANE-VU point source inventory did not have chemical speciation profile assignments for the CB-IV with PM mechanism in the default SMOKE chemical cross-reference file. For 10 of the SCCs, assignments for VOC and $PM_{2.5}$ were added to the speciation cross-reference file based on the speciation profile codes assigned to similar SCCs. Table VII-7 shows the SCCs where an SCC speciation cross-reference record was added, the VOC and $PM_{2.5}$ speciation profile code assigned, and the method used to assign the profiles. Assignments were not completed for the remaining 21 point source SCCs because of a lack of information on the emission sources needed to complete the assignments (see Table VII-8 for the list of the SCCs).

b. Area Sources

Speciation profile assignments were completed for many area source SCCs for the CB-IV with PM mechanism and were documented in separate spreadsheet files provided to MARAMA during September 2004. Assignments for VOC and $PM_{2.5}$ were added to the speciation cross-reference file based on the speciation profile codes assigned to similar SCCs. Note that the transport fractions for fugitive dust were applied as a part of the modeling effort to adjust the mass emissions in Version 3 of the inventory.

2. Nonroad Sources

No updates to the speciation profiles or speciation assignments for nonroad sources were provided by the MANE-VU States.

3. Onroad Sources

No updates to the speciation profiles or speciation assignments for onroad sources were provided by the MANE-VU States.

C. Spatial Allocation Profiles

The most recent spatial profile data files available from EPA during the summer of 2004 were used as the starting point for developing the spatial profile file for point and area sources. A detailed description of this surrogate dataset was provided in a file named "surrogate_ documentation_workbook052804.xls" from EPA's website at: http://www.epa.gov/ttn/ chief/emch/spatial/newsurrogate.html. Many SCCs in the MANE-VU inventory did not have surrogate assignments in the default SMOKE gridding cross-reference file. About 200 SCC assignments were added to the gridding cross-reference file. The assignments were based on matching surrogate descriptions from the EPA99 surrogate data with the SCC descriptions.

No updates to the spatial allocation files for nonroad and onroad sources were provided by the MANE-VU States.

D. Preparation of SMOKE (IDA) and RPO Data Exchange Protocol (NIF 3.0) Formats

Table VII-9 identifies the mass emissions and SMOKE input files for Version 3 of the MANE-VU point, area, nonroad, and onroad inventories.

The SMOKE input file format contains one field for storing daily emissions for each pollutant. The area source inventory contains summer day, winter day, and average day emissions depending on the state and source category. Thus, two sets of SMOKE input files were prepared for the area source inventory. One file contains annual, summer day, and average day emissions and the other file contains annual, winter day, and average day emissions. If summer day and average day emissions were provided for the same process and pollutant in the inventory, the summer day value was included in the SMOKE input file. If winter day and average day emissions were provided for the same process and pollutant in the inventory, the winter day value was included in the SMOKE input file.

The point source inventory contains summer day and winter day emissions. Two sets of SMOKE input files were prepared for point sources as well (one file containing annual and summer day emissions and the other containing annual and winter day emissions).

Table VII-10 provides the unique list of the start date, end date, and emission type combinations for daily emissions in the point and area source inventories that were used to define summer, winter, and average day emissions. This table also shows the names of the SMOKE input files in which the emissions are included.

For onroad sources, daily emissions were calculated by SMOKE using the monthly MOBILE6 input files included in the SMOKE input files.

The nonroad IDA file only has annual total emissions. The values in the "typical day" column are zero. Annual total emissions were allocated for each hour using the monthly, weekly, and diurnal profiles described in Section A.2 of this chapter.

Table VII-1. Profiles, Cross-references, and Documentation for Model Inputs for Version 3 of 2002 MANE-VU Inventory

Description	File Name	Format	Date of File used for Version 3	Size (Bytes)	Notes
SCC descriptions file	scc_desc_manevu.083104.txt	SMOKE	8/31/2004	1,335,524	
Temporal Allocation Profiles					
Technical memo on profile/cross-reference review for area sources	MANE-VU_AreaEI_review_draft_090304.doc	MS Word	9/3/2004	760,320	
Technical memo on profile/cross-reference review for point sources	MANE-VU_PointEI_review_draft_090304.doc	MS Word	9/3/2004	262,144	
Temporal profile cross-reference file for point sources	amptref.m3.manevu.vistascem.032805.txt	SMOKE	3/28/2005	704,998	Based on "amptref.m3.manevu.012405.txt" prepared for Version 1, but added VISTAS BaseD cross-references to the state-specific 2002 continuous emissions monitoring (CEM)-derived point source temporal profiles generated by VISTAS for their BaseD modeling.
Temporal profiles file for point sources	amptpro.m3.us+can.manevu.vistascem.032805.txt	SMOKE	3/28/2005	178,427	Based on "amptpro.m3.us+can.manevu.030205.txt" prepared for Version 1, but added state-specific 2002 CEM-derived point source temporal profiles generated by VISTAS for their BaseD modeling.
Temporal profile cross-reference file for area sources	amptref.m3.manevu.012405.txt	SMOKE	1/24/2005	687,196	
Temporal profiles file for area sources	amptpro.m3.us+can.manevu.030205.txt	SMOKE	3/2/2005	136,131	
Temporal cross-reference file containing state-specific onroad mobile source data for Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and Vermont	MANEVU_2002_mtref_02022006_addCT.txt	SMOKE	2/22/2006	2,522,013	Data for Connecticut were added to the file after the file was prepared for the other states. Hence the reason "_addCT" is included at the end of the file name.

Table VII-1 (continued)

Description	File Name	Format	Date of File used for Version 3	Size (Bytes)	Notes
Temporal profiles file containing state-specific onroad mobile source data for Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and Vermont	MANEVU_2002_mtpro_02022006_addCT.txt	SMOKE	2/22/2006	23,122	Data for Connecticut were added to the file after the file was prepared for the other states. Hence the reason "_addCT" is included at the end of the file name.
Spatial/Gridding					
Spreadsheet summary generated for area source gridding review	MANE-VU_agref_review.xls		8/31/2004	1,607,680	
Spatial profile cross-reference file	amgref.m3.us+can+mex.manevu.082404.txt	SMOKE	8/31/2004	89,860	
Gridding surrogate cross-reference file	amgref_us_051704_manevu_added	SMOKE	5/17/2004	35,825	Based on the surrogate cross-reference file downloaded from the EPA/CHIEF site that corresponds to the gridding surrogates file. However, several MANE-VU-specific additions included in "amgref.m3.us+can+mex.manevu.082404.txt" for Version 1 were added to the gridding-cross reference file downloaded from EPA. These are cross-references for SCCs 2806010000, 2806015000, 2870000011, 2870000015, 2870000021, and 2870000022.
Modeling grid (12-km)	amgpro.12km_041604.otc12.us.txt	SMOKE	4/16/2004	150,689,358	Based on downloaded 12-km EPA gridding surrogates windowed for the OTC domain
Speciation Profiles					
Spreadsheet summary generated for area source speciation review	MANE-VU_asref_review.xls	Excel	8/31/2004	5,626,880	
Speciation profiles file for CB-IV	gspro.cmaq.cb4p25.txt	SMOKE		142,255	
Speciation cross-reference file for CB-IV	gsref.cmaq.cb4p25.manevu.083104.txt	SMOKE	8/31/2004	786,998	

Table VII-1 (continued)

Description	File Name	Format	Date of File used for Version 3	Size (Bytes)	Notes
Speciation profile cross-reference assignment file	gsref.cmaq.cb4p25.txt	SMOKE	2/1/2005	754,302	This file is based on the file "gsref.cmaq.cb4p25.manevu.083104.txt" prepared for version 1 of the MANE-VU inventory. The only revision was to change the PM2_5 speciation profile # from its default 99999 to 35501 for some mobile source categories. This update had been done by either CENRAP or VISTAS in the speciation profiles they provided and the update had a more recent creation date than the MANE-VU files created for Version 1, so this appeared to be a refinement.
Speciation profiles for REMSAD7	gspro.remsad7.cb4mpm.txt_tag	SMOKE	5/1/2005	532,990	Based on "gspro.remsad7.cb4mpm.txt" in the SMOKE, but added tagged species for REMSAD state-level sulfur tagging.
Speciation cross-reference for REMSAD7	gsref.remsad7.cb4mpm.txt_tag	SMOKE	5/1/2005	2,614,360	Based on "gsref.remsad7.cb4mpm.txt" in the SMOKE, but added tagged species for REMSAD state-level sulfur tagging.
Transport fractions for fugitive dust	gcntl.xportfrac.txt	SMOKE	2/1/2004	124,495	File obtained from input file EPA used to adjust for PM transport for modeling of Clean Air Interstate Rule (CAIR).

Table VII-2. Point Source Temporal Cross-reference Additions

State	FIPS	SCC	Recommended profiles			Method of assignment	SCC Description (Complete description not always available)
			Monthly	Weekly	Diurnal		
VT	50005	10200908	262	7	24	Use SCC=102009XX profiles	External Combustion Boilers;Industrial;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
VT	50019	10200908	262	7	24	Use SCC=102009XX profiles	External Combustion Boilers;Industrial;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
VT	50021	10200908	262	7	24	Use SCC=102009XX profiles	External Combustion Boilers;Industrial;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
VT	50017	10300908	262	7	24	Use SCC=103009XX profiles	External Combustion Boilers;Commercial/Institutional;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
PA	42009	20200299	262	7	24	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42029	20200299	262	7	24	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42045	20200299	262	7	24	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42061	20200299	262	7	24	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42067	20200299	262	7	24	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42015	20300299	262	7	24	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42029	20300299	262	7	24	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42037	20300299	262	7	24	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42071	20300299	262	7	24	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42011	28888899	262	7	24	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
PA	42123	28888899	262	7	24	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
PA	42123	28888899	262	7	24	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
PA	42129	28888899	262	7	24	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
MD	24031	30500261	262	7	24	Use SCC=30500260 profile	Industrial Processes;Mineral Products;Asphalt Concrete;Drum Mix Plant: Rotary Drum Dryer/Mixer, Waste/Drain/#6 Oil-Fired

Table VII-2 (continued)

State	FIPS	SCC	Recommended profiles			Method of assignment	SCC Description (Complete description not always available)
			Monthly	Weekly	Diurnal		
NY	36055	31603001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Substrate Preparation;Extrusion Operations
NY	36055	31603002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Substrate Preparation;Film Support Operations
NY	36055	31604001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Chemical Preparation;Chemical Manufacturing
NY	36055	31604002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Chemical Preparation;Emulsion Making Operations
NY	36055	31604003	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Chemical Preparation;Chemical Mixing Operations
NY	36055	31605001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Surface Treatments;Surface Coating Operations
NY	36055	31605002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Surface Treatments;Grid Ionizers
NY	36055	31605003	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Surface Treatments;Corona Discharge Treatment
NY	36055	31606001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Finishing Operations;General Film Manufacturing
NY	36055	31606002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Finishing Operations;Cutting/Slitting Operations
PA	42101	31606002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Finishing Operations;Cutting/Slitting Operations
NY	36055	31612001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Cleaning Operations;Tank Cleaning Operations
NY	36055	31612002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Cleaning Operations;General Cleaning Operations
NY	36055	31613002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Storage Operations;General Storage Operations

Table VII-2 (continued)

State	FIPS	SCC	Recommended profiles			Method of assignment	SCC Description (Complete description not always available)
			Monthly	Weekly	Diurnal		
NY	36055	31614001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Material Transfer Operations;Filling Operations (non petroleum)
NY	36055	31614002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Material Transfer Operations;Transfer of Chemicals
NY	36055	31615001	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Separation Processes;Recovery Operations
NY	36055	31615003	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Separation Processes;Distillation Operations
NY	36055	31616002	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;General Process Tank Operations
NY	36055	31616003	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;Miscellaneous Manufacturing Operations
NY	36055	31616004	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;Paint Spraying Operations
NY	36055	31616006	262	7	24	Use SIC=3861 and SIC=2796 as guidance and evaluate specific sources	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;Chemical Weighing Operations
PA	Numerous counties	39000698	262	7	24	Use SCC=39000699 profile	Industrial Processes;In-process Fuel Use;Natural Gas;Unknown
NJ	Numerous counties	39999901	262	7	24	Use SCC=399999XX profiles	Industrial Processes;Miscellaneous Manufacturing Industries;Miscellaneous Industrial Processes;Unknown
PA	42015	40202598	266	7	16	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42017	40202598	266	7	16	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42091	40202598	266	7	16	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42095	40202598	266	7	16	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42097	40202598	266	7	16	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42013	40400299	262	7	24	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown
PA	42041	40400299	262	7	24	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown

Table VII-2 (continued)

State	FIPS	SCC	Recommended profiles			Method of assignment	SCC Description (Complete description not always available)
			Monthly	Weekly	Diurnal		
PA	42045	40400299	262	7	24	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown
PA	42071	40400299	262	7	24	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown

Table VII-3. Unknown SCCs in the MANE-VU Point Source Inventory

State	FIPS	SCC	Description
PA	42101	24950002	Need more info: Unknown SCC
PA	42061	40500299	Need more info:Printing/Publishing; General
PA	42091	40500299	Need more info:Printing/Publishing; General
PA	42133	40500299	Need more info:Printing/Publishing; General

Table VII-4. Area Source Temporal Cross-Reference Updates

SCC	SCC description	SMOKE Default profile			New MANE-VU profile		
		Monthly	Weekly	Diurnal	Monthly	Weekly	Diurnal
30502713	Industrial Processes;Mineral Products;Industrial Sand and Gravel;Screening: Size Classification	262	7	24	262	5	12
30502760	Industrial Processes;Mineral Products;Industrial Sand and Gravel;Sand Handling, Transfer, and Storage	262	7	24	262	5	12
2302000000	Industrial Processes;Food and Kindred Products: SIC 20;All Processes;Total	262	7	26	262	7	250
2302050000	Industrial Processes;Food and Kindred Products: SIC 20;Bakery Products;Total	262	7	26	262	5	26
2305000000	Industrial Processes;Mineral Processes: SIC 32;All Processes;Total	262	7	26	262	5	10
2309100010	Industrial Processes;Fabricated Metals: SIC 34;Coating, Engraving, and Allied Services;Electroplating	262	7	26	262	5	10
2311010000	Industrial Processes;Construction: SIC 15 - 17;General Building Construction;Total	262	7	26	262	5	12
2311020000	Industrial Processes;Construction: SIC 15 - 17;Heavy Construction;Total	262	7	26	262	5	12
2311030000	Industrial Processes;Construction: SIC 15 - 17;Road Construction;Total	262	7	26	262	5	12
2325000000	Industrial Processes;Mining and Quarrying: SIC 14;All Processes;Total	262	7	26	262	5	10
2399000000	Industrial Processes;Industrial Processes: NEC;Industrial Processes: NEC;Total	262	7	26	262	5	10
2399010000	Industrial Processes; Industrial Refrigeration; Refrigerant Losses; All Processes	262	7	26	262	5	10
2401015000	Solvent Utilization;Surface Coating;Factory Finished Wood: SIC 2426 thru 242;Total: All Solvent Types	173	7	26	173	5	26
2401020000	Solvent Utilization;Surface Coating;Wood Furniture: SIC 25;Total: All Solvent Types	287	7	26	287	5	26
2401025000	Solvent Utilization;Surface Coating;Metal Furniture: SIC 25;Total: All Solvent Types	287	7	26	287	5	26
2401030000	Solvent Utilization;Surface Coating;Paper: SIC 26;Total: All Solvent Types	257	7	26	257	5	26
2401040000	Solvent Utilization;Surface Coating;Metal Cans: SIC 341;Total: All Solvent Types	253	7	26	253	5	26
2401045000	Solvent Utilization;Surface Coating;Metal Coils: SIC 3498;Total: All Solvent Types	253	7	26	253	5	26
2401050000	Solvent Utilization;Surface Coating;Miscellaneous Finished Metals: SIC 34 - (341 + 3498);Total: All Solvent Types	253	7	26	253	5	26

Table VII-4 (continued)

SCC	SCC description	SMOKE Default profile			New MANE-VU profile		
		Monthly	Weekly	Diurnal	Monthly	Weekly	Diurnal
2401055000	Solvent Utilization;Surface Coating;Machinery and Equipment: SIC 35;Total: All Solvent Types	253	7	26	253	5	26
2401060000	Solvent Utilization;Surface Coating;Large Appliances: SIC 363;Total: All Solvent Types	262	7	26	262	5	26
2401065000	Solvent Utilization;Surface Coating;Electronic and Other Electrical: SIC 36 - 363;Total: All Solvent Types	253	7	26	253	5	26
2401070000	Solvent Utilization;Surface Coating;Motor Vehicles: SIC 371;Total: All Solvent Types	140	7	26	140	5	26
2401075000	Solvent Utilization;Surface Coating;Aircraft: SIC 372;Total: All Solvent Types	169	7	26	169	5	26
2401080000	Solvent Utilization;Surface Coating;Marine: SIC 373;Total: All Solvent Types	266	7	26	266	5	26
2401085000	Solvent Utilization;Surface Coating;Railroad: SIC 374;Total: All Solvent Types	169	7	26	169	5	26
2401090000	Solvent Utilization;Surface Coating;Miscellaneous Manufacturing;Total: All Solvent Types	260	7	26	260	5	26
2401090999	Solvent Utilization;Surface Coating;Miscellaneous Manufacturing;Solvents: NEC	260	7	26	260	5	26
2401200000	Solvent Utilization;Surface Coating;Other Special Purpose Coatings;Total: All Solvent Types	260	7	26	260	5	26
2401990000	Solvent Utilization;Surface Coating;All Surface Coating Categories;Total: All Solvent Types	260	7	26	260	5	26
2401990999	Solvent Utilization;Surface Coating;All Surface Coating Categories;Solvents: NEC	260	7	26	260	5	26
2415000000	Solvent Utilization;Degreasing;All Processes/All Industries;Total: All Solvent Types	253	7	26	253	5	26
2415020000	Solvent Utilization;Degreasing;Fabricated Metal Products (SIC 34): All Processes;Total: All Solvent Types	253	7	26	253	5	12
2415025000	Solvent Utilization;Degreasing;Industrial Machinery and Equipment (SIC 35): All Processes;Total: All Solvent Types	253	7	26	253	5	12
2415030000	Solvent Utilization;Degreasing;Electronic and Other Elec. (SIC 36): All Processes;Total: All Solvent Types	253	7	26	253	5	12
2415035000	Solvent Utilization;Degreasing;Transportation Equipment (SIC 37): All Processes;Total: All Solvent Types	253	7	26	253	5	12
2415045000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): All Processes;Total: All Solvent Types	253	7	26	253	5	12
2415055000	Solvent Utilization;Degreasing;Automotive Dealers (SIC 55): All Processes;Total: All Solvent Types	253	7	26	253	5	12
2415060000	Solvent Utilization;Degreasing;Miscellaneous Repair Services (SIC 76): All Processes;Total: All Solvent Types	253	7	26	253	5	12

Table VII-4 (continued)

SCC	SCC description	SMOKE Default profile			New MANE-VU profile		
		Monthly	Weekly	Diurnal	Monthly	Weekly	Diurnal
2415065000	Solvent Utilization;Degreasing;Auto Repair Services (SIC 75): All Processes;Total: All Solvent Types	253	7	26	253	6	12
2415100000	Solvent Utilization;Degreasing;All Industries: Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415105000	Solvent Utilization;Degreasing;Furniture and Fixtures (SIC 25): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415110000	Solvent Utilization;Degreasing;Primary Metal Industries (SIC 33): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415120000	Solvent Utilization;Degreasing;Fabricated Metal Products (SIC 34): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415125000	Solvent Utilization;Degreasing;Industrial Machinery and Equipment (SIC 35): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415130000	Solvent Utilization;Degreasing;Electronic and Other Elec. (SIC 36): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415135000	Solvent Utilization;Degreasing;Transportation Equipment (SIC 37): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415140000	Solvent Utilization;Degreasing;Instruments and Related Products (SIC 38): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415145000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Open Top Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415200000	Solvent Utilization;Degreasing;All Industries: Conveyerized Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415230000	Solvent Utilization;Degreasing;Electronic and Other Elec. (SIC 36): Conveyerized Degreasing;Total: All Solvent Types	253	7	26	253	5	12
2415300000	Solvent Utilization;Degreasing;All Industries: Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415305000	Solvent Utilization;Degreasing;Furniture and Fixtures (SIC 25): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415310000	Solvent Utilization;Degreasing;Primary Metal Industries (SIC 33): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415320000	Solvent Utilization;Degreasing;Fabricated Metal Products (SIC 34): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415325000	Solvent Utilization;Degreasing;Industrial Machinery and Equipment (SIC 35): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415330000	Solvent Utilization;Degreasing;Electronic and Other Elec. (SIC 36): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12

Table VII-4 (continued)

SCC	SCC description	SMOKE Default profile			New MANE-VU profile		
		Monthly	Weekly	Diurnal	Monthly	Weekly	Diurnal
2415335000	Solvent Utilization;Degreasing;Transportation Equipment (SIC 37): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415340000	Solvent Utilization;Degreasing;Instruments and Related Products (SIC 38): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415345000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415355000	Solvent Utilization;Degreasing;Automotive Dealers (SIC 55): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2415360000	Solvent Utilization;Degreasing;Auto Repair Services (SIC 75): Cold Cleaning;Total: All Solvent Types	253	7	26	253	6	12
2415365000	Solvent Utilization;Degreasing;Miscellaneous Repair Services (SIC 76): Cold Cleaning;Total: All Solvent Types	253	7	26	253	5	12
2425000000	Solvent Utilization;Graphic Arts;All Processes;Total: All Solvent Types	257	7	26	257	5	26
2425010000	Solvent Utilization;Graphic Arts;Lithography;Total: All Solvent Types	257	7	26	257	5	26
2425020000	Solvent Utilization;Graphic Arts;Letterpress;Total: All Solvent Types	257	7	26	257	5	26
2425030000	Solvent Utilization;Graphic Arts;Rotogravure;Total: All Solvent Types	262	7	26	262	5	26
2425040000	Solvent Utilization;Graphic Arts;Flexography;Total: All Solvent Types	257	7	26	257	5	26
2430000000	Solvent Utilization;Rubber/Plastics;All Processes;Total: All Solvent Types	200	7	26	200	5	26
2601010000	Waste Disposal, Treatment, and Recovery;On-site Incineration;Industrial;Total	262	7	26	262	5	12
2601020000	Waste Disposal, Treatment, and Recovery;On-site Incineration;Commercial/Institutional;Total	262	7	26	262	5	12
2610010000	Waste Disposal, Treatment, and Recovery;Open Burning;Industrial;Total	262	7	26	262	5	12
2610020000	Waste Disposal, Treatment, and Recovery;Open Burning;Commercial/Institutional;Total	262	7	26	262	5	12
2805020000	Miscellaneous Area Sources;Agriculture Production - Livestock;Cattle and Calves Waste Emissions;Total	489	7	26	1500	7	26
2805025000	Miscellaneous Area Sources;Agriculture Production - Livestock;Hogs and Pigs Waste Emissions;Total	489	7	26	1500	7	26
2805030000	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry Waste Emissions;Total	489	7	26	1500	7	26

Table VII-4 (continued)

SCC	SCC description	SMOKE Default profile			New MANE-VU profile		
		Monthly	Weekly	Diurnal	Monthly	Weekly	Diurnal
2805035000	Miscellaneous Area Sources;Agriculture Production - Livestock;Horses and Ponies Waste Emissions;Total	262	7	26	1500	7	26
2805040000	Miscellaneous Area Sources;Agriculture Production - Livestock;Sheep and Lambs Waste Emissions;Total	489	7	26	1500	7	26
2805045001	Miscellaneous Area Sources;Agriculture Production - Livestock;Goats Waste Emissions;Total	489	7	26	262	7	24
2810015000	Miscellaneous Area Sources;Other Combustion;Prescribed Burning for Forest Management;Total	14	7	24	3	11	13

Table VII-5. Area Source Temporal Cross-Reference Additions

SCC	Description	Month	Week	Diurnal
2104008002	Stationary Source Fuel Combustion;Residential;Wood;Fireplaces: Insert; non-EPA certified	485	7	26
2104008003	Stationary Source Fuel Combustion;Residential;Wood;Fireplaces: Insert; EPA certified; non-catalytic	485	7	26
2104008004	Stationary Source Fuel Combustion;Residential;Wood;Fireplaces: Insert; EPA certified; catalytic	485	7	26
2302002100	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Charbroiling;Conveyorized Charbroiling	262	7	26
2302002200	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Charbroiling;Under-fired Charbroiling	262	7	26
2302003000	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Total	262	7	26
2302003100	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Flat Griddle Frying	262	7	26
2302003200	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Clamshell Griddle Frying	262	7	26
2302080002	Industrial Processes;Food and Kindred Products: SIC 20;Miscellaneous Food and Kindred Products;Refrigeration	262	7	26
2401002000	Solvent Utilization;Surface Coating;Architectural Coatings - Solvent-based;Total: All Solvent Types	467	7	26
2401003000	Solvent Utilization;Surface Coating;Architectural Coatings - Water-based;Total: All Solvent Types	467	7	26
2401102000	Solvent Utilization;Surface Coating;Industrial Maintenance Coatings-Solvent-based;Total: All Solvent Types	500	5	26
2401103000	Solvent Utilization;Surface Coating;Industrial Maintenance Coatings-Water-based;Total: All Solvent Types	500	5	26
2415270000	Solvent Utilization;Degreasing;All Manufacturing (except SIC 36): Vapor and In-Line Cleaning;Total: All Solvent Types	253	5	12
2415280000	Solvent Utilization;Degreasing;Electronic and Other Elec. (SIC 36): Vapor and In-Line Cleaning;Total: All Solvent Types	253	5	12
2415370000	Solvent Utilization;Degreasing;Transportation Equipment Repair Services: Cold Cleaning;Total: All Solvent Types	253	5	12
2415380000	Solvent Utilization;Degreasing;All Manufacturing: Cold Cleaning;Total: All Solvent Types	253	5	12
2610000400	Waste Disposal, Treatment, and Recovery;Open Burning;All Categories;Yard Waste - Brush Species Unspecified	262	7	26
2610000500	Waste Disposal, Treatment, and Recovery;Open Burning;All Categories;Land Clearing Debris (use 28-10-005-000 for Logging Debris Burning)	262	7	26
2610040400	Waste Disposal, Treatment, and Recovery;Open Burning;Municipal (collected from residences, parks,other for central burn);Yard Waste - Total	262	7	26
2630020010	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Wastewater Treatment Processes Total	262	7	24

Table VII-5 (continued)

SCC	Description	Month	Week	Diurnal
2630020020	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Biosolids Processes Total	262	7	24
2630020030	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Land Application - Digested Sludge	262	7	24
2630050000	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Land Application - Digested Sludge	262	7	24
2680001000	Waste Disposal, Treatment, and Recovery;Composting;100% Biosolids (e.g., sewage sludge, manure, mixtures of these matls);All Processes	262	7	26
2680002000	Waste Disposal, Treatment, and Recovery;Composting;Mixed Waste (e.g., a 50:50 mixture of biosolids and green wastes);All Processes	262	7	26
2801700011	Miscellaneous Area Sources;Agriculture Production - Crops;Fertilizer Application;Calcium Ammonium Nitrate	998	7	26
2801700012	Miscellaneous Area Sources;Agriculture Production - Crops;Fertilizer Application;Potassium Nitrate	998	7	26
2801700013	Miscellaneous Area Sources;Agriculture Production - Crops;Fertilizer Application;Diammonium Phosphate	998	7	26
2801700014	Miscellaneous Area Sources;Agriculture Production - Crops;Fertilizer Application;Monoammonium Phosphate	998	7	26
2801700015	Miscellaneous Area Sources;Agriculture Production - Crops;Fertilizer Application;Liquid Ammonium Polyphosphate	998	7	26
2801700099	Miscellaneous Area Sources;Agriculture Production - Crops;Fertilizer Application;Miscellaneous Fertilizers	998	7	26
2805001100	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on feedlots (drylots);Confinement	1500	7	26
2805001200	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on feedlots (drylots);Manure handling and storage	1500	7	26
2805001300	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on feedlots (drylots);Land application of manure	1500	7	26
2805002000	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef Cattle Composite; Not Elsewhere Classified	1500	7	26
2805003100	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on pasture/range;Confinement	1500	7	26
2805007100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with dry manure management systems;Confinement	1500	7	26
2805007200	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with dry manure management systems;Management	1500	7	26
2805007300	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with dry manure management systems;Land application of manure	262	7	24
2805007330	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with dry manure management systems; Land application	1500	7	26
2805007340	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with dry manure management systems; Land application	1500	7	26

Table VII-5 (continued)

SCC	Description	Month	Week	Diurnal
2805008100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with wet manure management systems;Confinement	1500	7	26
2805008200	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with wet manure management systems;Manure handling and storage	1500	7	26
2805008300	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with wet manure management systems;Land application of manure	1500	7	26
2805009100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - broilers;Confinement	1500	7	26
2805009300	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - broilers;Land application of manure	1500	7	26
2805010100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - turkeys;Confinement	262	7	24
2805010200	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - turkeys;Manure handling and storage	262	7	24
2805010300	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - turkeys;Land application of manure	1500	7	26
2805018000	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle composite; Not Elsewhere Classified	1501	7	26
2805019100	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - flush dairy;Confinement	1500	7	26
2805019200	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - flush dairy;Manure handling and storage	1500	7	26
2805019300	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - flush dairy;Land application of manure	1500	7	26
2805020001	Miscellaneous Area Sources;Agriculture Production - Livestock;Cattle and Calves Waste Emissions;Milk Cows	1500	7	26
2805020002	Miscellaneous Area Sources;Agriculture Production - Livestock;Cattle and Calves Waste Emissions;Beef Cows	1500	7	26
2805020003	Miscellaneous Area Sources;Agriculture Production - Livestock;Cattle and Calves Waste Emissions;Heifers and Heifer Calves	1500	7	26
2805021300	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - scrape dairy;Land application of manure	1500	7	26
2805022100	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - deep pit dairy;Confinement	1500	7	26
2805022200	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - deep pit dairy;Manure handling and storage	1500	7	26
2805022300	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - deep pit dairy;Land application of manure	1500	7	26
2805023300	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - drylot/pasture dairy;Land application of manure	1500	7	26
2805030001	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry Waste Emissions;Pullet Chicks and Pullets less than 13 weeks old	1500	7	26

Table VII-5 (continued)

SCC	Description	Month	Week	Diurnal
2805030002	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry Waste Emissions;Pullets 13 weeks old and older but less than 20 weeks	1500	7	26
2805030003	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry Waste Emissions;Layers	1500	7	26
2805030004	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry Waste Emissions;Broilers	1500	7	26
2805030008	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry Waste Emissions;Geese	1500	7	26
2805039100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons;Confinement	1500	7	26
2805039200	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons;Manure handling and storage	1500	7	26
2805039300	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons;Land application of manure	1500	7	26
2805045000	Miscellaneous Area Sources;Agriculture Production - Livestock;Goats Waste Emissions;Not Elsewhere Classified	1500	7	26
2805045002	Miscellaneous Area Sources;Agriculture Production - Livestock;Goats Waste Emissions;Angora Goats	1500	7	26
2805045003	Miscellaneous Area Sources;Agriculture Production - Livestock;Goats Waste Emissions;Milk Goats	1500	7	26
2805047100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - deep-pit house operations;Confinement	1500	7	26
2805047300	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - deep-pit house operations;Land application of manure	1500	7	26
2805053100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - outdoor operations; Confinement	1500	7	26
2805054000	Miscellaneous Area Sources;Agricultural Production - Livestock;"Mules; Donkeys; and Burros Waste Emissions";Not Elsewhere Classified	262	7	24
2806010000	Miscellaneous Area Sources;Domestic Animals Waste Emissions;Cats;Total	262	7	24
2806015000	Miscellaneous Area Sources;Domestic Animals Waste Emissions;Dogs;Total	262	7	24
2807020001	Miscellaneous Area Sources;Wild Animals Waste Emissions;Bears;Black Bears	262	7	26
2807020002	Miscellaneous Area Sources;Wild Animals Waste Emissions;Bears;Grizzly Bears	262	7	26
2807025000	Miscellaneous Area Sources;Wild Animals Waste Emissions;Elk;Total	262	7	26
2807030000	Miscellaneous Area Sources;Wild Animals Waste Emissions;Deer;Total	262	7	26
2807040000	Miscellaneous Area Sources;Wild Animals Waste Emissions;Birds;Total	262	7	26
2810060100	Miscellaneous Area Sources;Other Combustion;Cremation;Humans	262	7	24
2870000001	Miscellaneous Area Sources;Humans;Respiration and Perspiration;Total	262	7	24
2870000002	Miscellaneous Area Sources;Humans;Infant Diapered Waste;Total	262	7	24
2870000011	Miscellaneous Area Sources;Domestic Activity;Household Products;Total	262	7	24

Table VII-5 (continued)

SCC	Description	Month	Week	Diurnal
2870000015	Miscellaneous Area Sources;Domestic Activity;Non-agricultural Fertilizers;Total	3	7	24
2870000021	Miscellaneous Area Sources;Domestic Animals;Dogs;Total	262	7	24
2870000022	Miscellaneous Area Sources;Domestic Animals;Cats;Total	262	7	24
2870000031	Miscellaneous Area Sources;Wild Animals;Deer;Total	262	7	24

Table VII-6. Area Source Temporal Cross-Reference and Profile Additions for the MANE-VU Inventory

SCC	Description	Month	Week	Diurnal	FIPS
2102002000	Stationary Source Fuel Combustion;Industrial;Bituminous/Subbituminous Coal;Total: All Boiler Types	1726	8	26	10000
2102006000	Stationary Source Fuel Combustion;Industrial;Natural Gas;Total: Boilers and IC Engines	1727	8	26	10000
2102007000	Stationary Source Fuel Combustion;Industrial;Liquified Petroleum Gas (LPG);Total: All Boiler Types	1727	8	26	10000
2103001000	Stationary Source Fuel Combustion;Commercial/Institutional;Anthracite Coal;Total: All Boiler Types	1720	8	26	10000
2103004000	Stationary Source Fuel Combustion;Commercial/Institutional;Distillate Oil;Total: Boilers and IC Engines	1721	8	26	10000
2103006000	Stationary Source Fuel Combustion;Commercial/Institutional;Natural Gas;Total: Boilers and IC Engines	1722	8	26	10000
2103007000	Stationary Source Fuel Combustion;Commercial/Institutional;Liquified Petroleum Gas (LPG);Total: All Combustor Types	1723	8	26	10000
2104002000	Stationary Source Fuel Combustion;Residential;Bituminous/Subbituminous Coal;Total: All Combustor Types	1732	7	26	10000
2104004000	Stationary Source Fuel Combustion;Residential;Distillate Oil;Total: All Combustor Types	1733	7	26	10000
2104006000	Stationary Source Fuel Combustion;Residential;Natural Gas;Total: All Combustor Types	1734	7	26	10000
2104007000	Stationary Source Fuel Combustion;Residential;Liquified Petroleum Gas (LPG);Total: All Combustor Types	1735	7	26	10000
2104008000	Stationary Source Fuel Combustion;Residential;Wood;Total: Woodstoves and Fireplaces	1740	2007	2014	10001
2104008000	Stationary Source Fuel Combustion;Residential;Wood;Total: Woodstoves and Fireplaces	1741	2008	2015	10003
2104008000	Stationary Source Fuel Combustion;Residential;Wood;Total: Woodstoves and Fireplaces	1742	2009	2016	10005
2104008000	Stationary Source Fuel Combustion;Residential;Wood;Total: Woodstoves and Fireplaces	1742	2009	2016	10005
2104008070	Stationary Source Fuel Combustion;Residential;Wood;Outdoor Wood Burning Equipment;	1743	2010	2017	10001
2104008070	Stationary Source Fuel Combustion;Residential;Wood;Outdoor Wood Burning Equipment;	1744	2011	2017	10003
2104008070	Stationary Source Fuel Combustion;Residential;Wood;Outdoor Wood Burning Equipment;	1745	2012	2017	10005
2104011000	Stationary Source Fuel Combustion;Residential;Kerosene;Total: All Heater Types	1736	7	26	10000
2294000000	Mobile Sources;Paved Roads;All Paved Roads;Total: Fugitives	1729	7	26	10000
2302002100	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Charbroiling;Conveyorized Charbroiling	262	7	26	10000
2302002100	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Charbroiling;Conveyorized Charbroiling	262	7	26	10000
2302002200	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Charbroiling;Under-fired Charbroiling	262	7	26	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2302002200	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Charbroiling;Under-fired Charbroiling	262	7	26	10000
2302003000	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Total	262	7	26	10000
2302003000	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Total	262	7	26	10000
2302003100	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Flat Griddle Frying	262	7	26	10000
2302003100	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Flat Griddle Frying	262	7	26	10000
2302003200	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Clamshell Griddle Frying	262	7	26	10000
2302003200	Industrial Processes;Food and Kindred Products: SIC 20;Commercial Deep Fat Frying;Clamshell Griddle Frying	262	7	26	10000
2311030000	Industrial Processes;Construction: SIC 15 - 17;Road Construction;Total	262	7	9	10000
2401002000	Solvent Utilization;Surface Coating;Architectural Coatings - Solvent-based;Total: All Solvent Types	467	7	26	-9
2401002000	Solvent Utilization;Surface Coating;Architectural Coatings - Solvent-based;Total: All Solvent Types	500	20	27	10000
2401003000	Solvent Utilization;Surface Coating;Architectural Coatings - Water-based;Total: All Solvent Types	467	7	26	-9
2401003000	Solvent Utilization;Surface Coating;Architectural Coatings - Water-based;Total: All Solvent Types	500	20	27	10000
2401005000	Solvent Utilization;Surface Coating;Auto Refinishing: SIC 7532;Total: All Solvent Types	1702	5	27	10000
2401005500	Solvent Utilization;Surface Coating;Auto Refinishing: SIC 7532;Surface Preparation Solvents	1702	5	27	10000
2401005600	Solvent Utilization;Surface Coating;Auto Refinishing: SIC 7532;Primers	1702	5	27	10000
2401005700	Solvent Utilization;Surface Coating;Auto Refinishing: SIC 7532;Top Coats	1702	5	27	10000
2401005800	Solvent Utilization;Surface Coating;Auto Refinishing: SIC 7532;Clean-up Solvents	1702	5	27	10000
2401005800	Solvent Utilization;Surface Coating;Auto Refinishing: SIC 7532;Clean-up Solvents	1702	5	27	10001
2401008000	Solvent Utilization;Surface Coating;Traffic Markings;Total: All Solvent Types	1700	7	26	-9
2401008000	Solvent Utilization;Surface Coating;Traffic Markings;Total: All Solvent Types	1700	5	26	10000
2401008999	Solvent Utilization;Surface Coating;Traffic Markings;Solvents: NEC	1700	7	26	-9
2401102000	Solvent Utilization;Surface Coating;Industrial Maintenance Coatings-Solvent-based;Total: All Solvent Types	500	5	26	10000
2401103000	Solvent Utilization;Surface Coating;Industrial Maintenance Coatings-Water-based;Total: All Solvent Types	500	5	26	10000
2415100000	Solvent Utilization;Degreasing;All Industries: Open Top Degreasing;Total: All Solvent Types	262	6	5	10000
2415130000	Solvent Utilization;Degreasing;Electronic and Other Elec. (SIC 36): Open Top Degreasing;Total: All Solvent Types	262	6	5	10000
2415300000	Solvent Utilization;Degreasing;All Industries: Cold Cleaning;Total: All Solvent Types	262	6	5	10000
2415360000	Solvent Utilization;Degreasing;Auto Repair Services (SIC 75): Cold Cleaning;Total: All Solvent Types	262	5	5	10000
2461021000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Cutback Asphalt;Total: All Solvent Types	1712	7	26	10001
2461021000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Cutback Asphalt;Total: All Solvent Types	1714	7	26	10001
2461021000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Cutback Asphalt;Total: All Solvent Types	1713	7	26	10003

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2461021000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Cutback Asphalt;Total: All Solvent Types	1712	7	26	10003
2461021000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Cutback Asphalt;Total: All Solvent Types	1714	7	26	10005
2461021000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Cutback Asphalt;Total: All Solvent Types	1713	7	26	10005
2461022000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Emulsified Asphalt;Total: All Solvent Types	1709	7	26	10001
2461022000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Emulsified Asphalt;Total: All Solvent Types	1711	7	26	10001
2461022000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Emulsified Asphalt;Total: All Solvent Types	1710	7	26	10003
2461022000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Emulsified Asphalt;Total: All Solvent Types	1709	7	26	10003
2461022000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Emulsified Asphalt;Total: All Solvent Types	1711	7	26	10005
2461022000	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Emulsified Asphalt;Total: All Solvent Types	1710	7	26	10005
2461850001	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Pesticide Application: Agricultural;Herbicides, Corn	536	7	26	10000
2461850005	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Pesticide Application: Agricultural;Herbicides, Soy Beans	536	7	26	10000
2461850006	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Pesticide Application: Agricultural;Herbicides, Hay & Grains	536	7	26	10000
2461850051	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Pesticide Application: Agricultural;Other Pesticides, Corn	536	7	26	10000
2461850055	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Pesticide Application: Agricultural;Other Pesticides, Soy Beans	536	7	26	10000
2461850056	Solvent Utilization;Miscellaneous Non-industrial: Commercial;Pesticide Application: Agricultural;Other Pesticides, Hay & Grains	536	7	26	10000
2501011010	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Vapor Losses	1701	7	26	10000
2501011010	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Vapor Losses	1701	7	26	10000
2501011011	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Permeation	1701	7	26	10000
2501011011	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Permeation	1701	7	26	10000
2501011012	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Diurnal	1701	7	26	10000
2501011012	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Diurnal	1701	7	26	10000
2501011015	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Spillage	1701	7	26	10000
2501011015	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Spillage	1701	7	26	10000
2501011016	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Transport	1701	7	26	10000
2501011016	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Residential;Transport	1701	7	26	10000
2501012010	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Vapor Losses	1701	7	26	10000
2501012010	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Vapor Losses	1701	7	26	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2501012011	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Permeation	1701	7	26	10000
2501012011	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Permeation	1701	7	26	10000
2501012012	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Diurnal	1701	7	26	10000
2501012012	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Diurnal	1701	7	26	10000
2501012015	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Spillage	1701	7	26	10000
2501012015	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Spillage	1701	7	26	10000
2501012016	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Transport	1701	7	26	10000
2501012016	Storage and Transport;Petroleum and Petroleum Product Storage;Portable Containers: Commercial;Transport	1701	7	26	10000
2501060000	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Total: All Gasoline/All Processes	1701	7	26	-9
2501060050	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 1: Total	1701	7	26	-9
2501060051	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 1: Submerged Filling	1701	7	26	-9
2501060052	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 1: Splash Filling	1701	7	26	-9
2501060053	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 1: Balanced Submerged Filling	1701	7	26	-9
2501060100	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Total	1701	7	26	-9
2501060100	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Total	1724	7	26	10000
2501060101	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Displacement Loss/Uncontrolled	1701	7	26	-9
2501060102	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Displacement Loss/Controlled	1701	7	26	-9
2501060103	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Spillage	1701	7	26	-9
2501060201	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Underground Tank: Breathing and Emptying	1701	7	26	-9
2501060204	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Off-Highway Equipment Displacement Loss/Controlled	1701	7	26	10000
2501060205	Storage and Transport;Petroleum and Petroleum Product Storage;Gasoline Service Stations;Stage 2: Off-Highway Equipment Spillage	1701	7	26	10000
2501080050	Storage and Transport;Petroleum and Petroleum Product Storage;Airports : Aviation Gasoline;Stage 1: Total	1701	7	26	10000
2501080102	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Aviation Gasoline;Stage 2: Displacement Loss	1701	7	26	10000
2501080103	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Aviation Gasoline;Stage 2: Spillage	1701	7	26	10000
2501080201	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Aviation Gasoline;Underground Tank: Breathing and Emptying	1701	7	26	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2501090050	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Jet A or JP-8;Stage 1: Total	1701	7	26	10000
2501090060	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Jet A or JP-8;Stage 2: Total	1701	7	26	10000
2501090070	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Jet Naphtha or JP-4;Stage 1: Total	1701	7	26	10000
2501090080	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Jet Naphtha or JP-4;Stage 2: Total	1701	7	26	10000
2501090101	Storage and Transport;Petroleum and Petroleum Product Storage;Airports: Jet A or JP-8;Stage 2: Total	1701	7	26	10000
2501090102	Storage and Transport;Petroleum and Petroleum Product Storage;Marinas: Gasoline;Stage 2: Displacement Loss	1701	7	26	10000
2501090103	Storage and Transport;Petroleum and Petroleum Product Storage;Marinas: Gasoline;Stage 2: Spillage	1701	7	26	10000
2501090201	Storage and Transport;Petroleum and Petroleum Product Storage;Marinas: Gasoline;Underground Tank: Emptying and Breathing	1701	7	26	10000
2505000000	Storage and Transport;Petroleum and Petroleum Product Transport;All Transport Types;Total: All Products	1701	7	26	-9
2610010000	Waste Disposal, Treatment, and Recovery;Open Burning;Industrial;Total	262	9	2013	10000
2630020000	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Total Processed	262	7	24	10000
2630020010	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Wastewater Treatment Processes Total	262	7	24	10000
2630020020	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Biosolids Processes Total	262	7	24	10000
2630020030	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Land Application - Digested Sludge	262	7	24	10000
2630050000	Waste Disposal, Treatment, and Recovery;Wastewater Treatment;Public Owned;Land Application - Digested Sludge	262	7	24	10000
2680001000	Waste Disposal, Treatment, and Recovery;Composting;100% Biosolids (e.g., sewage sludge, manure, mixtures of these matls);All Processes	262	7	26	10000
2730100000	Natural Sources;Geogenic;Wind Erosion;Total	1704	7	26	10000
2801001001	Miscellaneous Area Sources;Agriculture Production - Crops;Corn;Land preparation and cultivation	1703	20	132	10000
2801001005	Miscellaneous Area Sources;Agriculture Production - Crops;Wheat;Land preparation and cultivation	1703	20	132	10000
2801001009	Miscellaneous Area Sources;Agriculture Production - Crops;Barley;Land preparation and cultivation	1703	20	132	10000
2801001013	Miscellaneous Area Sources;Agriculture Production - Crops;Soybeans;Land preparation and cultivation	1703	20	132	10000
2801001017	Miscellaneous Area Sources;Agriculture Production - Crops;Hay/Alfalfa;Land preparation and cultivation	1703	20	132	10000
2801001021	Miscellaneous Area Sources;Agriculture Production - Crops;Vegetables;Land preparation and cultivation	1703	20	132	10000
2801002001	Miscellaneous Area Sources;Agriculture Production - Crops;Corn;Harvesting	1703	20	132	10000
2801002002	Miscellaneous Area Sources;Agriculture Production - Crops;Wheat;Harvesting	1703	20	132	10000
2801002003	Miscellaneous Area Sources;Agriculture Production - Crops;Barley;Harvesting	1703	20	132	10000
2801002004	Miscellaneous Area Sources;Agriculture Production - Crops;Soybeans;Harvesting	1703	20	132	10000
2801002005	Miscellaneous Area Sources;Agriculture Production - Crops;Hay/Alfalfa;Harvesting	1703	20	132	10000
2801002006	Miscellaneous Area Sources;Agriculture Production - Crops;Vegetables;Harvesting	1703	20	132	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2801700020	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Corn	1705	7	26	10000
2801700021	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Sorghum	1705	7	26	10000
2801700022	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Wheat	1705	7	26	10000
2801700023	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Barley	1705	7	26	10000
2801700024	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Soybeans	1705	7	26	10000
2801700025	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Hay/Alfalfa	1705	7	26	10000
2801700026	Miscellaneous Area Sources;Agricultural Production - Crops;Fertilizer Application;Vegetables	1705	7	26	10000
2805001100	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on feedlots (drylots);Confinement	1706	7	24	10000
2805001200	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on feedlots (drylots);Manure handling	1706	7	24	10000
2805001300	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef cattle - finishing operations on feedlots (drylots);Land application of	1706	7	24	10000
2805001310	Miscellaneous Area Sources;Agricultural Production - Livestock;Beef Cattle - finishing operations on feedlots (drylots);Land Appl	1706	7	24	10000
2805001320	Miscellaneous Area Sources;Agricultural Production - Livestock;Beef Cattle - finishing operations on feedlots (drylots);Land Appl	1706	7	24	10000
2805001330	Miscellaneous Area Sources;Agricultural Production - Livestock;Beef Cattle - finishing operations on feedlots (drylots);Land Appl	1706	7	24	10000
2805001340	Miscellaneous Area Sources;Agricultural Production - Livestock;Beef Cattle - finishing operations on feedlots (drylots);Land Appl	1706	7	24	10000
2805002000	Miscellaneous Area Sources;Agriculture Production - Livestock;Beef Cattle Composite; Total	1706	7	24	10000
2805007100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with dry manure management systems;Confinement	262	7	24	10000
2805007200	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with dry manure management systems;Man	262	7	24	10000
2805007300	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with dry manure management systems;Land applicati	262	7	24	10000
2805007340	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with dry manure management systems;Lan	262	7	24	10000
2805008100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with wet manure management systems;Confinement	262	7	24	10000
2805008200	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - layers with wet manure management systems;Manure handlin	262	7	24	10000
2805008310	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with wet manure management systems;Lan	1708	7	24	10000
2805008320	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - layers with wet manure management systems;Lan	1708	7	24	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2805009100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - broilers;Confinement	262	7	24	10000
2805009200	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - broilers;Manure handling and storage	262	7	24	10000
2805009330	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - broilers;Land Application of solid manure wit	1708	7	24	10000
2805009340	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - broilers;Land Application of solid manure wit	1708	7	24	10000
2805010100	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - turkeys;Confinement	262	7	24	10000
2805010200	Miscellaneous Area Sources;Agriculture Production - Livestock;Poultry production - turkeys;Manure handling and storage	262	7	24	10000
2805010330	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - turkeys;Land Application of solid manure with	1708	7	24	10000
2805010340	Miscellaneous Area Sources;Agricultural Production - Livestock;Poultry Production - turkeys;Land Application of solid manure with	1708	7	24	10000
2805019100	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - flush dairy;Confinement	1706	7	24	10000
2805019200	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - flush dairy;Manure handling and storage	1706	7	24	10000
2805019300	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - flush dairy;Land application of manure	1706	7	24	10000
2805019310	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - flush dairy;Land Application of liquid manure with	1706	7	24	10000
2805019320	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - flush dairy;Land Application of liquid manure witho	1706	7	24	10000
2805019330	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - flush dairy;Land Application of solid manure with i	1706	7	24	10000
2805019340	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - flush dairy;Land Application of solid manure withou	1706	7	24	10000
2805021100	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - scrape dairy;Confinement	1706	7	24	10000
2805021200	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - scrape dairy;Manure handling and storage	1706	7	24	10000
2805021310	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - scrape dairy;Land Application of liquid manure with	1706	7	24	10000
2805021320	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - scrape dairy;Land Application of liquid manure with	1706	7	24	10000
2805021330	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - scrape dairy;Land Application of solid manure with	1706	7	24	10000
2805021340	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - scrape dairy;Land Application of solid manure witho	1706	7	24	10000
2805023100	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - drylot/pasture dairy;Confinement	1706	7	24	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2805023200	Miscellaneous Area Sources;Agriculture Production - Livestock;Dairy cattle - drylot/pasture dairy;Manure handling and storage	1706	7	24	10000
2805023310	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - drylot/pasture dairy;Land Application of liquid man	1706	7	24	10000
2805023320	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - drylot/pasture dairy;Land Application of liquid man	1706	7	24	10000
2805023330	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - drylot/pasture dairy;Land Application of solid manu	1706	7	24	10000
2805023340	Miscellaneous Area Sources;Agricultural Production - Livestock;Dairy Cattle - drylot/pasture dairy;Land Application of solid manu	1706	7	24	10000
2805035000	Miscellaneous Area Sources;Agriculture Production - Livestock;Horses and Ponies Waste Emissions;Total	262	7	24	10000
2805038100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons (unspecified animal age);Confineme	1707	7	24	10000
2805038200	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons (unspecified animal age);Manure ha	1707	7	24	10000
2805038300	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons (unspecified animal age);Land appl	1707	7	24	10000
2805039100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons;Confinement	1707	7	24	10000
2805039200	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - operations with lagoons;Manure handling and storage	1707	7	24	10000
2805039310	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - operations with lagoon (unspecified animal age)	1707	7	24	10000
2805039320	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - operations with lagoon (unspecified animal age)	1707	7	24	10000
2805039330	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - operations with lagoon (unspecified animal age)	1707	7	24	10000
2805039340	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - operations with lagoon (unspecified animal age)	1707	7	24	10000
2805040000	Miscellaneous Area Sources;Agriculture Production - Livestock;Sheep and Lambs Waste Emissions;Total	262	7	24	10000
2805045001	Miscellaneous Area Sources;Agriculture Production - Livestock;Goats Waste Emissions;Total	262	7	24	10000
2805046100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - deep-pit house operations (unspecified animal age);Confine	1707	7	24	10000
2805046300	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - deep-pit house operations (unspecified animal age);Land ap	1707	7	24	10000
2805047100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - deep-pit house operations;Confinement	1707	7	24	10000
2805047200	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - deep pit house operations (unspecified animal a	1707	7	24	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2805047310	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - deep pit house operations (unspecified animal a	1707	7	24	10000
2805047320	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - deep pit house operations (unspecified animal a	1707	7	24	10000
2805047330	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - deep pit house operations (unspecified animal a	1707	7	24	10000
2805047340	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - deep pit house operations (unspecified animal a	1707	7	24	10000
2805052100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - outdoor operations (unspecified animal age);Confinement	1707	7	24	10000
2805053100	Miscellaneous Area Sources;Agriculture Production - Livestock;Swine production - outdoor operations; Confinement	1707	7	24	10000
2805053200	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - outdoor operations (unspecified animal age);Man	1707	7	24	10000
2805053310	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - outdoor operations (unspecified animal age);Lan	1707	7	24	10000
2805053320	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - outdoor operations (unspecified animal age);Lan	1707	7	24	10000
2805053330	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - outdoor operations (unspecified animal age);Lan	1707	7	24	10000
2805053340	Miscellaneous Area Sources;Agricultural Production - Livestock;Swine Production - outdoor operations (unspecified animal age);Lan	1707	7	24	10000
2805054000	Miscellaneous Area Sources;Agricultural Production - Livestock;"Mules; Donkeys; and Burros Waste Emissions";Not Elsewhere Classif	262	7	24	10000
2806010000	Miscellaneous Area Sources;Domestic Animals Waste Emissions;Cats;Total	262	7	24	10000
2806015000	Miscellaneous Area Sources;Domestic Animals Waste Emissions;Dogs;Total	262	7	24	10000
2807030000	Miscellaneous Area Sources;Wild Animals Waste Emissions;Deer;Total	262	7	24	10000
2807040000	Miscellaneous Area Sources;Wild Animals Waste Emissions;Birds;Total	262	7	24	10000
2810010000	Miscellaneous Area Sources;Other Combustion;Human Perspiration and Respiration;Total	1739	2006	24	10000
2810015000	Miscellaneous Area Sources;Other Combustion;Prescribed Burning for Forest Management;Total	1731	7	24	10000
2810030000	Miscellaneous Area Sources;Other Combustion;Structure Fires;Total	1715	7	24	10000
2810035000	Miscellaneous Area Sources;Other Combustion;Firefighting Training;Total	1716	2004	24	10000
2870000001	Miscellaneous Area Sources;Humans;Respiration and Perspiration;Total	262	7	24	10000
2870000002	Miscellaneous Area Sources;Humans;Infant Diapered Waste;Total	262	7	24	10000
2870000011	Miscellaneous Area Sources;Domestic Activity;Household Products;Total	262	7	24	10000
2870000015	Miscellaneous Area Sources;Domestic Activity;Non-agricultural Fertilizers;Total	3	7	24	10000

Table VII-6 (continued)

SCC	Description	Month	Week	Diurnal	FIPS
2870000021	Miscellaneous Area Sources;Domestic Animals;Dogs;Total	262	7	24	10000
2870000022	Miscellaneous Area Sources;Domestic Animals;Cats;Total	262	7	24	10000
2870000031	Miscellaneous Area Sources;Wild Animals;Deer;Total	262	7	24	10000
2870000032	Miscellaneous Area Sources;Wild Animals;Birds;Total	1728	7	24	10000

Table VII-7. Point Source Speciation Profiles Added to Speciation Cross-reference File for CB-IV with PM Mechanism

State	FIPS	SCC	Recommended Profiles		Method of Assignment	SCC Description (Complete description not always available)
			VOC	$PM_{2.5}$		
VT	50005	10200908	1084	NWWAS	Use SCC=102009XX profiles	External Combustion Boilers;Industrial;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
VT	50019	10200908	1084	NWWAS	Use SCC=102009XX profiles	External Combustion Boilers;Industrial;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
VT	50021	10200908	1084	NWWAS	Use SCC=102009XX profiles	External Combustion Boilers;Industrial;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
VT	50017	10300908	1084	NWWAS	Use SCC=103009XX profiles	External Combustion Boilers;Commercial/Institutional;Wood/Bark Waste;Wood-fired Boiler - Dry Wood (<20% moisture)
PA	42009	20200299	0007	22004	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42029	20200299	0007	22004	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42045	20200299	0007	22004	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42061	20200299	0007	22004	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42067	20200299	0007	22004	Use SCC=202002XX profiles	Internal Combustion Engines;Industrial;Natural Gas;Unknown
PA	42015	20300299	0007	22004	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42029	20300299	0007	22004	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42037	20300299	0007	22004	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42071	20300299	0007	22004	Use SCC=203002XX profiles	Internal Combustion Engines;Commercial/Institutional;Natural Gas;Unknown
PA	42011	28888899	9002	35602	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
PA	42123	28888899	9002	35602	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
PA	42123	28888899	9002	35602	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
PA	42129	28888899	9002	35602	Use SCC=288888XX profiles	Internal Combustion Engines;Fugitive Emissions;Other Not Classified;Specify in Comments
MD	24031	30500261	0025	22035	Use SCC=30500260 profile	Industrial Processes;Mineral Products;Asphalt Concrete;Drum Mix Plant: Rotary Drum Dryer/Mixer, Waste/Drain/#6 Oil-Fired
PA	Numerous counties	39000698	0000	22004	Use SCC=39000699 profile	Industrial Processes;In-process Fuel Use;Natural Gas;Unknown
NJ	Numerous counties	39999901	9003	22054	Use SCC=399999XX profiles	Industrial Processes;Miscellaneous Manufacturing Industries;Miscellaneous Industrial Processes;Unknown
PA	42015	40202598	1003	99999	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42017	40202598	1003	99999	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42091	40202598	1003	99999	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42095	40202598	1003	99999	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42097	40202598	1003	99999	Use SCC=40202599 profile	Petroleum and Solvent Evaporation;Surface Coating Operations;Miscellaneous Metal Parts;Unknown
PA	42013	40400299	1014	22042	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown
PA	42041	40400299	1014	22042	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown
PA	42045	40400299	1014	22042	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown
PA	42071	40400299	1014	22042	Use SCC=404002XX profiles	Petroleum and Solvent Evaporation;Petroleum Liquids Storage (non-Refinery);Bulk Plants;Unknown

Table VII-8. Point Source SCCs Lacking Speciation Profile Assignments for CB-IV with PM Mechanism

State	FIPS	SCC	Description
NY	36055	31603001	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Substrate Preparation;Extrusion Operations
NY	36055	31603002	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Substrate Preparation;Film Support Operations
NY	36055	31604001	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Chemical Preparation;Chemical Manufacturing
NY	36055	31604002	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Chemical Preparation;Emulsion Making Operations
NY	36055	31604003	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Chemical Preparation;Chemical Mixing Operations
NY	36055	31605001	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Surface Treatments;Surface Coating Operations
NY	36055	31605002	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Surface Treatments;Grid Ionizers
NY	36055	31605003	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Surface Treatments;Corona Discharge Treatment
NY	36055	31606001	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Finishing Operations;General Film Manufacturing
NY	36055	31606002	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Finishing Operations;Cutting/Slitting Operations
PA	42101	31606002	Industrial Processes;Photographic Film Manufacturing;Product Manufacturing - Finishing Operations;Cutting/Slitting Operations
NY	36055	31612001	Industrial Processes;Photographic Film Manufacturing;Support Activities - Cleaning Operations;Tank Cleaning Operations
NY	36055	31612002	Industrial Processes;Photographic Film Manufacturing;Support Activities - Cleaning Operations;General Cleaning Operations
NY	36055	31613002	Industrial Processes;Photographic Film Manufacturing;Support Activities - Storage Operations;General Storage Operations
NY	36055	31614001	Industrial Processes;Photographic Film Manufacturing;Support Activities - Material Transfer Operations;Filling Operations (non petroleum)
NY	36055	31614002	Industrial Processes;Photographic Film Manufacturing;Support Activities - Material Transfer Operations;Transfer of Chemicals
NY	36055	31615001	Industrial Processes;Photographic Film Manufacturing;Support Activities - Separation Processes;Recovery Operations
NY	36055	31615003	Industrial Processes;Photographic Film Manufacturing;Support Activities - Separation Processes;Distillation Operations
NY	36055	31616002	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;General Process Tank Operations
NY	36055	31616003	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;Miscellaneous Manufacturing Operations
NY	36055	31616004	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;Paint Spraying Operations
NY	36055	31616006	Industrial Processes;Photographic Film Manufacturing;Support Activities - Other Operations;Chemical Weighing Operations

Table VII-9. Summary of Version 3 Mass Emissions and SMOKE Input Files

S/L Agencies Included in Files	NIF 3.0 File Name Containing Mass Emissions Inventory (Access 2000 Database Files)	Temporal Period of Mass Emissions Inventory	SMOKE Input File Name	Temporal Period of Emissions in SMOKE/IDA File
Point Source Inventory				
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA (state and Philadelphia, and Allegheny Counties), RI, VT	MANEVU_2002_Pt_Version 3_040706.mdb	Annual, Summer Day, and Winter Day	MANEVU_Point_SMOKE_INPUT_ANNUAL_SUMMERDAY_042706.txt	Annual and Summer Day
"	"	"	MANEVU_Point_SMOKE_INPUT_ANNUAL_WINTERDAY_042706.txt	Annual and Winter Day
Area Source Inventory				
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT	MANEVU_2002_Area_040606.mdb	Annual, Summer Day, Winter Day, and Average Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt	Annual, Summer Day, and Average Day
"	"	"	MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt	Annual, Winter Day, and Average Day
Nonroad Source Inventory				
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT	MANEVU_NRD2002_NIF_030306.mdb	Annual	MANEVU_NRD2002_SMOKE_030306.ida	Annual
Onroad Source Inventory				
CT	CT2002MANEVUORCAP_122004.mdb	Annual		
DE	DE2002MANEVUORCAP_072004.mdb	Annual		
DC	DC2002MANEVUORCAP_072004.mdb	Annual		
ME	ME2002MANEVUORCAP_072004.mdb	Annual		
MD	MD2002MANEVUORCAP_072004.mdb	Annual		
MA	MA2002MANEVUORCAP_022006_Access2000.mdb MA2002MANEVUORCAP_022006_Access97.mdb	Annual		
NH	NH2002MANEVUORCAP_072004.mdb	Annual		
NJ	NJ2002MANEVUORCAP_022006_Access2000.mdb NJ2002MANEVUORCAP_022006_Access97.mdb	Annual		
NY	NY2002MANEVUORCAP_072004.mdb	Annual		
PA	PA2002MANEVUORCAP_072004.mdb	Annual		
RI	DRI2002MANEVUORCAP_072004.mdb	Annual		
VT	VT2002MANEVUORCAP_122004.mdb	Annual		
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT			MANEVU_2002_mbinv_02022006.txt	
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT			MANEVU_2002_mcref_02022006.txt	

S/L Agencies Included in Files	NIF 3.0 File Name Containing Mass Emissions Inventory (Access 2000 Database Files)	Temporal Period of Mass Emissions Inventory	SMOKE Input File Name	Temporal Period of Emissions in SMOKE/IDA File
DE, MA, MD, NJ, NY, PA, VT			MANEVU_2002_mtpro_02022006.txt	
DE, MA, MD, NJ, NY, PA, VT			MANEVU_2002_mtref_02022006.txt	
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT			MANEVU_2002_mvref_02022006.txt	
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT			MANEVU_2002_vmtmix_02022006.txt	
			MANEVU_2002_mcodes.txt	
CT, NY			MANEVU_2002_spdpro.txt	
CT, NY			MANEVU_2002_spdref.txt	
CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT			SMOKE MOBILE6 input files—too numerous to list individually	

Table VII-10. Unique List of Start Date, End Date, and Emission Type Combinations for Daily Emissions in the MANE-VU 2002 Point and Area Source Inventories, Version 3

Start Date	End Date	Emission Type	Emission Type Period	Season Designation	SMOKE File
Point Source Inventory					
20011201	20020228	27	NONANNUAL	Winter	MANEVU_Point_SMOKE_INPUT_ANNUAL_WINTERDAY_042706.txt
20011201	20020228	29	NONANNUAL	Winter	MANEVU_Point_SMOKE_INPUT_ANNUAL_WINTERDAY_042706.txt
20020101	20020331	27	NONANNUAL	Winter	MANEVU_Point_SMOKE_INPUT_ANNUAL_WINTERDAY_042706.txt
20020101	20021231	29	NONANNUAL	MD-Winter	MANEVU_Point_SMOKE_INPUT_ANNUAL_WINTERDAY_042706.txt
				VT-Summer	MANEVU_Point_SMOKE_INPUT_ANNUAL_SUMMERDAY_042706.txt
20020501	20020930	29	NONANNUAL	Summer	MANEVU_Point_SMOKE_INPUT_ANNUAL_SUMMERDAY_042706.txt
20020601	20020831	27	NONANNUAL	Summer	MANEVU_Point_SMOKE_INPUT_ANNUAL_SUMMERDAY_042706.txt
20020601	20020831	29	NONANNUAL	Summer	MANEVU_Point_SMOKE_INPUT_ANNUAL_SUMMERDAY_042706.txt
20020601	20020831	30	NONANNUAL	Summer	MANEVU_Point_SMOKE_INPUT_ANNUAL_SUMMERDAY_042706.txt
Area Source Inventory					
20020101	20020831	27	Daily	Average Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt and MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt
20020101	20021231	29	Daily	Average Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt and MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt
20020401	20020930	29	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20020401	20021031	29	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20020512	20020512	27	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20020601	20020831	27	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20020601	20020831	29	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20020601	20020929	29	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20020629	20020629	27	Daily	Summer Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_SUMMERDAY_040606.txt
20011201	20020228	27	Daily	Winter Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt
20011201	20020228	29	Daily	Winter Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt
20021029	20021029	27	Daily	Winter Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt
20021104	20021104	27	Daily	Winter Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt
20021205	20021205	27	Daily	Winter Day	MANEVU_AREA_SMOKE_INPUT_ANNUAL_WINTERDAY_040606.txt

CHAPTER VIII. METHODS FOR AREAS OUTSIDE OF THE MANE-VU REGION

Figure VIII-1 shows the geographic area for which the 12-kilometer (km) CMAQ modeling domain was used to support air quality modeling for the MANE-VU region. The 36-km domain definition was used for geographical areas outside of the area shown in Figure VIII-1. Table VIII-1 identifies the geographic region as well as the types of emissions inventory and ancillary data used to in modeling for the MANE-VU region. The geographic areas for which data were obtained include the Visibility Improvement State and Tribal Association of the Southeast (VISTAS), Central Regional Air Planning Organization (CENRAP), and WRAP RPOs, the Midwest RPO, Canada, and Mexico.

Figure VIII-1. MANE-VU 12-Kilometer CMAQ Modeling Domain

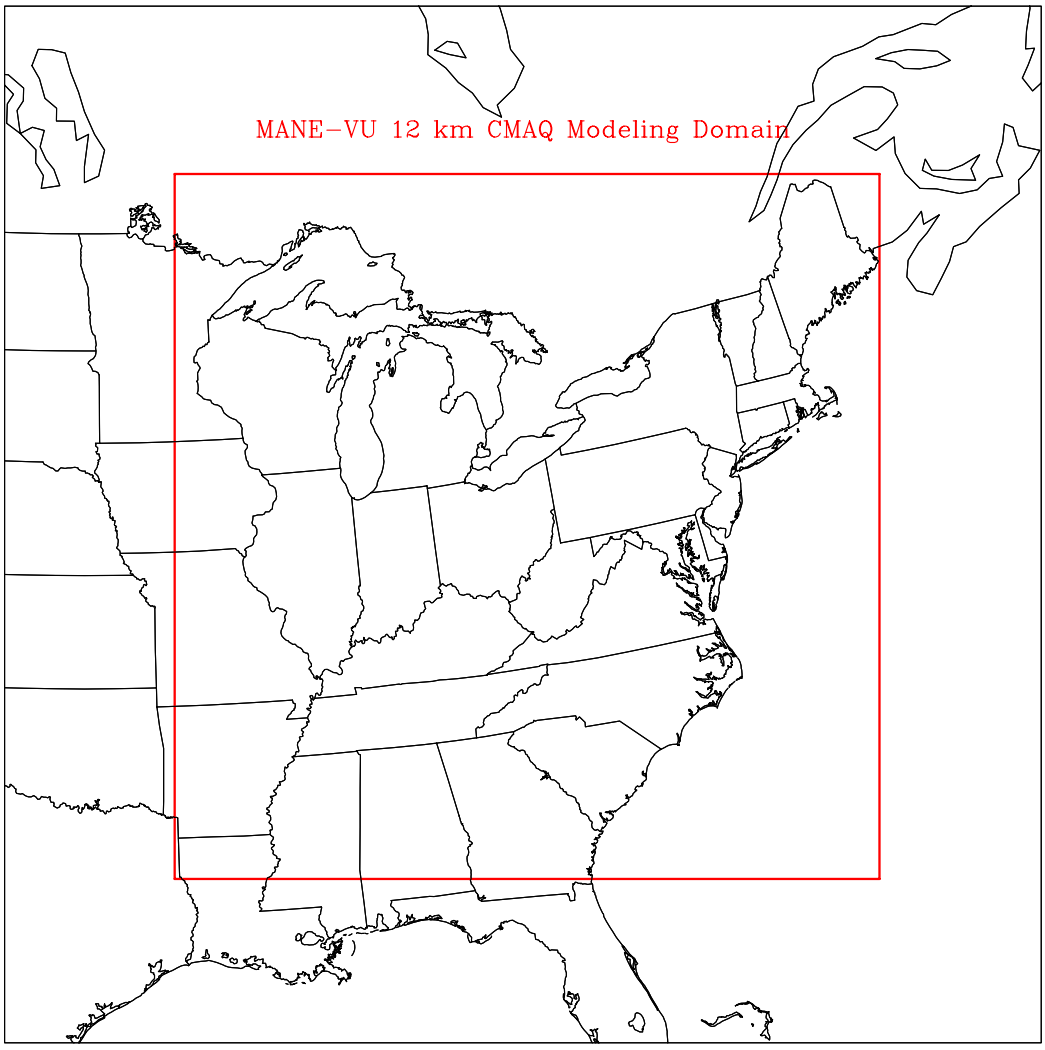


Table VIII-1. Description of Non-MANE-VU Region Inventory Data Used for MANE-VU BaseB Modeling

Geographical Region/RPO	Raw Data	Time Period and Version Number	Raw Data Format	Source of Data	Source of Ancillary Data	Date Data and Summaries Obtained by MANE-VU Modelers
VISTAS	Point, area, nonroad, and mobile	2002 BaseG	SMOKE IDA	Gregory Stella, Alpine Geophysics	Gregory Stella, Alpine Geophysics	June/July 2006
MRPO	Point, area, nonroad, and mobile	2002 BaseK	SMOKE IDA	NIF files provided by Mark Janssen, MRPO, and converted to IDA format by Gregory Stella, Alpine Geophysics	Part of VISTAS 2002 BaseD provided by Gregory Stella, Alpine Geophysics	May 2006
CENRAP	Point, area, nonroad, and mobile	2002 BaseB	SMOKE IDA	CENRAP ftp site Lee Warden, Oklahoma DEQ	CENRAP ftp site Lee Warden, Oklahoma DEQ	March 2006
WRAP *	Point, area, nonroad, and mobile	Part of VISTAS 2002 BaseD	SMOKE IDA	Part of VISTAS 2002 BaseD provided by Gregory Stella, Alpine Geophysics	Part of VISTAS 2002 BaseD provided by Gregory Stella, Alpine Geophysics	January 2005
Canada	Area, nonroad and mobile	2000	SMOKE IDA	ftp://ftp.epa.gov/EmisInventory/canada_2000inventory	SMOKE 2.1 defaults	February 2005
	Point	2002	SMOKE IDA created by NYSDEC from Canadian NPRI database	http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm	SMOKE 2.1 defaults	May 2005
Mexico *	Point, area, nonroad and mobile	1999	SMOKE IDA	EPA CAIR NODA	SMOKE 2.1 defaults	February 2005

* Only utilized for 2002 BaseA 36-km modeling to generate boundary conditions for BaseA/BaseA1/BaseB current and future year 12-km modeling.

CHAPTER IX. REFERENCES

CAMD, 2004: 2002 Continuous Emissions Monitoring Data Files downloaded on July 8, 2004 from the EPA's Clean Air Markets Division's website (www.epa.gov/ airmarkets). [Note: The files can be found by clicking on Data and Maps on the left panel of the screen, then on Data Sets and Published Reports, and then on the first item on the list, Emissions Data Prepackaged Datasets (http://cfpub.epa.gov/gdm/index.cfm?fuseaction= prepackaged.select). Year 2002 data for the quarterly time period was selected and then "Display List" that provides 48 data sets (comma delimited text format) that were downloaded one by one and combined into a single dataset.]

EPA, 2002: Final Summary of the Development and Results of a Methodology for Calculating Area Source Emissions from Residential Fuel Combustion, U.S. Environmental Protection Agency, Emission Factor and Inventory Group, Emissions Monitoring and Analysis Division, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. September 2002. (http://www.epa.gov/ttn/chief/eiip/techreport/volume03/index.html).

EPA, 2003a: Enhanced Particulate Matter Controlled Emissions Calculator, User's Manual, U.S. Environmental Protection Agency, Emission Factor and Inventory Group, Emissions Monitoring and Analysis Division, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. September 2003.

EPA, 2003b: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Documentation for Aircraft, Commercial Marine, Locomotive, and Other Nonroad Components of the National Emissions Inventory*, prepared by Eastern Research Group, Morrisville, NC, for the U.S. Environmental Protection Agency, September 2003.

EPA, 2004a: Basic Format & Content Checker 3.0 (Formerly known as the Quality Assurance / Quality Control Software 3.0) - March 2004; Extended Quality Control Tool - Updated May 18, 2004. Available at the following EPA website: http://www.epa.gov/ttn/chief/nif/index.html#nei.

EPA, 2004b: NEI Quality Assurance and Data Augmentation for Point Sources, U.S. Environmental Protection Agency, Emissions Monitoring and Analysis Division, Emission Factor and Inventory Group, May 26, 2004.

EPA, 2004c: Factor Information and REtrieval (FIRE) Data System, Version 6.24, located on the Technology Transfer Network Clearinghouse for Inventories & Emission Factors Web Site at http://www.epa.gov/ttn/chief/software/fire/index.html. March 2004.

EPA, 2005a. U.S. Environmental Protection Agency, Final NONROAD2005 [computer software], Office of Transportation and Air Quality, Ann Arbor, MI. Available December 2005 at: http://www.epa.gov/otaq/nonroadmdl.htm.

EPA, 2005b. U.S. Environmental Protection Agency, National Mobile Inventory Model, NMIM2005 [computer software], Office of Transportation and Air Quality, Ann Arbor, MI. Available December 2005 at: http://www.epa.gov/otaq/nmim.htm.

ERG, 2004: Environmental Research Group, *Documentation for Aircraft, Commercial Marine, Locomotive, and Other Nonroad Components of the National Emissions Inventory*, technical memorandum prepared by Eastern Research Group, Morrisville, NC, for the U.S. Environmental Protection Agency, September 2004.

MANE-VU, 2003: Quality Assurance Plan for Development of a 2002 Mobile Source Emissions Inventory for the MANE-VU States, Final. Prepared by E.H. Pechan & Associates, Inc. for the Mid-Atlantic/Northeast Visibility Union (MANE-VU). January 31, 2003.

MANE-VU, 2004a: Quality Assurance Project Plan (QAPP) for Area and Point Source Emissions Modeling Inventory Project, Final. Prepared by E.H. Pechan & Associates, Inc. and Carolina Environmental Program for the Mid-Atlantic/Northeast Visibility Union (MANE-VU). August 3, 2004.

MANE-VU, 2004b: Summary of Approaches Available for Fugitive Dust Sources, Final. Prepared by E.H. Pechan & Associates, Inc. for the Mid-Atlantic/Northeast Visibility Union (MANE-VU). July 15, 2004.

MANE-VU, 2004c: Summary of Approaches Available for Wildfires, Prescribed Burning, Slash Burning, and Agricultural Field Burning, Draft. Prepared by E.H. Pechan & Associates, Inc. for the Mid-Atlantic/Northeast Visibility Union (MANE-VU). July 24, 2004.

MANE-VU, 2005: Area and Point Source Emissions Modeling Inventory Project, Prepared by E.H. Pechan & Associates, Inc. for the Mid-Atlantic/Northeast Visibility Union (MANE-VU). January 31, 2005.

Thompson, 2002: Thompson, Rhonda L., "A Demonstration of the Quality Assurance (QA) software specifically developed for the National Emission Inventory (NEI)," presented at the International Emission Inventory Conference "Emission Inventories - Partnering for the Future," Atlanta, GA, April 15-18, 2002, (http://www.epa.gov/ttn/chief/conference/ei11/qa/thompson.pdf).

WRAP, 2005: Western Governors' Association, Western Regional Air Partnership, "Analysis of the Fine Fraction of Particulate Matter in Fugitive Dust," Final Report, October 12, 2005 (http://www.wrapair.org/forums/dejf/index.html).

APPENDIX A

POINT SOURCE INVENTORY, VERSION 3: DATA SOURCES BY SCC, EMISSION TYPE PERIOD, AND POLLUTANT

[*NOTE: The Appendix A table for each State is provided in a separate MS Word file because of the large size of each table. The Word files are provided in the zip file named "Appendix A.zip"; this zip file also includes an Excel Workbook file that contains the spreadsheet from which the Word file was created for each State.]*

APPENDIX B

AREA SOURCE INVENTORY, VERSION 3: DATA SOURCES BY SCC, EMISSION TYPE PERIOD, AND POLLUTANT

[*NOTE: The Appendix B table for each State is provided in a separate MS Word file because of the large size of each table. The Word files are provided in the zip file named "Appendix B.zip"; this zip file also includes an Excel Workbook file that contains the spreadsheet from which the Word file was created for each State.]*

APPENDIX C

NONROAD SOURCE INVENTORY, VERSION 3: FINAL COUNTY, MONTHLY NATIONAL MOBILE INVENTORY MODEL (NMIM) INPUTS

CONTENTS

Table C-1. MANE-VU County, Monthly NMIM/NONROAD Inputs

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
09	**CONNECTICUT**														
RVP, psi															
		001	Fairfield County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		003	Hartford County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
		005	Litchfield County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
		007	Middlesex County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
		009	New Haven County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
		011	New London County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
		013	Tolland County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
		015	Windham County	12.3	12.3	10.0	10.0	6.9	6.9	6.9	6.9	6.9	10.0	10.0	12.3
Oxygen Weight Percent															
		001	Fairfield County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		003	Hartford County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
		005	Litchfield County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
		007	Middlesex County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
		009	New Haven County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
		011	New London County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
		013	Tolland County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
		015	Windham County	1.5667	1.5667	1.6068	1.6068	1.6596	1.6596	1.6596	1.6596	1.6596	1.6068	1.6068	1.5667
Gasoline Sulfur, ppm															
		001	Fairfield County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		003	Hartford County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		005	Litchfield County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		007	Middlesex County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		009	New Haven County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		011	New London County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		013	Tolland County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
		015	Windham County	135.0	135.0	135.0	135.0	106.0	106.0	106.0	106.0	106.0	135.0	135.0	135.0
10	**DELAWARE**														
RVP, psi															
		001	Kent County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		003	New Castle County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		005	Sussex County	13.4	13.4	10.4	10.4	6.4	6.4	6.4	6.4	6.4	10.4	10.4	13.4
Oxygen Weight Percent															
		001	Kent County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		003	New Castle County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		005	Sussex County	1.4645	1.4645	1.5538	1.5538	1.6431	1.6431	1.6431	1.6431	1.6431	1.5538	1.5538	1.4645
Gasoline Sulfur, ppm															
		001	Kent County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		003	New Castle County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		005	Sussex County	225.0	225.0	186.0	186.0	134.0	134.0	134.0	134.0	134.0	186.0	186.0	225.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
11	**DISTRICT OF COLUMBIA**														
RVP, psi															
		001	District of Columbia	13.1	13.1	10.4	10.4	6.8	6.8	6.8	6.8	6.8	6.8	10.4	13.1
Oxygen Weight Percent															
		001	District of Columbia	1.7681	1.7681	1.8217	1.8217	1.8932	1.8932	1.8932	1.8932	1.8932	1.8932	1.8217	1.7681
Gasoline Sulfur, ppm															
		001	District of Columbia	230.0	230.0	199.6	199.6	159.0	159.0	159.0	159.0	159.0	159.0	199.6	230.0
23	**MAINE**														
RVP, psi															
		001	Androscoggin County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
		003	Aroostook County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		005	Cumberland County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
		007	Franklin County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		009	Hancock County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		011	Kennebec County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
		013	Knox County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
		015	Lincoln County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
		017	Oxford County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		019	Penobscot County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		021	Piscataquis County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		023	Sagadahoc County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
		025	Somerset County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		027	Waldo County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		029	Washington County	12.3	11.1	11.2	8.4	8.6	8.6	8.4	8.4	9.7	10.7	10.3	11.6
		031	York County	12.3	11.1	11.2	8.4	7.5	7.5	7.7	7.3	9.7	10.7	10.3	11.6
Oxygen Weight Percent															
		001	Androscoggin County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
		003	Aroostook County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		005	Cumberland County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
		007	Franklin County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		009	Hancock County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		011	Kennebec County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
		013	Knox County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
		015	Lincoln County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
		017	Oxford County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		019	Penobscot County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		021	Piscataquis County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		023	Sagadahoc County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
		025	Somerset County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		027	Waldo County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		029	Washington County	0.4334	0.6510	0.5390	0.3235	0.3786	0.5845	0.8545	0.5448	0.5895	0.6930	0.3560	0.2080
		031	York County	0.4334	0.6510	0.5390	0.3235	0.2420	0.1753	0.7061	0.6868	0.5895	0.6930	0.3560	0.2080
Gasoline Sulfur, ppm															
		001	Androscoggin County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
		003	Aroostook County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		005	Cumberland County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
		007	Franklin County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
		009	Hancock County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
23	*MAINE (cont'd)*	011	Kennebec County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
		013	Knox County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
		015	Lincoln County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
		017	Oxford County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		019	Penobscot County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		021	Piscataquis County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		023	Sagadahoc County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
		025	Somerset County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		027	Waldo County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		029	Washington County	151.5	236.1	221.1	145.4	170.1	290.9	128.6	299.4	159.9	279.8	190.9	171.0
		031	York County	151.5	236.1	221.1	145.4	319.7	268.1	101.1	83.4	159.9	279.8	190.9	171.0
24	**MARYLAND**														
RVP, psi															
		003	Anne Arundel County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		005	Baltimore County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		009	Calvert County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		011	Caroline County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		013	Carroll County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		015	Cecil County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		017	Charles County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		019	Dorchester County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		021	Frederick County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		023	Garrett County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		025	Harford County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		027	Howard County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		029	Kent County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		031	Montgomery County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		033	Prince George's County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		035	Queen Anne's County	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
		037	St. Mary's County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		039	Somerset County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		041	Talbot County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		043	Washington County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		045	Wicomico County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		047	Worcester County	12.6	12.6	9.6	9.6	9.6	8.2	8.2	8.2	9.3	9.3	9.3	12.6
		510	Baltimore city	12.6	12.6	9.6	9.6	9.6	6.6	6.6	6.6	9.3	9.3	9.3	12.6
Oxygen Weight Percent															
		001	Allegany County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		003	Anne Arundel County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		005	Baltimore County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		009	Calvert County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		011	Caroline County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		013	Carroll County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		015	Cecil County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		017	Charles County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		019	Dorchester County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		021	Frederick County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
		023	Garrett County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
24	*MARYLAND (cont'd)*	025	Harford County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		027	Howard County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		029	Kent County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		031	Montgomery County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		033	Prince George's County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		035	Queen Anne's County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		037	St. Mary's County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		039	Somerset County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		041	Talbot County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		043	Washington County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		045	Wicomico County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		047	Worcester County	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
		510	Baltimore city	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075	2.1075
Gasoline Sulfur, ppm															
		001	Allegany County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		003	Anne Arundel County	211.0	211.0	184.0	129.0	129.0	129.0	129.0	129.0	129.0	148.0	184.0	211.0
		005	Baltimore County	211.0	211.0	184.0	129.0	129.0	129.0	129.0	129.0	129.0	148.0	184.0	211.0
		009	Calvert County	230.0	230.0	199.6	129.0	129.0	129.0	129.0	129.0	129.0	159.0	199.6	230.0
		011	Caroline County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		013	Carroll County	211.0	211.0	184.0	129.0	129.0	129.0	129.0	129.0	129.0	148.0	184.0	211.0
		015	Cecil County	174.0	174.0	155.1	129.0	129.0	129.0	129.0	129.0	129.0	130.0	155.1	174.0
		017	Charles County	230.0	230.0	199.6	129.0	129.0	129.0	129.0	129.0	129.0	159.0	199.6	230.0
		019	Dorchester County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		021	Frederick County	230.0	230.0	199.6	129.0	129.0	129.0	129.0	129.0	129.0	159.0	199.6	230.0
		023	Garrett County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		025	Harford County	211.0	211.0	184.0	129.0	129.0	129.0	129.0	129.0	129.0	148.0	184.0	211.0
		027	Howard County	211.0	211.0	184.0	129.0	129.0	129.0	129.0	129.0	129.0	148.0	184.0	211.0
		029	Kent County	174.0	174.0	155.1	129.0	129.0	129.0	129.0	129.0	129.0	130.0	155.1	174.0
		031	Montgomery County	230.0	230.0	199.6	129.0	129.0	129.0	129.0	129.0	129.0	159.0	199.6	230.0
		033	Prince George's County	230.0	230.0	199.6	129.0	129.0	129.0	129.0	129.0	129.0	159.0	199.6	230.0
		035	Queen Anne's County	174.0	174.0	155.1	129.0	129.0	129.0	129.0	129.0	129.0	130.0	155.1	174.0
		037	St. Mary's County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		039	Somerset County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		041	Talbot County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		043	Washington County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		045	Wicomico County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		047	Worcester County	207.9	207.9	191.9	191.9	170.5	170.5	170.5	170.5	170.5	170.5	191.9	207.9
		510	Baltimore city	211.0	211.0	184.0	129.0	129.0	129.0	129.0	129.0	129.0	148.0	184.0	211.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
25	**MASSACHUSETTS**														
RVP, psi															
		001	Barnstable County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		003	Berkshire County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		005	Bristol County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		007	Dukes County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		009	Essex County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		011	Franklin County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		013	Hampden County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		015	Hampshire County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		017	Middlesex County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		019	Nantucket County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		021	Norfolk County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		023	Plymouth County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		025	Suffolk County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
		027	Worcester County	13.5	13.5	13.5	13.5	6.7	6.7	6.7	6.7	6.7	13.5	13.5	13.5
Oxygen Weight Percent															
		001	Barnstable County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		003	Berkshire County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		005	Bristol County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		007	Dukes County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		009	Essex County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		011	Franklin County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		013	Hampden County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		015	Hampshire County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		017	Middlesex County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		019	Nantucket County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		021	Norfolk County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		023	Plymouth County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		025	Suffolk County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
		027	Worcester County	1.5002	1.5002	1.5002	1.5002	2.1075	2.1075	2.1075	2.1075	2.1075	1.5002	1.5002	1.5002
Gasoline Sulfur, ppm															
		001	Barnstable County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		003	Berkshire County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		005	Bristol County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		007	Dukes County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		009	Essex County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		011	Franklin County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		013	Hampden County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		015	Hampshire County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		017	Middlesex County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		019	Nantucket County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		021	Norfolk County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		023	Plymouth County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		025	Suffolk County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		027	Worcester County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
33	**NEW HAMPSHIRE**														
RVP, psi															
		001	Belknap County	13.6	13.6	11.2	11.2	7.9	7.9	7.9	7.9	7.9	11.2	11.2	13.6
		003	Carroll County	13.6	13.6	11.2	11.2	7.9	7.9	7.9	7.9	7.9	11.2	11.2	13.6
		005	Cheshire County	13.6	13.6	11.2	11.2	7.9	7.9	7.9	7.9	7.9	11.2	11.2	13.6
		007	Coos County	13.6	13.6	11.2	11.2	7.9	7.9	7.9	7.9	7.9	11.2	11.2	13.6
		009	Grafton County	13.6	13.6	11.2	11.2	7.9	7.9	7.9	7.9	7.9	11.2	11.2	13.6
		011	Hillsborough County	12.9	12.9	10.2	10.2	6.7	6.7	6.7	6.7	6.7	10.2	10.2	12.9
		013	Merrimack County	12.9	12.9	10.2	10.2	6.7	6.7	6.7	6.7	6.7	10.2	10.2	12.9
		015	Rockingham County	12.9	12.9	10.2	10.2	6.7	6.7	6.7	6.7	6.7	10.2	10.2	12.9
		017	Strafford County	12.9	12.9	10.2	10.2	6.7	6.7	6.7	6.7	6.7	10.2	10.2	12.9
		019	Sullivan County	13.6	13.6	11.2	11.2	7.9	7.9	7.9	7.9	7.9	11.2	11.2	13.6
Oxygen Weight Percent															
		001	Belknap County	0.1786	0.1786	0.2322	0.2322	0.2858	0.2858	0.2858	0.2858	0.2858	0.2322	0.2322	0.1786
		003	Carroll County	0.1786	0.1786	0.2322	0.2322	0.2858	0.2858	0.2858	0.2858	0.2858	0.2322	0.2322	0.1786
		005	Cheshire County	0.1786	0.1786	0.2322	0.2322	0.2858	0.2858	0.2858	0.2858	0.2858	0.2322	0.2322	0.1786
		007	Coos County	0.1786	0.1786	0.2322	0.2322	0.2858	0.2858	0.2858	0.2858	0.2858	0.2322	0.2322	0.1786
		009	Grafton County	0.1786	0.1786	0.2322	0.2322	0.2858	0.2858	0.2858	0.2858	0.2858	0.2322	0.2322	0.1786
		011	Hillsborough County	1.8217	1.8217	1.9110	1.9110	2.0182	2.0182	2.0182	2.0182	2.0182	1.9110	1.9110	1.8217
		013	Merrimack County	1.8217	1.8217	1.9110	1.9110	2.0182	2.0182	2.0182	2.0182	2.0182	1.9110	1.9110	1.8217
		015	Rockingham County	1.9825	1.9825	2.0539	2.0539	2.1432	2.1432	2.1432	2.1432	2.1432	2.0539	2.0539	1.9825
		017	Strafford County	1.9825	1.9825	2.0539	2.0539	2.1432	2.1432	2.1432	2.1432	2.1432	2.0539	2.0539	1.9825
		019	Sullivan County	0.1786	0.1786	0.2322	0.2322	0.2858	0.2858	0.2858	0.2858	0.2858	0.2322	0.2322	0.1786
Gasoline Sulfur, ppm															
		001	Belknap County	228.1	228.1	208.6	208.6	182.5	182.5	182.5	182.5	182.5	208.6	208.6	228.1
		003	Carroll County	228.1	228.1	208.6	208.6	182.5	182.5	182.5	182.5	182.5	208.6	208.6	228.1
		005	Cheshire County	228.1	228.1	208.6	208.6	182.5	182.5	182.5	182.5	182.5	208.6	208.6	228.1
		007	Coos County	228.1	228.1	208.6	208.6	182.5	182.5	182.5	182.5	182.5	208.6	208.6	228.1
		009	Grafton County	228.1	228.1	208.6	208.6	182.5	182.5	182.5	182.5	182.5	208.6	208.6	228.1
		011	Hillsborough County	121.0	121.0	101.3	101.3	75.0	75.0	75.0	75.0	75.0	101.3	101.3	121.0
		013	Merrimack County	121.0	121.0	101.3	101.3	75.0	75.0	75.0	75.0	75.0	101.3	101.3	121.0
		015	Rockingham County	148.0	148.0	121.0	121.0	85.0	85.0	85.0	85.0	85.0	121.0	121.0	148.0
		017	Strafford County	148.0	148.0	121.0	121.0	85.0	85.0	85.0	85.0	85.0	121.0	121.0	148.0
		019	Sullivan County	228.1	228.1	208.6	208.6	182.5	182.5	182.5	182.5	182.5	208.6	208.6	228.1
34	**NEW JERSEY**														
RVP, psi															
		001	Atlantic County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		003	Bergen County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		005	Burlington County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		007	Camden County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		009	Cape May County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		011	Cumberland County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		013	Essex County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		015	Gloucester County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		017	Hudson County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		019	Hunterdon County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		021	Mercer County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		023	Middlesex County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
34	*NEW JERSEY (cont'd)*	025	Monmouth County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		027	Morris County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		029	Ocean County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		031	Passaic County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		033	Salem County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
		035	Somerset County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		037	Sussex County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		039	Union County	12.5	12.5	10.1	10.1	6.8	6.8	6.8	6.8	6.8	10.1	10.1	12.5
		041	Warren County	13.4	13.4	10.6	10.6	6.8	6.8	6.8	6.8	6.8	10.6	10.6	13.4
Oxygen Weight Percent															
		001	Atlantic County	1.6922	1.6922	1.8499	1.8499	2.0718	2.0718	2.0718	2.0718	2.0718	1.8499	1.8499	1.6922
		003	Bergen County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		005	Burlington County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		007	Camden County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		009	Cape May County	1.6922	1.6922	1.8499	1.8499	2.0718	2.0718	2.0718	2.0718	2.0718	1.8499	1.8499	1.6922
		011	Cumberland County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		013	Essex County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		015	Gloucester County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		017	Hudson County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		019	Hunterdon County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		021	Mercer County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		023	Middlesex County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		025	Monmouth County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		027	Morris County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		029	Ocean County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		031	Passaic County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		033	Salem County	1.8442	1.8442	1.9457	1.9457	2.0896	2.0896	2.0896	2.0896	2.0896	1.9457	1.9457	1.8442
		035	Somerset County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		037	Sussex County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		039	Union County	1.7172	1.7172	1.7660	1.7660	1.8234	1.8234	1.8234	1.8234	1.8234	1.7660	1.7660	1.7172
		041	Warren County	1.8753	1.8753	1.9110	1.9110	1.9825	1.9825	1.9825	1.9825	1.9825	1.9110	1.9110	1.8753
Gasoline Sulfur, ppm															
		001	Atlantic County	207.0	207.0	174.0	174.0	130.0	130.0	130.0	130.0	130.0	174.0	174.0	207.0
		003	Bergen County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		005	Burlington County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		007	Camden County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		009	Cape May County	207.0	207.0	174.0	174.0	130.0	130.0	130.0	130.0	130.0	174.0	174.0	207.0
		011	Cumberland County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		013	Essex County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		015	Gloucester County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		017	Hudson County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		019	Hunterdon County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		021	Mercer County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		023	Middlesex County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		025	Monmouth County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		027	Morris County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		029	Ocean County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		031	Passaic County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
34	*NEW JERSEY (cont'd)*	033	Salem County	174.0	174.0	155.1	155.1	130.0	130.0	130.0	130.0	130.0	155.1	155.1	174.0
		035	Somerset County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		037	Sussex County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		039	Union County	141.0	141.0	129.4	129.4	114.0	114.0	114.0	114.0	114.0	129.4	129.4	141.0
		041	Warren County	125.0	125.0	123.7	123.7	122.0	122.0	122.0	122.0	122.0	123.7	123.7	125.0
36	**NEW YORK**														
RVP, psi															
		001	Albany County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		003	Allegany County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		005	Bronx County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		007	Broome County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		009	Cattaraugus County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		011	Cayuga County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		013	Chautauqua County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		015	Chemung County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		017	Chenango County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		019	Clinton County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		021	Columbia County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		023	Cortland County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		025	Delaware County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		027	Dutchess County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		029	Erie County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		031	Essex County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		033	Franklin County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		035	Fulton County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		037	Genesee County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		039	Greene County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		041	Hamilton County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		043	Herkimer County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		045	Jefferson County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		047	Kings County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		049	Lewis County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		051	Livingston County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		053	Madison County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		055	Monroe County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		057	Montgomery County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		059	Nassau County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		061	New York County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		063	Niagara County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		065	Oneida County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		067	Onondaga County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		069	Ontario County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		071	Orange County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		073	Orleans County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		075	Oswego County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		077	Otsego County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		079	Putnam County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		081	Queens County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
36	*NEW YORK (cont'd)*	083	Rensselaer County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		085	Richmond County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		087	Rockland County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		089	St. Lawrence County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		091	Saratoga County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		093	Schenectady County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		095	Schoharie County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		097	Schuyler County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		099	Seneca County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		101	Steuben County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		103	Suffolk County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		105	Sullivan County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		107	Tioga County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		109	Tompkins County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		111	Ulster County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		113	Warren County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		115	Washington County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		117	Wayne County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		119	Westchester County	12.8	12.6	12.1	9.0	6.8	6.7	6.6	6.7	6.9	10.3	11.7	12.5
		121	Wyoming County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
		123	Yates County	12.7	12.7	12.6	10.9	8.6	8.3	8.3	8.2	8.2	9.6	10.7	11.4
Oxygen Weight Percent															
		001	Albany County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		003	Allegany County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		005	Bronx County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		007	Broome County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		009	Cattaraugus County	0.8965	1.0344	0.8275	0.6551	0.8965	0.5862	0.8275	0.9654	0.6551	0.6896	0.9310	0.8965
		011	Cayuga County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		013	Chautauqua County	0.8965	1.0344	0.8275	0.6551	0.8965	0.5862	0.8275	0.9654	0.6551	0.6896	0.9310	0.8965
		015	Chemung County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		017	Chenango County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		019	Clinton County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		021	Columbia County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		023	Cortland County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		025	Delaware County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		027	Dutchess County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		029	Erie County	0.8965	1.0344	0.8275	0.6551	0.8965	0.5862	0.8275	0.9654	0.6551	0.6896	0.9310	0.8965
		031	Essex County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		033	Franklin County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		035	Fulton County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		037	Genesee County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		039	Greene County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		041	Hamilton County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		043	Herkimer County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		045	Jefferson County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		047	Kings County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		049	Lewis County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		051	Livingston County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		053	Madison County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
36	*NEW YORK (cont'd)*	055	Monroe County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		057	Montgomery County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		059	Nassau County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		061	New York County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		063	Niagara County	0.8965	1.0344	0.8275	0.6551	0.8965	0.5862	0.8275	0.9654	0.6551	0.6896	0.9310	0.8965
		065	Oneida County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		067	Onondaga County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		069	Ontario County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		071	Orange County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		073	Orleans County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		075	Oswego County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		077	Otsego County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		079	Putnam County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		081	Queens County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		083	Rensselaer County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		085	Richmond County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		087	Rockland County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		089	St. Lawrence County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		091	Saratoga County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		093	Schenectady County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		095	Schoharie County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		097	Schuyler County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		099	Seneca County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		101	Steuben County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		103	Suffolk County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		105	Sullivan County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		107	Tioga County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		109	Tompkins County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		111	Ulster County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		113	Warren County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		115	Washington County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		117	Wayne County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		119	Westchester County	1.8932	1.9467	1.8932	1.8753	1.9646	1.9467	1.9646	1.8217	1.9646	1.8217	1.8574	1.6431
		121	Wyoming County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
		123	Yates County	0.8751	1.0180	0.8216	0.6430	0.8930	0.5894	0.8216	0.9466	0.6787	0.6965	0.9466	0.8930
Gasoline Sulfur, ppm															
		001	Albany County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		003	Allegany County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		005	Bronx County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		007	Broome County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		009	Cattaraugus County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		011	Cayuga County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		013	Chautauqua County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		015	Chemung County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		017	Chenango County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		019	Clinton County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		021	Columbia County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		023	Cortland County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		025	Delaware County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
36	*NEW YORK*	027	Dutchess County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
	(cont'd)	029	Erie County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		031	Essex County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		033	Franklin County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		035	Fulton County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		037	Genesee County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		039	Greene County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		041	Hamilton County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		043	Herkimer County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		045	Jefferson County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		047	Kings County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		049	Lewis County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		051	Livingston County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		053	Madison County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		055	Monroe County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		057	Montgomery County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		059	Nassau County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		061	New York County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		063	Niagara County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		065	Oneida County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		067	Onondaga County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		069	Ontario County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		071	Orange County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		073	Orleans County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		075	Oswego County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		077	Otsego County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		079	Putnam County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		081	Queens County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		083	Rensselaer County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		085	Richmond County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		087	Rockland County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		089	St. Lawrence County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		091	Saratoga County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		093	Schenectady County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		095	Schoharie County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		097	Schuyler County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		099	Seneca County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		101	Steuben County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		103	Suffolk County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		105	Sullivan County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		107	Tioga County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		109	Tompkins County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		111	Ulster County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		113	Warren County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		115	Washington County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		117	Wayne County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		119	Westchester County	210.0	220.0	180.0	200.0	220.0	210.0	220.0	190.0	190.0	220.0	200.0	240.0
		121	Wyoming County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0
		123	Yates County	260.0	250.0	250.0	230.0	310.0	320.0	340.0	290.0	270.0	250.0	250.0	210.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
42	**PENNSYLVANIA**														
RVP, psi															
		001	Adams County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		003	Allegheny County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		005	Armstrong County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		007	Beaver County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		009	Bedford County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		011	Berks County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		013	Blair County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		015	Bradford County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		017	Bucks County	13.5	13.5	10.6	10.6	6.7	6.7	6.7	6.7	6.7	10.6	10.6	13.5
		019	Butler County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		021	Cambria County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		023	Cameron County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		025	Carbon County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		027	Centre County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		029	Chester County	13.5	13.5	10.6	10.6	6.7	6.7	6.7	6.7	6.7	10.6	10.6	13.5
		031	Clarion County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		033	Clearfield County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		035	Clinton County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		037	Columbia County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		039	Crawford County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		041	Cumberland County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		043	Dauphin County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		045	Delaware County	13.5	13.5	10.6	10.6	6.7	6.7	6.7	6.7	6.7	10.6	10.6	13.5
		047	Elk County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		049	Erie County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		051	Fayette County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		053	Forest County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		055	Franklin County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		057	Fulton County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		059	Greene County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		061	Huntingdon County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		063	Indiana County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		065	Jefferson County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		067	Juniata County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		069	Lackawanna County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		071	Lancaster County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		073	Lawrence County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		075	Lebanon County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		077	Lehigh County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		079	Luzerne County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		081	Lycoming County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		083	McKean County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		085	Mercer County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		087	Mifflin County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		089	Monroe County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		091	Montgomery County	13.5	13.5	10.6	10.6	6.7	6.7	6.7	6.7	6.7	10.6	10.6	13.5
		093	Montour County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
42	*PENNSYLVANIA (cont'd)*	095	Northampton County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		097	Northumberland County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		099	Perry County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		101	Philadelphia County	13.5	13.5	10.6	10.6	6.7	6.7	6.7	6.7	6.7	10.6	10.6	13.5
		103	Pike County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		105	Potter County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		107	Schuylkill County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		109	Snyder County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		111	Somerset County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		113	Sullivan County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		115	Susquehanna County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		117	Tioga County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		119	Union County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		121	Venango County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		123	Warren County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		125	Washington County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		127	Wayne County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		129	Westmoreland County	13.5	13.5	11.0	11.0	7.8	7.8	7.8	7.8	7.8	11.0	11.0	13.5
		131	Wyoming County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
		133	York County	13.5	13.5	11.0	11.0	8.7	8.7	8.7	8.7	8.7	11.0	11.0	13.5
Oxygen Weight Percent															
		001	Adams County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		003	Allegheny County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		005	Armstrong County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		007	Beaver County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		009	Bedford County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		011	Berks County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		013	Blair County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		015	Bradford County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		017	Bucks County	2.5303	2.5303	2.5303	2.5303	2.1075	2.1075	2.1075	2.1075	2.1075	2.5303	2.5303	2.5303
		019	Butler County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		021	Cambria County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		023	Cameron County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		025	Carbon County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		027	Centre County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		029	Chester County	2.5303	2.5303	2.5303	2.5303	2.1075	2.1075	2.1075	2.1075	2.1075	2.5303	2.5303	2.5303
		031	Clarion County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		033	Clearfield County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		035	Clinton County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		037	Columbia County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		039	Crawford County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		041	Cumberland County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		043	Dauphin County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		045	Delaware County	2.5303	2.5303	2.5303	2.5303	2.1075	2.1075	2.1075	2.1075	2.1075	2.5303	2.5303	2.5303
		047	Elk County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		049	Erie County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		051	Fayette County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		053	Forest County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		055	Franklin County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
42	*PENNSYLVANIA (cont'd)*	057	Fulton County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		059	Greene County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		061	Huntingdon County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		063	Indiana County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		065	Jefferson County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		067	Juniata County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		069	Lackawanna County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		071	Lancaster County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		073	Lawrence County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		075	Lebanon County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		077	Lehigh County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		079	Luzerne County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		081	Lycoming County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		083	McKean County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		085	Mercer County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		087	Mifflin County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		089	Monroe County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		091	Montgomery County	2.5303	2.5303	2.5303	2.5303	2.1075	2.1075	2.1075	2.1075	2.1075	2.5303	2.5303	2.5303
		093	Montour County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		095	Northampton County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		097	Northumberland County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		099	Perry County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		101	Philadelphia County	2.5303	2.5303	2.5303	2.5303	2.1075	2.1075	2.1075	2.1075	2.1075	2.5303	2.5303	2.5303
		103	Pike County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		105	Potter County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		107	Schuylkill County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		109	Snyder County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		111	Somerset County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		113	Sullivan County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		115	Susquehanna County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		117	Tioga County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		119	Union County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		121	Venango County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		123	Warren County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		125	Washington County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		127	Wayne County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		129	Westmoreland County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		131	Wyoming County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
		133	York County	0.1965	0.1965	0.2322	0.2322	0.2679	0.2679	0.2679	0.2679	0.2679	0.2322	0.2322	0.1965
Gasoline Sulfur, ppm															
		001	Adams County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		003	Allegheny County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		005	Armstrong County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		007	Beaver County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		009	Bedford County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		011	Berks County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		013	Blair County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		015	Bradford County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		017	Bucks County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
42	*PENNSYLVANIA (cont'd)*	019	Butler County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		021	Cambria County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		023	Cameron County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		025	Carbon County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		027	Centre County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		029	Chester County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		031	Clarion County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		033	Clearfield County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		035	Clinton County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		037	Columbia County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		039	Crawford County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		041	Cumberland County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		043	Dauphin County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		045	Delaware County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		047	Elk County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		049	Erie County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		051	Fayette County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		053	Forest County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		055	Franklin County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		057	Fulton County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		059	Greene County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		061	Huntingdon County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		063	Indiana County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		065	Jefferson County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		067	Juniata County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		069	Lackawanna County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		071	Lancaster County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		073	Lawrence County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		075	Lebanon County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		077	Lehigh County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		079	Luzerne County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		081	Lycoming County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		083	McKean County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		085	Mercer County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		087	Mifflin County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		089	Monroe County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		091	Montgomery County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		093	Montour County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		095	Northampton County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		097	Northumberland County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		099	Perry County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		101	Philadelphia County	279.0	279.0	279.0	279.0	129.0	129.0	129.0	129.0	129.0	279.0	279.0	279.0
		103	Pike County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		105	Potter County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		107	Schuylkill County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		109	Snyder County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		111	Somerset County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		113	Sullivan County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		115	Susquehanna County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
42	*PENNSYLVANIA (cont'd)*	117	Tioga County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		119	Union County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		121	Venango County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		123	Warren County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		125	Washington County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		127	Wayne County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		129	Westmoreland County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		131	Wyoming County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
		133	York County	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0	279.0
44	**RHODE ISLAND**														
RVP, psi															
		001	Bristol County	12.5	12.5	10.1	10.1	6.9	6.9	6.9	6.9	6.9	10.1	10.1	12.5
		003	Kent County	12.5	12.5	10.1	10.1	6.9	6.9	6.9	6.9	6.9	10.1	10.1	12.5
		005	Newport County	12.5	12.5	10.1	10.1	6.9	6.9	6.9	6.9	6.9	10.1	10.1	12.5
		007	Providence County	12.5	12.5	10.1	10.1	6.9	6.9	6.9	6.9	6.9	10.1	10.1	12.5
		009	Washington County	12.5	12.5	10.1	10.1	6.9	6.9	6.9	6.9	6.9	10.1	10.1	12.5
Oxygen Weight Percent															
		001	Bristol County	1.7110	1.7110	1.6801	1.6801	1.6745	1.6745	1.6745	1.6745	1.6745	1.6801	1.6801	1.7110
		003	Kent County	1.7110	1.7110	1.6801	1.6801	1.6745	1.6745	1.6745	1.6745	1.6745	1.6801	1.6801	1.7110
		005	Newport County	1.7110	1.7110	1.6801	1.6801	1.6745	1.6745	1.6745	1.6745	1.6745	1.6801	1.6801	1.7110
		007	Providence County	1.7110	1.7110	1.6801	1.6801	1.6745	1.6745	1.6745	1.6745	1.6745	1.6801	1.6801	1.7110
		009	Washington County	1.7110	1.7110	1.6801	1.6801	1.6745	1.6745	1.6745	1.6745	1.6745	1.6801	1.6801	1.7110
Gasoline Sulfur, ppm															
		001	Bristol County	193.0	193.0	166.4	166.4	131.0	131.0	131.0	131.0	131.0	166.4	166.4	193.0
		003	Kent County	193.0	193.0	166.4	166.4	131.0	131.0	131.0	131.0	131.0	166.4	166.4	193.0
		005	Newport County	193.0	193.0	166.4	166.4	131.0	131.0	131.0	131.0	131.0	166.4	166.4	193.0
		007	Providence County	193.0	193.0	166.4	166.4	131.0	131.0	131.0	131.0	131.0	166.4	166.4	193.0
		009	Washington County	193.0	193.0	166.4	166.4	131.0	131.0	131.0	131.0	131.0	166.4	166.4	193.0

Table C-1 (continued)

FIPS_State	State	FIPS_County	County	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
50	**VERMONT**														
RVP, psi															
		001	Addison County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		003	Bennington County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		005	Caledonia County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		007	Chittenden County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		009	Essex County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		011	Franklin County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		013	Grand Isle County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		015	Lamoille County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		017	Orange County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		019	Orleans County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		021	Rutland County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		023	Washington County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		025	Windham County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
		027	Windsor County	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	9.5	9.5	9.5
Oxygen Weight Percent															
		001	Addison County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		003	Bennington County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		005	Caledonia County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		007	Chittenden County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		009	Essex County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		011	Franklin County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		013	Grand Isle County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		015	Lamoille County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		017	Orange County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		019	Orleans County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		021	Rutland County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		023	Washington County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		025	Windham County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
		027	Windsor County	0.1786	0.1786	0.2143	0.2143	0.2679	0.2679	0.2679	0.2679	0.2679	0.2143	0.2143	0.1786
Gasoline Sulfur, ppm															
		001	Addison County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		003	Bennington County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		005	Caledonia County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		007	Chittenden County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		009	Essex County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		011	Franklin County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		013	Grand Isle County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		015	Lamoille County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		017	Orange County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		019	Orleans County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		021	Rutland County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		023	Washington County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		025	Windham County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3
		027	Windsor County	209.3	209.3	209.3	209.3	183.1	183.1	183.1	183.1	183.1	209.3	209.3	209.3