



# **3-Year Quality Assurance Report**

**Calendar Years 2002, 2003  
and 2004**

**The SLAMS PM<sub>2.5</sub>  
Ambient Air  
Monitoring Program**

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**3-Year Quality Assurance Report for  
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The SLAMS PM2.5 Ambient Air Monitoring Program**

**Ambient Air Monitoring Group  
Office of Air Quality Planning and Standards  
U.S. Environmental Protection Agency  
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## ***Foreword***

This document is available as a PDF file on the Internet under the Ambient Monitoring Technical Information Center (AMTIC) Homepage (<http://www.epa.gov/ttn/amtic/pmqa.html>). The document can be read and printed using Adobe Acrobat Reader software, which is freeware that is available from many Internet sites (including the EPA web site).

## Abstract

This report documents the quality assurance activities that were undertaken for the SLAMS PM<sub>2.5</sub> environmental data operations for the calendar years 2002, 2003 and 2004. The QA Report evaluates the adherence to the quality assurance requirements described in 40 CFR 58 App. A and evaluates the data quality indicators of precision, accuracy, bias, and completeness.

The criteria pollutant defined as particulate matter is a general term used to describe a broad class of substances that exist as liquid or solid particles over a wide range of sizes. As part of the Ambient Air Quality Monitoring Program, EPA measures two particle size fractions: those less than or equal to [a nominal] 10 micrometers, and those less than or equal to [a nominal] 2.5 micrometers, hereafter referred to as PM<sub>10</sub> or PM<sub>2.5</sub> respectively. In general, the measurement goal of the PM<sub>2.5</sub> Ambient Air Quality Monitoring Program is to estimate the concentration, in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), of particulates less than or equal to 2.5 micrometers ( $\mu\text{m}$ ) that have been collected on a 46.2mm polytetrafluoroethylene (PTFE) filter. For the State and Local Air Monitoring Network (SLAMS), the primary goal is to compare the PM<sub>2.5</sub> concentrations to the annual and 24-hour National Ambient Air Quality Standard (NAAQS). The national primary and secondary ambient air quality standards for PM<sub>2.5</sub> are 15.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) annual arithmetic mean concentration and 65  $\mu\text{g}/\text{m}^3$  24-hour average concentration measured in ambient air. On Oct 17, 2006 the 24-hour was revised to 35  $\mu\text{g}/\text{m}^3$ . However, the data and the statistical calculations in this report are based on the regulations prior to the Oct 17, 2006 revision.

A quality system for the PM<sub>2.5</sub> program was developed in order to achieve the data quality objectives (DQOs) that were developed for this program. In order to meet these DQOs, measurement quality objectives were developed for the data quality indicators of precision, bias, accuracy and completeness. The report identifies the data quality indicators, how the estimates of the indicators were derived and evaluates the results.

In general, the results show the monitoring programs quality systems, for the most part, are in control of uncertainty to acceptable levels. From a national standpoint only about 64% of the samplers operating all three years met the CFR requirement of 75% completeness in all 12 quarters. This is a significant improvement from the 99-2001 Report but it appears that there is still room for improvement. However, the average capture rate of all samplers is 92% which indicates that the samplers appear to be operating properly. The precision, accuracy and bias objectives are being met at 89% 100% and 84% of the reporting organizations. This is very reasonable and are very close to the estimates in the 99-2001 QA report. There is no indication that any of the approved method designations are reporting results outside of the measurement quality objectives. However, there is a general indication that the R&P sequential instrument provides better precision but appears to be biased low compared to the Andersen sequential which tend to be a bit more imprecise but less biased.

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## *List of Abbreviations*

AIRS	Aerometric Information Retrieval System
AQS	Air Quality System
CFR	<i>Code of Federal Regulations</i> <sup>μ</sup>
CV	coefficient of variation
DQA	data quality assessment
DQOs	data quality objectives
EDO	environmental data operation
EPA	Environmental Protection Agency
ESAT	Environmental Services Assistance Team
FEM	Federal Equivalent Method
FRM	Federal Reference Method
FS	field scientist- Performance Evaluation Program
MQAG	Monitoring and Quality Assurance Group
MQOs	measurement quality objectives
NAAQS	National Ambient Air Quality Standards
NAMS	national air monitoring stations
NERL	National Exposure Research Laboratory
NIST	National Institute of Standards and Technology
OAQPS	Office of Air Quality Planning and Standards
ORD	Office of Research and Development
PE	performance evaluation
PEP	Performance Evaluation Program
PM <sub>2.5</sub>	particulate matter $\leq 2.5$ microns
PTFE	polytetrafluoroethylene
QA	quality assurance
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
QMP	quality management plan
R&P	Rupprecht and Patashnick
SLAMS	state and local monitoring stations
SOP	standard operating procedure
TSA	technical systems audit

## Executive Summary

This report documents the quality assurance activities that were undertaken for EPA's PM<sub>2.5</sub> environmental data operations for the calendar years 2002, 2003 and 2004. Based on the OAQPS 3-year data quality assessment, it is felt that the ambient air monitoring network, in general, has been operated in a manner so that decisions can be made within acceptable levels of uncertainty.

In general, the measurement goal of the PM<sub>2.5</sub> SLAMS Ambient Air Quality Monitoring Program is to estimate the concentration, in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), of particulate matter less than or equal to [a nominal] 2.5 micrometers ( $\mu\text{m}$ ) that have been collected on a 46.2mm polytetrafluoroethylene (PTFE) filter. For the State and Local Air Monitoring Network (SLAMS), the primary goal is to compare the PM<sub>2.5</sub> concentrations to the annual and 24-hour National Ambient Air Quality Standard (NAAQS). The national primary and secondary ambient air quality standards for PM<sub>2.5</sub> are 15.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) annual arithmetic mean concentration and 65  $\mu\text{g}/\text{m}^3$  98<sup>th</sup> percentile 24-hour average concentration measured in ambient air. On Oct 17, 2006 the 24-hour was revised to 35  $\mu\text{g}/\text{m}^3$ . However, the data and the statistical calculations in this report will be based on the regulations prior to the Oct 17, 2006 revision.

The ambient air monitoring network collects measurements to provide an estimate or a representation of the true ambient air concentration. It is impossible to know with certainty the true value for any measured quantity or estimate. This is due to the potential for measurement uncertainty (measure the same thing twice and you will probably get two different answers) and due to population uncertainty (does the measurement here represent the value 4 feet away or does the measurement today represent the value tomorrow). As a result, an estimate may be reported that is above some important limit (e.g. the level of an air quality standard) when in fact the true value is below, or we may sometimes report an estimate that is below some important limit when in fact the true value is above. There is no way around this. Incorrect decisions can and will be made.

To reduce the number of incorrect decisions and estimate their probability of occurrence, we carefully design monitoring networks and quality systems. By conducting quality control measurements and periodically evaluating them, we can estimate, in the long run, the proportion of incorrect decisions made. We emphasize *in the long run*. A decision based on an individual measurement or an estimate (such as an annual average) at any individual site may or may not be correct. We can not know the "truth" about one particular decision. But as we make decision after decision after decision, in the long run we'll know the percentage of the time that we are making the correct decision. As such, we should not try to defend an individual measurement or an aggregate of measurements from an individual monitor. Instead, we ensure that the monitoring network has been designed and is being operated in a manner so that the errors in the decisions are within an acceptable level.

The data quality objectives process, a seven step planning approach to develop sampling designs for data collection activities that support decision making, was used to provide a framework for linking measurement uncertainty, population uncertainty and the decision makers tolerance for making a decision error. Once the DQOs were determined, OAQPS developed a quality system to control and assess completeness, precision, bias, and accuracy in order to ensure one would make correct decisions an acceptable percentage of the time. Table 1 summarizes data completeness and

summarizes estimates of the primary data quality indicators of precision, accuracy, and bias at a national level. Comments about these tables follow. In addition, Table 2 provides QA summary information at the EPA Region, State and reporting organization level. The data evaluated in this report was extracted for the Air Quality System (AQS) from December 2006 through March 2007. Table 1 provides a summary of data completeness and estimates of the primary data quality indicators. Summary comments about these tables follow.

**Table 1. SLAMS National 3-Year Data Summary for Calendar Years 2002, 2003 and 2004**

Data Type	Completeness 3-Year Average	Acceptance Criteria	RO Meeting Criteria	3-Year Estimate
Routine Data (756)	64%*			
Average Capture Rate	92%			
Collocation Precision	90%	10%	89%	6.9%
Flow Rate Accuracy	83%	4%/5%	100%	0.15
Performance Evaluations	83%	$\pm$ 10%	84%	-2.11

\* 756 sites collected data in the 12 quarters from 2002 -2004. The 3-year average completeness information is based on this value

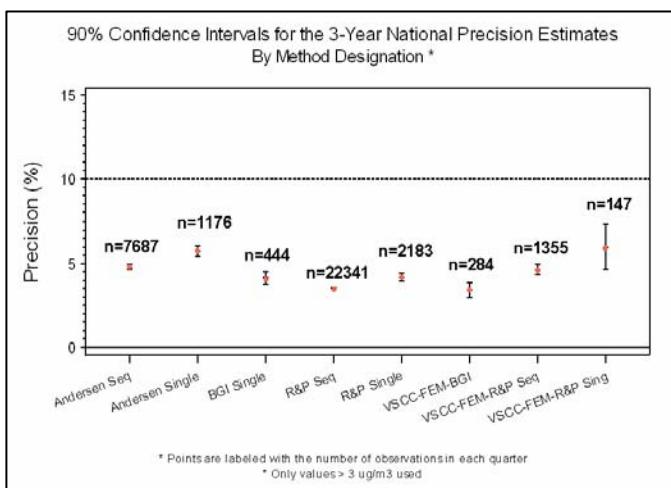
**Completeness** - Completeness is the percentage of data collected from the amount that were expected or required to be collected. For this report, routine data completeness has been assessed by two methods. The first method is based upon the strictest interpretation of the completeness requirement in *40 CFR 50, App N* that a site must collect 75% valid data in every quarter (12 quarters for the 3-year period) in order for comparison to the NAAQS. As Table 1 indicates, the 3-year routine completeness percentage is fairly low. Of the 756 samplers reporting data in all three years, 490 sampler operated at 75% or greater in every quarter. The second method of estimating routine data completeness is called average capture and is related to completeness during actual operation of a sampler based on the samplers start date and end date listed in AQS. The national 3-year average capture rate is 92%, which presents a different picture than the NAAQS required completeness. Once a site was operating it generally maintained an acceptable level of completeness even though there might have been a quarter or two where the 75% completeness was not achieved.

The completeness for the collocated precision, the flow rate accuracy check and the bias assessment (Performance Evaluation Program) are reasonable and very similar to the 1999-2001 3-Year assessment. However, individual reporting organizations can improve their collocated precision completeness and there are cases where the Performance Evaluation Program did not visit some reporting organizations at the required frequency. This also needs improvement.

## Precision, Accuracy, Bias Assessments

### Precision Assessment- (Collocated Precision Data)

Precision is the measure of mutual agreement among individual measurements of the same property. The precision data quality objective (DQO) is based on three years of precision data (75% complete). Therefore, any one year or any quarter may exceed the criteria and still meet the precision data quality objectives. The national precision estimate is 6.9 % CV and is based on over 35,000 collocated paired values where both values are  $> 3 \mu\text{g}/\text{m}^3$ . 12 of the 110 reporting organizations had precision CV's greater than the 10% DQO goal and 1 monitoring organization reported no data to estimate precision. No 3-year precision estimate for a reporting organization was greater than 17%.



**Figure 1. Mean and 90% intervals of 3-year precision estimates.**

precision in the 1999-2001 3-Year PM<sub>2.5</sub> QA Reports and the effect of precision on the PM<sub>2.5</sub> data quality objectives, OAQPS determined that the 25% site collocation requirement could be reduced to 15%. A Direct Final Rule was promulgated to this effect and was posted in the Federal Register, December 31, 2002. The 15% value was used in the estimate of precision completeness in Table 4.

### Accuracy Assessment (Quarterly Flow Rate Audit Data)

From a completeness standpoint, 83% of the samplers were audited at least 3 out of the 4 required audits. However, only 63% of the reporting organizations achieved the 75% acceptance requirement. The percentage of audits meeting the criterion (all method designations) of  $\pm 4\%$  of the audit standard was 95% and the percentage meeting the criterion of  $\pm 5\%$  of the 16.67 L/min design flow rate was 97%. There was some difference between the audit failure rates of the two major method designations. The Andersen sequential sampler failed the 4% criteria ~8% of the time; whereas the Rupprecht and Patashnick (R&P) sequential failed the 4% criteria ~3% of the time. However, due to the overwhelming acceptability of the audit results, EPA reduced the audit frequency from 4 audits/year to 2 audits/year starting in 2007. With this new audit frequency, it will be important and the audit completeness requirements are improved since there will be fewer audits required within the year.

OAQPS investigated whether there was any significant difference in precision for the various method designations. Figure 1 provides 3-year precision estimates and 90% confidence intervals for all 8 federal reference methods that operated in 2002-2004. The last three methods (far right) are method designations that were previously accepted but switched to the use of the very sharp cut cyclone instead on the WINS impactor. The values above the whisker indicate the number of paired collocated values that were used in the precision estimates. The precision

estimates are fairly similar and below the DQO. Based upon the assessments of

DQO. Based upon the assessments of

## Bias Assessment - (Performance Evaluation Program and Routine Data)

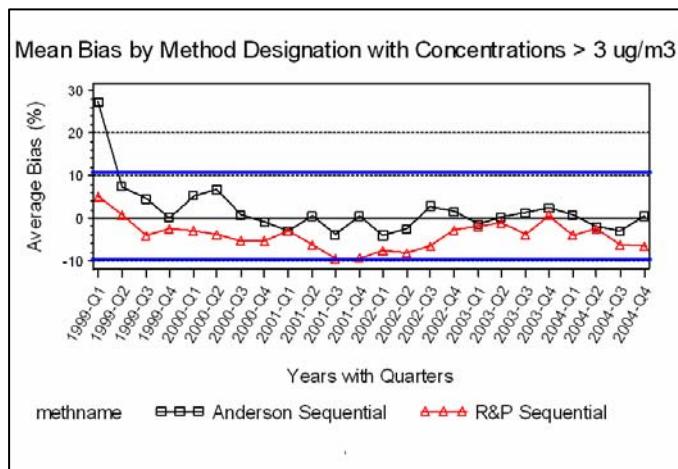


Figure 2. 6-Year bias estimate of the two major PM2.5 method designations

6-year bias evaluation is performed. In general, there was a downward trend toward a negative bias for the most used method designations over the first 3-year period (99-2001). This trend was more pronounced with the R & P Sequential sampler. With the exception of the first quarter in 1999, the two major method designations have been within the bias DQOs at a national level of estimation. By the third quarter of 2000, the Andersen sequential appeared to be providing unbiased estimates. The bias for the R&P sequential has had less variability from quarter to quarter but appeared to be trending down until about 2001. At that time, OAQPS, in cooperation with the State and Local monitoring organizations, started looking into the issue. Although there is no definitive reason for the change, it appears that corrective actions on the part of the State and Local monitoring organizations, and possibly the PM2.5 Performance Evaluation Program (PEP) operators, have shifted this downward trend and moved the bias back to the goal which is the “zero” bias line. There are only 16 reporting organizations that are exceeding the  $\pm 10\%$  DQO, and with the exception of 3 reporting organizations, the other 13 reporting organizations have bias estimates between 10 and 15%.

## Data Summary

Precision, accuracy and bias quality control requirements are being met at a national level which is a positive sign. However, uncertainty estimates at the reporting organization may require some attention. Of the 110 reporting organizations submitting PM<sub>2.5</sub> precision data to the AQS, 12 reporting organizations (10%) had precision estimates greater than the precision goal. Of the 103 reporting organizations submitting PM<sub>2.5</sub> bias data to the AQS and 16 (16%) had bias estimates greater than the bias goal. Table 2 provides a summary assessment, at the reporting organization and state level, of the data quality indicators of completeness, precision and bias.

As stated earlier, it is felt that the ambient air monitoring network, in general, has been operated in a manner so that decisions can be made within acceptable levels of uncertainty. Some improvements can be made on data completeness, and OAQPS will continue to pursue concerns about the bias trend.

Bias is the systematic or persistent distortion of a measurement process that causes errors in one direction. As with precision, the bias data quality objective is based on three years of bias data (75% complete). At a national level, the average bias is estimated at -2.1% and it appears that the bias data quality objective is being met. Figure 2 provides some detail for the two major method designations, the Andersen sequential and the R&P sequential, for the 6-year implementation period. These two method designations represent over 90% of the monitors in the PM<sub>2.5</sub> network. Although this report focuses on 2002-2004, it was thought that a longer bias trend should be reviewed, so in some cases in this report, a

## Summary Table

Table 2 summarizes the completeness and data quality indicators by EPA Region for 2002-2004 data. Statistics are presented at the State and reporting organization level. Details of how the estimates were generated are explained in Section 2 and Attachments 1-5. Data from both complete and incomplete sites are used to estimate the data quality indicators. If no data have been reported to AQS, the average percent completeness and data quality estimates will have NA (not applicable) indicated and the number of complete or operating sites will be 0.

For data completeness, highlighted boxes indicate that the state or reporting organization has an average data completeness that is less than 75%. For the data quality estimates, highlighted boxes indicate that the state or reporting organization has a precision estimate that is > 10% or a bias estimate that is > 10% or < -10%

The intent of this table is to help focus on where improvements to the quality system can be made. Incomplete data or data exceeding the acceptance criteria decrease the certainty one has in a mass estimate. One should not construe highlighted cells in Table 2 as implying that the data are invalid. The acceptance criteria are simply goals and are not limits by which one would consider the data unusable.

Table 2. 2002-2004 Summary Data Quality Statistics

EPA Region	State	Rep Org	Routine (Slams)		Precision		Bias	
			Ave. Capture %	Num. complete sites / Num operated 02-04	% Comp	CV	% Comp	Bias
01	CT	0251	91%	3/11	100%	6.9	100%	-1.4
01	MA	0660	83%	1/22	100%	14.5	100%	6.8
01	ME	0635	95%	6/6	100%	6.2	100%	14.7
01	NH	0762	96%	5/11	100%	8.9	100%	1.4
01	RI	0907	90%	0/6	100%	11.6	100%	1.8
01	VT	1119	94%	1/6	100%	4.3	100%	-3.8
02	NJ	0764	90%	11/20	94%	8.3	100%	-7.7
02	NY	0768	89%	11/40	94%	6.5	100%	-10.0
02	PR	0889	82%	0/10	63%	13.2	100%	-19.7
02	VI	1124	72%	0/2	0%	NA	100%	NA
03	DC	0350	93%	2/3	100%	8.6	100%	0.0
03	DE	0294	92%	5/7	100%	6.1	100%	-1.1
03	MD	1002	91%	8/19	81%	6.4	100%	-7.2
03	PA	0021	87%	2/8	100%	6.6	100%	12.7
03	PA	0851	93%	14/23	100%	4.7	100%	-1.2
03	PA	0861	88%	1/5	82%	8.4	100%	-1.9
03	VA	1127	93%	15/21	100%	7.3	100%	-4.5
03	WV	1150	96%	6/6	100%	2.9	100%	0.3
03	WV	1151	96%	5/5	100%	4.5	100%	-6.1
04	AL	0013	82%	5/14	100%	5.0	100%	1.8
04	AL	0300	96%	1/1	93%	2.6	56%	-7.1
04	AL	0550	98%	3/3	100%	4.1	67%	-0.1
04	FL	0121	90%	0/3	90%	5.0	0%	NA
04	FL	0274	93%	1/2	63%	7.0	0%	NA
04	FL	0391	91%	1/1	91%	8.7	44%	-10.3
04	FL	0392	97%	2/3	95%	5.9	100%	-11.0
04	FL	0393	93%	1/1	100%	5.0	44%	-10.7
04	FL	0394	94%	0/1	76%	8.5	0%	
04	FL	0395	93%	1/2	87%	8.2	89%	-7.2
04	FL	0396	95%	3/4	95%	6.2	100%	-3.7
04	FL	0491	95%	1/2	88%	5.9	100%	-0.8
04	FL	0544	91%	1/2	76%	4.2	89%	-6.7
04	FL	0820	93%	0/2	79%	5.2	78%	-9.1
04	FL	0833	86%	0/2	68%	7.8	0%	NA
04	FL	0867	94%	1/3	100%	5.2	100%	-10.2
04	FL	0951	93%	0/1	84%	7.9	44%	-19.2
04	FL	1224	93%	2/2	100%	4.6	44%	-9.4
04	FL	1226	95%	1/1	70%	6.2	44%	-1.6
04	GA	0437	91%	16/23	81%	5.2	98%	-0.6
04	KY	0549	90%	2/3	100%	6.3	44%	0.0
04	KY	0584	92%	9/17	100%	6.3	100%	-5.9
04	MS	0703	91%	4/16	88%	6.9	100%	-7.3
04	NC	0403	90%	1/2	100%	4.8	89%	-1.1
04	NC	0669	96%	3/3	85%	4.4	100%	1.1
04	NC	0776	94%	16/23	100%	8.0	100%	-5.9
04	NC	0779	94%	1/1	84%	7.2	0%	NA
04	SC	0971	92%	6/14	100%	4.5	100%	-3.9
04	TN	0170	88%	0/1	100%	2.9	89%	-3.9
04	TN	0581	89%	1/3	78%	5.7	44%	1.2
04	TN	0673	94%	4/4	80%	7.1	100%	-10.3
04	TN	0682	68%	0/3	85%	7.1	89%	-6.0
04	TN	1025	92%	4/6	100%	6.1	72%	-7.5
05	IL	0258	93%	7/9	100%	8.9	61%	1.5
05	IL	0513	94%	22/26	100%	8.4	0%	-4.8
05	IN	0520	93%	23/34	85%	5.6	100%	1.7
05	IN	0523	94%	5/7	100%	4.7	86%	2.6
05	MI	0685	92%	19/26	100%	7.2	100%	-1.2

Table 2. 2002-2004 Summary Data Quality Statistics

EPA Region	State	Rep Org	Routine (Slams)		Precision		Bias	
			Ave. Capture % Num. complete sites / Num operated 02-04	% Comp	CV	% Comp	Bias	
05	MN	0700	93%	12/19	100%	8.1	74%	-4.1
05	OH	0012	90%	2/3	93%	4.0	100%	-2.1
05	OH	0151	90%	0/2	87%	4.9	100%	-0.7
05	OH	0220	97%	3/3	82%	8.1	89%	10.8
05	OH	0229	93%	6/9	100%	7.5	100%	-3.6
05	OH	0287	88%	2/5	82%	5.5	100%	-5.5
05	OH	0595	92%	1/1	85%	5.7	67%	3.8
05	OH	0634	95%	2/3	88%	3.7	100%	-0.4
05	OH	0805	95%	2/3	88%	14.8	89%	-9.8
05	OH	0807	91%	1/2	73%	7.0	100%	-4.9
05	OH	0809	90%	0/4	72%	6.4	44%	0.8
05	OH	0880	97%	2/2	81%	8.2	100%	-4.5
05	OH	1259	96%	8/11	100%	3.1	96%	-4.5
05	WI	1175	94%	7/23	100%	5.2	75%	-0.6
06	AR	0055	85%	10/24	100%	4.4	100%	-0.9
06	LA	1001	93%	11/21	89%	6.9	100%	-14.3
06	NM	0017	92%	2/2	100%	7.2	100%	5.3
06	OK	0812	95%	4/5	34%	6.2	100%	-10.5
06	TX	1035	87%	16/48	100%	7.9	100%	-5.0
07	IA	0613	97%	1/3	100%	4.9	100%	-10.3
07	IA	0874	93%	2/4	100%	4.5	89%	-4.8
07	IA	1080	96%	9/12	100%	5.9	100%	-8.7
07	KS	0563	95%	9/12	100%	8.5	100%	-3.5
07	MO	0561	91%	0/4	76%	3.7	89%	-8.3
07	MO	0588	93%	6/11	100%	3.2	100%	-2.7
07	MO	0986	99%	1/1	99%	4.2	89%	-0.1
07	MO	0990	97%	3/3	100%	3.6	100%	-7.7
07	MO	0992	97%	2/3	87%	4.4	100%	-7.0
07	NE	0752	90%	1/8	88%	9.7	100%	-9.3
07	NE	0816	87%	0/5	100%	10.9	100%	0.4
08	CO	0240	92%	8/14	100%	9.7	100%	7.0
08	MT	0730	85%	0/10	100%	7.6	100%	1.8
08	ND	0782	96%	5/7	100%	6.9	100%	8.0
08	SD	0973	97%	8/12	100%	11.1	100%	32.6
08	UT	1113	97%	6/10	100%	7.7	100%	9.4
08	WY	1188	89%	3/5	95%	5.6	100%	8.7
09	AZ	0053	87%	1/7	100%	15.8	100%	14.6
09	AZ	0864	97%	2/2	84%	16.7	100%	-12.7
09	CA	0042	91%	0/1	0%	NA	0%	NA
09	CA	0086	95%	10/15	0%	5.4	100%	3.3
09	CA	0145	85%	8/21	100%	10.7	100%	-0.8
09	CA	0458	75%	0/2	20%	8.2	56%	-2.4
09	CA	0709	89%	0/1	43%	16.2	44%	4.8
09	CA	0942	85%	3/10	59%	5.4	96%	-0.3
09	CA	0972	86%	6/17	100%	4.7	100%	4.4
09	CA	1118	88%	10/16	100%	6.7	100%	2.2
09	HI	0481	87%	2/5	100%	13.5	100%	-4.5
09	NV	0145	100%	0/2	0%	NA	0%	NA
09	NV	0226	94%	4/5	58%	11.3	89%	-0.9
09	NV	1138	97%	1/1	100%	2.5	100%	6.7
10	AK	0015	92%	2/7	100%	9.7	100%	4.0
10	ID	0511	96%	3/12	100%	6.3	100%	-5.0
10	OR	0821	92%	8/28	100%	4.5	100%	-6.5
10	WA	1136	92%	6/20	100%	4.8	100%	-2.5

## 1. Introduction

The QA Report should be viewed as a 3-year evaluation to determine whether or not the PM<sub>2.5</sub> monitoring network is providing data of acceptable quality for its primary use, the comparison of routine ambient air quality data to the national ambient air quality standards (NAAQS). The Report will evaluate adherence to the quality assurance requirements described in 40 CFR 58 Appendix A and assess the data quality indicators of completeness, precision, accuracy, and bias for the calendar years 2002, 2003 and 2004. From this standpoint the report provides a retrospective view on data quality. However, the report will also look at various trends in the data and will take a prospective view on what the more recent data quality is telling the data user.

Data used in this report was extracted from the Air Quality Subsystem (AQS) from December 2006 through March of 2007 and is for SLAMS sites reporting PM<sub>2.5</sub> data that are collected using the method designation codes 116-120 and 142-145.

Most of the data quality indicator evaluations will be at the national and reporting organization level of aggregation with some evaluations occurring at the method designation site level.

## Organization of QA Report

The report has been organized into 2 main sections:

- ▶ **Section 1:** Overview of the PM<sub>2.5</sub> monitoring program, and the implementation aspects of the quality system relative to the quality assurance requirements described in 40 CFR 58 App A.
- ▶ **Section 2:** Results of the data quality assessment.

In addition, there are 5 attachments that provide much more information at the site and reporting organization level of aggregation that could not be explained in any detail in the sections.

Conclusions of the data quality assessment results and recommendations based upon experiences of three years of implementation are provided in the executive summary.

## Program Overview

The criteria pollutant defined as “particulate matter” is a general term used to describe a broad class of substances that exist as liquid or solid particles over a wide range of sizes. As part of the ambient air quality monitoring program, two particle size fractions are measured; those less than or equal to [a nominal] 10 micrometers, and those less than or equal to [a nominal] 2.5 micrometers, hereafter referred to as PM<sub>10</sub> or PM<sub>2.5</sub> respectively.

The background and rationale for the implementation of the PM<sub>2.5</sub> ambient air monitoring can be found in the *Federal Register* 40 CFR 50 July 18, 1997. In general, the measurement goal of the PM<sub>2.5</sub> network is to estimate the concentration, in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), of particulate matter less than or equal to [a nominal] 2.5 micrometers ( $\mu\text{m}$ ) aerodynamic diameter collected over a 24 hour period.

A major objective for the collection of the data is to compare PM<sub>2.5</sub> concentrations to the annual (15.0  $\mu\text{g}/\text{m}^3$  annual arithmetic mean concentration) and 24-hour (65  $\mu\text{g}/\text{m}^3$  24-hour average concentration) NAAQS. Although a new 24-hour NAAQS (35  $\mu\text{g}/\text{m}^3$ ) was promulgated on October 17, 2006 the data collected in 2002-2004 was collected under the July 18, 1997 promulgation. Therefore the statistical calculations in this report will be based on the regulations prior to the Oct 17, 2006 revision.

As described in the following section (DQOs), OAQPS designed a quality system based upon the primary objective of the network, which was the comparison of data to the NAAQS. For this comparison, State, Tribal, and Local monitoring organizations are required to sample using a Federal Reference Method (FRM) or Federal Equivalent Method (FEM). The description of the PM<sub>2.5</sub> FRM is included in *40 CFR 50, App. L*, published as a final rule in the *Federal Register* on July 18, 1997. There are a number of designated federal reference and equivalent method samplers at this time whose descriptions can be found on the AMTIC Website in (<http://www.epa.gov/ttn/amtic/pmfrm.html>) All PM<sub>2.5</sub> sampling sites that provide data for comparison to either the 24-hour or the annual PM<sub>2.5</sub> NAAQS for the purposes of addressing attainment and nonattainment decisions must employ designated FRM/FEM sampling techniques.

## PM<sub>2.5</sub> Data Quality Objectives (DQOs)

DQOs are qualitative and quantitative statements derived from the DQO Process that clarify the monitoring objectives, define the appropriate type of data, and specify the tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions. The PM<sub>2.5</sub> DQOs are based on the desire of the decision maker(s) to estimate the annual concentration at a site within acceptable levels of error, especially when the annual concentration is near the NAAQS of 15.0  $\mu\text{g}/\text{m}^3$ .

The DQO Process is an iterative, statistics-based process which allows the decision maker to balance tolerable decision errors with the costs of increased data certainty (i.e., more precise or unbiased data, higher sampling frequencies, or larger networks). In order to provide the decision makers information on the various data quality tradeoffs, the DQO Process often uses power curves. The 1999-2001 PM<sub>2.5</sub> QA Report<sup>1</sup> provides a detailed description of the process that was employed to develop the PM<sub>2.5</sub> DQOs.

## Data Quality Indicators

Once a DQO is established, the quality of the data must be measured and evaluated to ensure that it is maintained within the established acceptance criteria. Measurement quality objectives are designed to evaluate and control various phases (sampling, preparation, analysis) of the measurement process to ensure that total measurement uncertainty is within the range prescribed

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<sup>1</sup> Year Quality Assurance Report for Calendar Years 1999, 2000, and 2001 -- The SLAMS PM<sub>2.5</sub> Ambient Air Monitoring Program  
<http://www.epa.gov/ttn/amtic/cy9901qa.html>

by the DQOs. The quality of data in a database can be summarized in terms of the following data quality indicators:

**Completeness** - a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct, normal conditions. Data completeness requirements are included in the reference methods (*40 CFR 50*). The completeness goal for both routine data and QA data was established at 75%

**Precision** - a measure of mutual agreement among individual measurements of the same property usually under prescribed similar conditions. This is the random component of error. Precision is estimated using collocated instruments at 25% of sites within a reporting organization (*40 CFR Part 58 Appendix A*). The measurement precision goal was 10% coefficient of variation (CV) aggregated over a 3-year period for each reporting organization

**Bias** - the systematic or persistent distortion of a measurement process which causes error in one direction. Bias will be determined by estimating the positive and negative deviation from the true value as a percentage of the true value. Bias is estimated using collocated instruments that are set up by independent contractors at 25% of the sites within a reporting organizations. The program that provides this service is called the Performance Evaluation Program (PEP) (*40 CFR Part 58 Appendix A*) The measurement bias goal was  $\pm 10\%$  aggregated over a 3-year period for each reporting organization

**Comparability** - a measure of confidence with which one data set can be compared to another. Comparability will not be addressed in this document. Comparability can be assessed using the PEP data.

**Representativeness** - a measure of the degree which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness, which deals mainly the population variability indicators (spatial and temporal variability), will not be addressed in this document.

**Accuracy** has been a term frequently used to represent closeness to “truth” and includes a combination of precision and bias error components. This term has been used throughout the CFR. In this report, accuracy refers to errors in flow rate only.

The results of the assessments of the data quality indicators: completeness, precision, accuracy (flow rate) and bias will be discussed in Section 2.

## ***Section 2 Assessment of Data Quality Indicators***

This section will provide an assessment of the data quality indicators of completeness, precision, accuracy and bias for the calendar years 2002, 2003 and 2004. All assessments were performed on data extracted from AQS from July through December 2006 for SLAMS sites reporting PM<sub>2.5</sub> data that are collected using federal reference methods or equivalent methods.

### **Data Completeness**

This section will evaluate the completeness statistics for routine SLAMS PM<sub>2.5</sub> concentration data and the quality assurance data for collocated precision, quarterly flow rate audits, and the bias data from the Performance Evaluation Program.

#### **Completeness - Routine SLAMS Data**

Table 2-1 provides an estimate of 3-year routine data completeness for all operating samplers designated as SLAMS (POC-1). Figures 2.1 and 2.2 provide a geographic illustration of the information in Figure 2.1. In addition, Attachment 1 provides a listing of completeness at the site level of detail.

**Table 2-1 2002-2004 Routine PM<sub>2.5</sub> Data Completeness Summary**

Monitor Type	Samplers Reporting Data 02-04	Samplers Reporting Data all 3 Years	Samplers with all quarters 75% Complete	% Completeness Samplers 75% Complete to Samplers Reporting Data all three years	Data Capture Rate of Sampler Reporting Data in all 3 years
<b>SLAMS</b>	992	756	490	64 %	92%
<b>Tribal</b>	25	15	7	47%	90%
<b>Total</b>	1017	771	497	64%	92%

Completeness was assessed by two methods: 1) as it relates to the strictest requirement in the code of federal regulations, and 2) by performance. Table 2-1 illustrates that during some part of the 3-year time period 1017 SLAMS or Tribal samplers with a unique AQS site ID (POC-1 and 3 POC-2 samplers) reported data. However, within the 3-year period, 246 samplers either started up after the first quarter of 2002 or shut down (more often the case) before the fourth quarter of 2004. Of those 771 samplers that remained operating all three years, 497 samplers or 64% met the CFR completeness criteria of maintaining 75% completeness in all quarters (12 quarters). It must be mentioned that non attainment decisions can be made with less information than the 75% completeness requirement. Information on completeness using these exceptions are not generated for this report but are described in design value reports.

A second method of estimating completeness is called “capture rate”. Average capture for a site is calculated starting from the first data point submitted to AQS and ending at either the end of CY2004 or the sampling end date for that sampler. As an example, if a sampler started reporting data midway through a quarter, the completeness estimate would not be based on the number of values expected in the full quarter but only the number of values expected from the sampler start date to the end of the quarter (based on the site’s identified sampling frequency). This completeness estimate is not related to the data requirements for comparison to the NAAQS but can provide a more technical evaluation of data collection performance and can be used to show

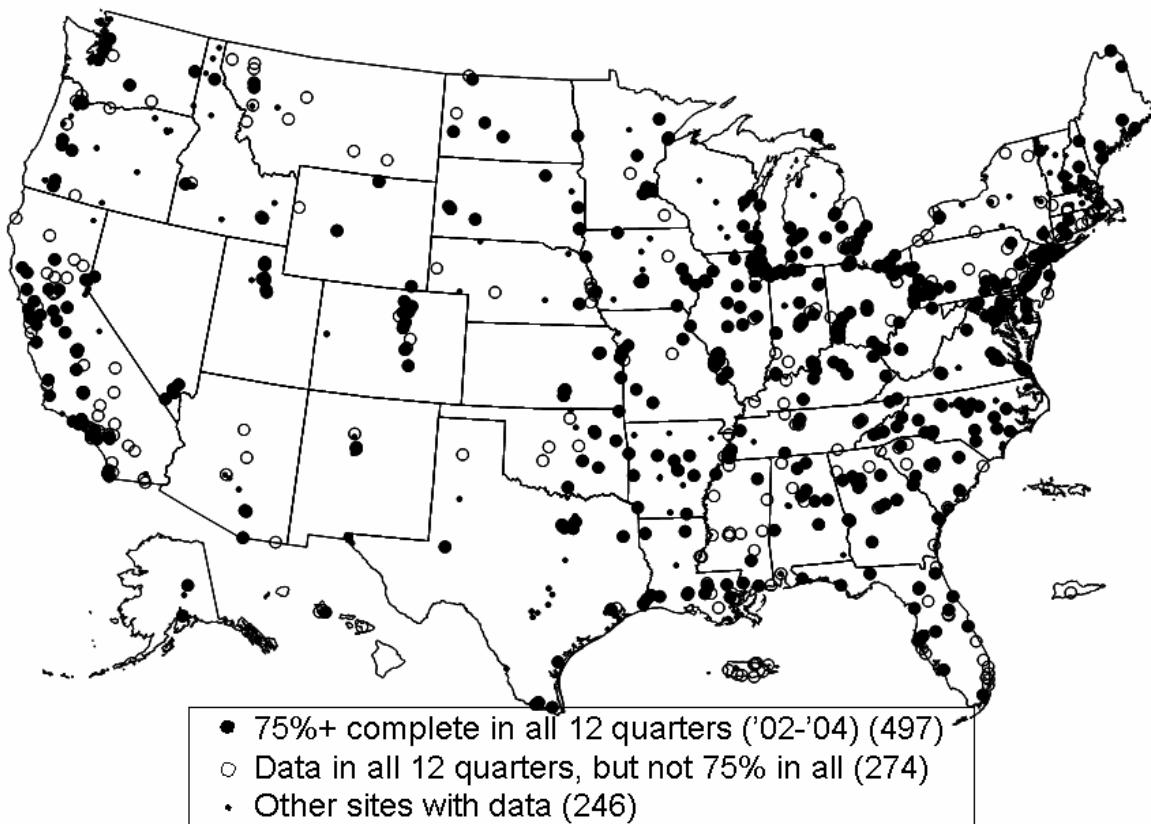


Figure 2.1 2002-2004 PM2.5 SLAMS & Tribal FRM Data Completeness

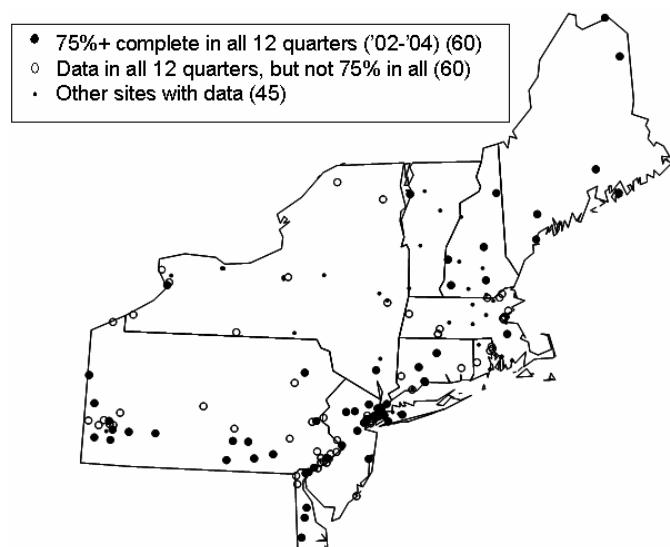


Figure 2.2 2002-2004 PM2.5 SLAMS & Tribal FRM Data Completeness for the Northeast  
completeness all 12 quarters (3-year period).

improvement over time. Attachment 1 provides capture rates for each sampler at quarterly, annual and 3-year levels of aggregation. The national average capture rate for the samplers in the monitoring organizations operating SLAMS monitors was 92% and Tribal monitors was 90%. In addition, this capture rate has held steady across all three years. In general, the data seem to indicate that once a site was operating, it generally maintained an acceptable level of completeness for most quarters. However, the 64% SLAMS completeness, relative to the CFR requirement, suggests it is still difficult to maintain samplers at 75%

## Completeness - Collocated Precision

In December 2002, based upon the 1999-2001 PM<sub>2.5</sub> data quality assessment, the collocated precision requirement was changed from collocating 25% of the routine monitoring sites to 15%. The 1-in-6 day collocated sampling frequency remained in place which requires approximately 15 collocated pair values per quarter or 11 precision values per quarter to meet the 75% completeness requirement. Table 2-2 provides the 3-year collocated precision completeness information by EPA Region. Attachments 2 and 3 provide 3-year site precision information for each collocated site and aggregated by reporting organization and EPA Region. As reported during the routine data completeness assessment, there were 246 samplers that operated during some portion of the 3-year assessment period. These samplers, if counted within the reporting organization, would affect how many collocated sites were estimated as required for a reporting organization. In order to provide an equitable assessment of the total number of sites operating over the 3-year period, only sites operating 6 complete quarters (18 months) were counted in the 3-year estimate.

**Table 2-2 2002-2004 PM2.4 Collocated Precision Completeness Aggregated by EPA Region**

Region	Number of Sites <sup>1</sup>	# of Required Collocated Sites	# of Collocated Sites	Average Reporting Org. Completeness
1	55	9	18	100%
2	56	10	12	63%
3	94	15	24	96%
4	165	42	64	89%
5	170	32	53	90%
6	71	12	27	85%
7	59	14	24	95%
8	51	7	18	99%
9	95	18	30	80%
10	50	8	21	100%
<b>Total</b>	<b>866</b>	<b>167</b>	<b>291</b>	<b>90%<sup>2</sup></b>

1= Site totaled by reporting organization who had site operating for at least 6 quarters

2= Average derived from completeness percent of individual reporting organizations not Regions

The total (column 4) appears to indicate that more collocated sites were operated than required. This might be explained by reporting organizations that accounted for its portion of the 246 sites or by the fact that the 15% requirement took effect at the end of CY2002 and some organizations may have kept its collocated requirement at 25% instead of reducing to 15%. In addition, the 15% collocation requirement is by method designation rather than just by the number of sites within a reporting organization. Therefore, if a reporting organization was operating more than one method designation, they would be required to have 15% collocation in each method designation which would tend to increase the number of collocated monitors.

The last column in Table 2-2 provides an estimate of the average collocation completeness of the reporting organizations within each region. Details of the collocation completeness values for each reporting organization can be found in Attachments 2 and 3. The 90% average completeness in the total row was estimated by averaging the completeness percentages from each reporting organization (not by Region). From a national average perspective, the 75% completeness goal has been met. However, there are a few of reporting organizations that fell short of this goal.

## Completeness - Flow Rate Audits

The State and local monitoring organizations are required to perform and submit flow rate accuracy audits on all their routine samplers every quarter. Table 2-3 present the 3-year estimates of flow rate completeness at the sampler and reporting organization level. Attachment 4 presents the flow rate completeness information for the 3 years of data collection for the SLAMS sites (POC-1). Completeness is based on each samplers start and end date. Of the 926 sites submitting data in the 2002-2004 time period, 161 samplers or about 17% of the sites did not meet the 75% completeness criteria. However, these 161 sites did affect the completeness estimates at the reporting organization level. Of the 112 reporting organizations reporting data for PM<sub>2.5</sub> SLAMS samplers, 41 reporting organizations or 37% did not meet the 75% completeness criteria. The 83% completeness level estimate at the sampler level is very similar to the 2002 and 2003 estimates reported in the 1999-2001 QA Report.

**Table 2-3 Flow Rate completeness by Sampler and Reporting Organization**

Type	Total number	Number < 75% Complete	Completeness
Routine Sampler	926	161	83%
Reporting Organizations	112	41	63%

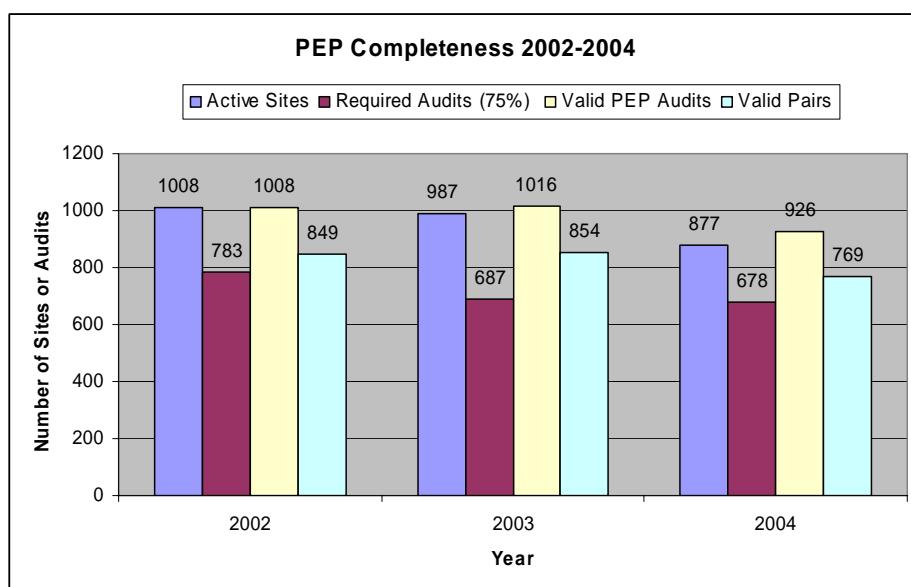
## Completeness - Bias - Performance Evaluation Program (PEP) and Routine Data Pairs

The bias data completeness estimate is based on two different organizations collecting the data, the Environmental Services Assistance Team (ESAT) contractors who collect the PEP data, and the monitoring organizations, that collect the routine data. Therefore, completeness will be discussed based upon PEP data completeness and then the completeness of the PEP/routine data bias pairs. Figure 2.3 represents the 2002-2004 PEP completeness estimates. A complementary 3-year QA report for the PEP will provide more detailed information on PEP data completeness.

### PEP Data Completeness –

The completeness goal of the PEP is to collect data from 25% of each method designation in a reporting organization at a frequency of 4 times per year (once per quarter). For a national estimate, the number of active SLAMS sites operating in each year: 1008, 987 and 877 respectively for the years 2002-2004 (column 1 in Figure 2.3), will be used for the completeness assessment. Active sites were defined as:

- PM<sub>2.5</sub> sites identified as NAMS, SLAMS or PAMS (no monitors designated as “other”),
- using a method designated as FRM or FEM (speciation monitors are not counted because they are not considered FRM/FEM),
- using only one pollution occurrence code (collocated monitors are not counted),
- providing at least one value in the year,
- and being with the associated reporting organization for at least 1 day within the calendar year.



**Figure 2.3 PEP Completeness, national assessment**

affect the analysis. In light of these issues, the information provided is a reasonable assessment, and provides some assurance that the PEP is providing audits at reasonable levels of completeness for most reporting organizations.

If the PEP audits were 100% complete one would expect the same number of audits each year as the active number of sites since 25% of the sites are audited four times a year. The first column in Figure 2.3 represents this site visit goal. The PEP completeness goal is for 75% of the samples (3 out of the 4 expected samples) be valid for each site each year. The second column in Figure 2.3 represents the 75% requirement but it is based on estimates of sites at each reporting organization so it does not exactly equate to 75% of the active site number. The third column represents the valid PEP audits for each year. Audits over the active number of sites might suggest that the PEP visited more sites than required but these extra visits likely are due to the fact that the 25% visit goal is based on reporting organizations which tend to slightly increase the number of site visits over the national estimate. Attachment 5 provides more detailed information on PEP completeness at the reporting organization and state level of aggregation. Many states are one reporting organization but there are some that have multiple reporting organizations. Those states that have multiple reporting organizations are indicated in the state column as the state abbreviation followed by the term "Total". Out of the 53 States and territories, 6 states in 2002, 9 states in 2003, and 5 states in 2004 did not meet the PEP audit completeness for the goals and in most cases they incomplete by only a few audits. In 2005, Region 4 redirected its PEP contractors and PEP sampling equipment to help with emergency monitoring in Louisiana in the aftermath of Hurricane Katrina. Some incompleteness in Region 4 in 2005, particularly in Georgia, was due to this emergency monitoring effort. In addition there are some reporting organizations where PEP audits were not performed. The PEP needs to improve completeness in these circumstances.

Sites that were discontinued in a year were counted in this analysis as active for the entire year. This would cause an overestimate in the required number of audits for that particular reporting organization. There may also be sites that were transferred from one monitoring organization to another that were not reported to AQS which would also

### **PEP/Routine Sample Completeness –**

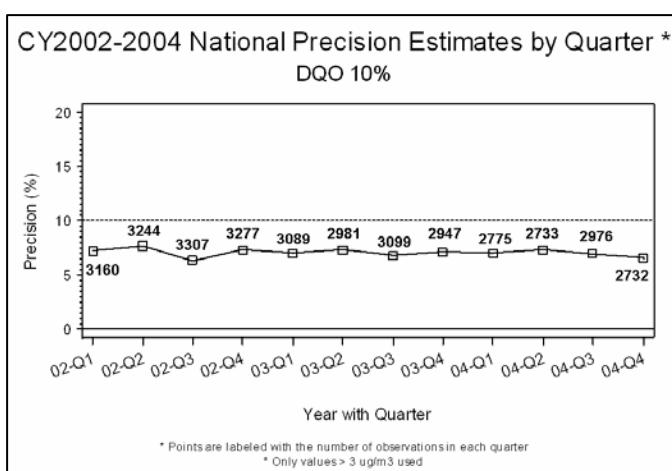
For every PEP value there must be a corresponding valid routine value to be able to calculate bias. Table 2.4 represents the completeness estimates of the PEP/routine data pairs. The fourth column for each year in Figure 2.3 represents the number of valid PEP/routine pairs. Completeness for the years 2002-2004 was 84%, 85% and 83% respectively.

**Table 2-4 PEP and Routine Data Comparison**

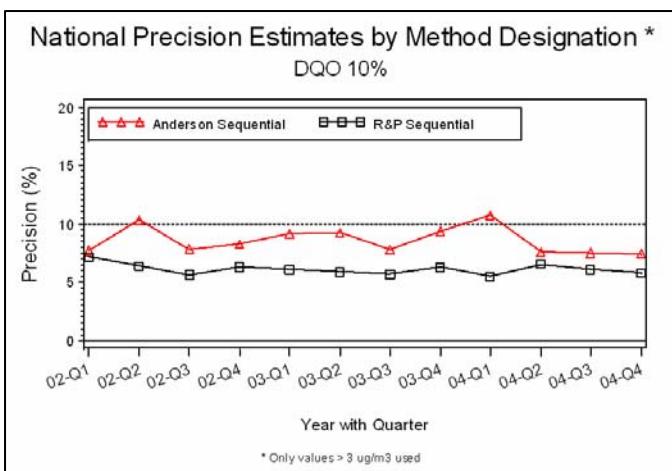
Year	Valid PEP Samples Collected	Valid PEP/Routine Sample Pairs	Data Loss	Loss %	Samples < 3 ug/m <sup>3</sup>	<3 ug/m <sup>3</sup> Data Loss %	Final Pairs > 3 ug/m <sup>3</sup>
2002	1008	877	131	13%	28	3%	849
2003	1016	879	137	13%	25	3%	854
2004	926	808	118	13%	39	5%	769
<b>Tot</b>	<b>2950</b>	<b>2564</b>	<b>386</b>	<b>13%</b>	<b>92</b>	<b>4%</b>	<b>2472</b>

The 13% data loss each year (5<sup>th</sup> column Table 2-4) from the valid PEP samples to the valid PEP/routine sample pairs completeness means that there was no corresponding state routine sample concentration to be paired with the PEP sample concentration. This data loss can be attributed to the PEP program making visits on a day that the routine monitor was not operating, data entry problems in either monitoring program (usually problems with sample date or AQS site ID), data invalidation or subsequent loss of data from the routine monitoring program. Over the three year period the total data loss (386values) compared to the total valid PEP values (2950) represents a 13% loss of valid PEP data. The data loss represent and improvement over the CY1999-2001 time period where a 20% total data loss (652 values) was identified.

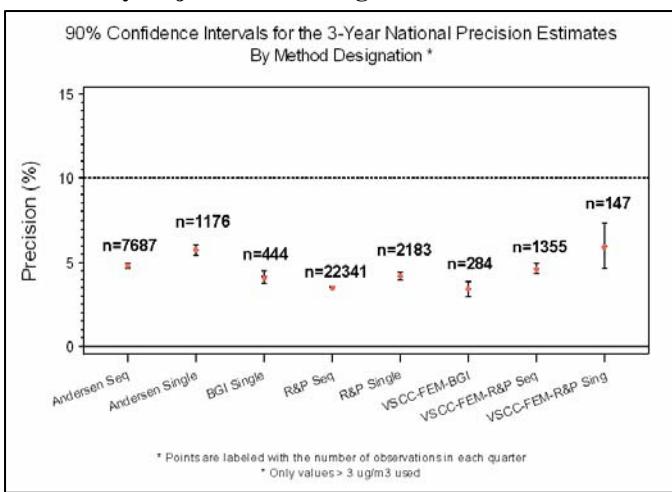
In addition to the sample losses mentioned above, bias is estimated only when both the PEP and routine sample concentrations are above 3  $\mu\text{g}/\text{m}^3$ . This criteria is the same for the collocated precision estimates. At the start of the PM<sub>2.5</sub> program, CFR initially required a 6 $\mu\text{g}/\text{m}^3$  cut-off value. This value was in effect for the 1999-2001 QA Report. During the data quality assessment for that report it was found that this value could be lowered to 3  $\mu\text{g}/\text{m}^3$  without affecting the bias estimate. With the new cutoff limit, the data loss due to values (either routine or PEP) below 3  $\mu\text{g}/\text{m}^3$  averaged 4% for the 3-year period. This is a marked improvement over the 1999-2001 time period where another 20% of the data was removed prior to bias assessment. As will be seen during the bias assessment, reducing the cutoff from 6  $\mu\text{g}/\text{m}^3$  to 3  $\mu\text{g}/\text{m}^3$  did not affect the bias assessments.



**Figure 2.4** National 3-year PM<sub>2.5</sub> Collocated precision estimate



**Figure 2.5** National 3-year PM<sub>2.5</sub> Collocated precision estimate by major method designation



**Figure 2.6** Mean and 90% confidence intervals of 3-year precision estimates by method designation

**State/ Reporting Organization Precision** The DQO for precision is established using three

## Precision - Collocated Sampling

### National Precision Estimates-

The collocated precision results are estimated using collocated paired data that have both concentration values greater than 3  $\mu\text{g}/\text{m}^3$ . Figure 2.4 provides the national estimate of precision for each quarter for calendar years 2002, 2003 and 2004. Values above each quarterly data point represent the number of precision pairs from which the precision estimates were derived. For the 3-year time period, the precision estimates at the national level of data aggregation are within the 10% DQO and are consistently around 7% coefficient of variation. Figure 2.5 illustrates the precision results for the two major method designations, the R & P sequential and the Andersen sequential instruments. Both instruments, in general, are producing acceptable precision results with the Andersen instrument producing somewhat greater imprecision. Figure 2.6 provides mean 3-year precision estimates and 90% confidence intervals for all 8 federal reference or equivalent methods that operated in the 2002-2004 time period. The precision estimates are fairly similar and all are below the 10% DQO. In 2005, federal equivalent method (FEM) designations were approved for samplers using the very sharp cut cyclone (VSCC). The precision data was evaluated separately for these instruments to determine if there might be any difference in precision using the VSCC. Although there are fewer collocated values for these samplers (only 147 for the R&P Single channel) which would tend to increase the width of the 90% confidence intervals, the precision estimates are similar to the FRM method designations.

years of data at the reporting organization level. In many cases, a state and reporting organization are synonymous. States that contain more than one reporting organization had their precision estimates aggregated by weighting based upon the number of monitoring sites within each reporting organization. Attachments 2 and 3 present the 3-year precision estimates for each reporting organization. The national precision estimate is 6.9 % CV and is based on over 35,000 collocated paired values where both values are  $> 3 \mu\text{g}/\text{m}^3$ . 12 of the 110 reporting organizations had precision CV's greater than the 10% DQO goal and 1 monitoring organization reported no data to estimate precision. No 3-year precision estimate for a reporting organization was greater than 17%.

## Accuracy - Flow Rate Audits

There are two acceptance criteria for flow rate: 1) the flow rate measured by the FRM must be within 4% of the flow rate measured by an independent transfer standard, and 2) the flow rate measured by the FRM instrument must be within 5% of the 16.67 L/min design flow rate. The accuracy data from the flow rate audits indicate that the federal reference method samplers are operating within the acceptance requirements. Table 2-5 provides a 3-year summary of the instruments providing flow rate data to AQS.

**Table 2-5 2002-2004 Flow Rate Audit Assessment by Method Designation**

FRM/FEM	Number of Audits	Number > $\pm 4\%$	% > $\pm 4\%$	Number > 5% of 16.67 LPM	% > $\pm 5\%$	Average Accuracy
116-BGI Single	580	7	1.21	2	0.34	0.52
117- R&P Single	1396	53	3.80	15	1.07	-0.08
118 - R&P Sequential	12156	326	2.68	96	0.79	0.04
119 - Andersen Single	678	31	4.57	11	1.62	0.02
120 – Andersen Sequential	3640	274	7.53	67	1.84	0.17
<b>VSCC</b>						
142 – BGI	353	13	3.68	3	0.85	0.25
143 – R&P Single	145	4	2.76	0	0.00	-0.22
145 – R&P Sequential	904	9	1.00	2	0.22	0.32
<b>National Estimate</b>	<b>19852</b>	<b>717</b>	<b>3.61</b>	<b>196</b>	<b>0.99</b>	<b>0.15</b>

At a national level, about 96% of the audits met the 4% transfer standard criteria and 99% met the 5% design flow rate criteria. Two method designations, the Andersen single and the Andersen sequential, had a higher frequency of non-acceptance than the other method designations.

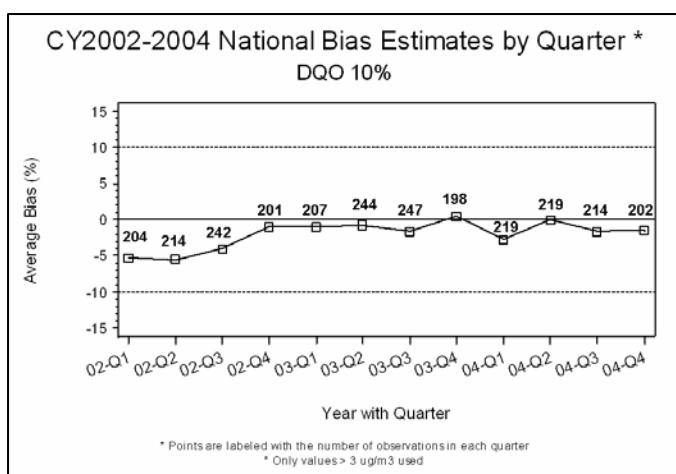


Figure 2.7 3-Year nation PM2.5 bias estimate.

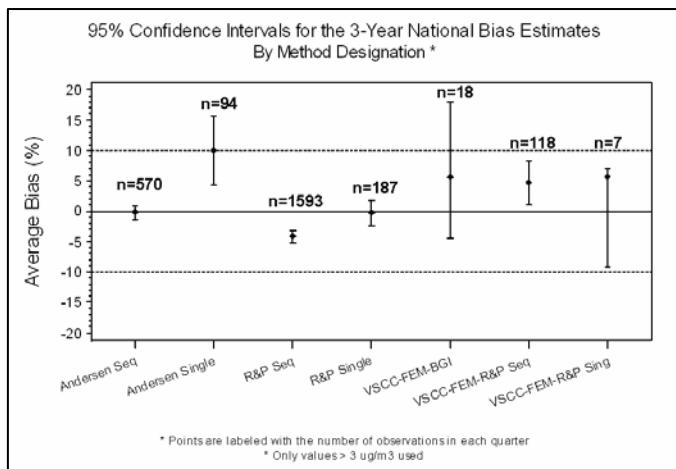


Figure 2.8 Mean and 95% confidence intervals of 3-year bias estimates by method designation

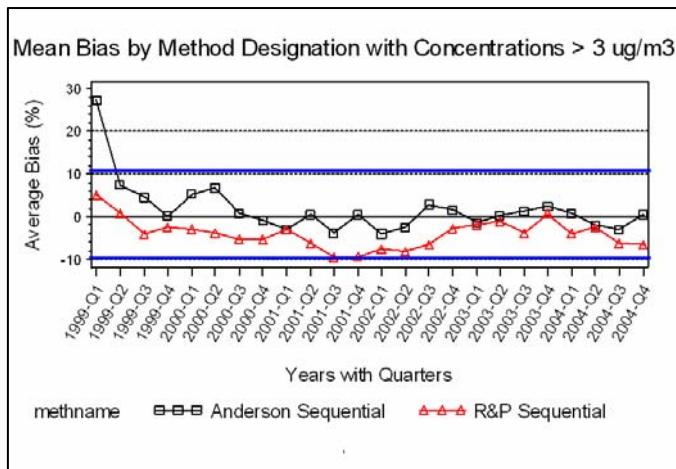


Figure 2.9 National 6-year bias estimate by major method designation

provide a better review of any trends that might be occurring. With the exception of the first

## Bias- Performance Evaluation Program and Routine Data

### National Bias Estimates

Figure 2.7 provides 3-year national bias estimates for all method designations operating in that time period. The overwhelming majority of these bias estimates are made by comparing the routine data using PEP BGI portable FRM audit samplers. The estimates in Figure 2.7 are based on all available pairs, excluding pairs that had one or both sample concentrations less than or equal to  $3\mu\text{g}/\text{m}^3$ . The values next to each quarterly point represent the number of routine/PEP pairs from which the quarterly bias estimates were derived. For the data available in AQS, it appears that the DQO, at a national level, is being achieved with a 3-year national bias estimate of -2.11%. Figure 2.8 provides mean bias estimates and 95% confidence intervals for all federal reference methods used in the NAMS/SLAMS monitoring program during 2002-2004. All but one method designations are within the  $\pm 10\%$  DQO with the Andersen single channel instrument averaging very close to the positive 10% bias DQO. However, the two major samplers, the R&P sequential and the Andersen sequential, were well within the DQO bounds with the Andersen appearing to have little bias and the R&P appearing to have a somewhat negative bias. Confidence intervals for the VSCC instruments are large(wide) due to the infrequent use of the instruments in the network and therefore the small number of paired PEP/routine values available for the bias estimate. Figure 2.9 provides further bias detail for the two major method designations, the Andersen sequential and the R&P sequential. In this case, six years of data are displayed to

quarter in 1999, the two major method designations have remained within the bias DQOs at a national level of estimation for these six years. By the third quarter of 2000, the Andersen sequential FRM would appear to be providing unbiased estimates. The bias for the R&P FRM has had less variability (better precision as indicated in Figures 2.5 and 2.6) from quarter to quarter but continues to provide a negative bias estimate.

### **State/Reporting Organization Bias**

As with the precision DQO, the bias DQO is established using three years of data aggregated at the reporting organization level. Attachment 5 provides 3-year bias estimates for each reporting organization. Of the 103 reporting organizations that had valid PEP/routine audit pairs, there were 16 reporting organizations that exceeded the  $\pm 10\%$  DQO. Of these 16 reporting organizations, all but three had bias estimates between 10 and 15%.

## Attachment 1

### PM<sub>2.5</sub> SLAMS and Tribal Data Completeness by Quarter, Year and 3-year Period

Notes:

Quarterly completeness is estimated base on the start date of the site. For example, if a sampler started on May 1<sup>st</sup>, which is 31 days from the beginning of the second quarter, its completeness would be based upon the remaining 61 days in that quarter.

The use of zeros “0” in a quarter represent quarters where samplers were considered active in AQS. Quarters without a zero or a value indicate quarters where the samplers was not considered active.

A “Yes” in the field “all Q 75%” either at the annual level or 3-Year level indicates that the sampler was at least 75% complete for the year or 3-year period.

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**2002-2004 PM2.5 Routine Date Completeness**

Site ID	POC	Type	Monitor	Earliest Data Point	Date Sampling Ended	2002 Information						2003 Information						2004 Information						3-Year Information		
						Q1	Q2	Q3	Q4	All Q 75%+	YR	Q1	Q2	Q3	Q4	All Q 75%+	YR	Q1	Q2	Q3	Q4	All Q 75%+	YR	All Q 75%+	Avg. Capture	
54-061-0003	1	SLAMS	TRIBAL	02-Jan-02	25-Jul-02	89.9	96.7	96.7	100	Yes	96	100	96.7	100	93.3	Yes	98	93.3	100	100	100	Yes	98	Yes	97	
54-069-0008	1	SLAMS	TRIBAL	02-Jan-02	13-Dec-2004	96.6	96.7	100	100	Yes	98	96.7	100	100	93.3	Yes	98	100	100	100	100	Yes	100	Yes	99	
54-107-1002	1	SLAMS	TRIBAL	02-Jan-02	25-Jul-02	96.6	100	90.7	94	Yes	95	83.3	100	100	80	Yes	91	97	100	97	96.7	Yes	98	Yes	95	
<b>Wisconsin</b>																										
55-003-0010	1	SLAMS	02-Jan-02	25-Mar-2003	91	86.7	89	80	86.7	100	100	92	100	100	100	100	Yes	100	100	100	100	Yes	100	Yes	94	
55-009-0005	1	SLAMS	02-Jan-02	10-Mar-2003	96.6	93.3	96.7	97	Yes	96	94	86.1	76.7	86.7	96.7	Yes	88	100	100	100	100	Yes	100	Yes	95	
55-009-0026	1	SLAMS	02-Jan-02	10-Mar-2003	96.7	100	100	97	Yes	98	88	86.1	88	86.1	88	83	83	91								
55-009-0028	1	SLAMS	02-Jan-02	10-Mar-2003	93.3	90	91	81	Yes	88	72	72	72	72	72	67	67	86								
55-025-0025	1	SLAMS	02-Jan-02	28-Feb-2003	100	100	93.7	100	Yes	98	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	
55-027-0007	1	SLAMS	02-Jan-02	28-Feb-2003	96.7	100	97	97	Yes	97	85.7	97	92.3	92.3	Yes	91	94.7	84.3	90.3	99	Yes	92	Yes	93		
55-029-0004	1	SLAMS	02-Jan-02	15-Mar-2003	90.1	100	97	100	Yes	97	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	
55-031-0025	1	SLAMS	02-Jan-02	28-Feb-2003	96.7	100	100	100	Yes	99	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	
55-059-0019	1	SLAMS	02-Jan-02	31-Jan-2003	100	100	100	100	Yes	100	75.7	100	100	100	100	Yes	93	100	93.3	100	100	Yes	98	Yes	97	
55-071-0007	1	SLAMS	02-Jan-02	31-Jan-2003	100	96.7	90.7	100	Yes	97	83.7	100	100	96.7	Yes	95	91	93.3	100	93.3	Yes	94	Yes	95		
55-079-0010	2	SLAMS	01-Jan-02	01-Jan-02	91.3	97.3	100	87.3	Yes	93	93	100	100	100	Yes	98	93.3	96.7	97	100	Yes	97	Yes	96		
55-079-0026	1	SLAMS	01-Jan-02	01-Jan-02	95.7	100	100	100	Yes	98	90.3	96.7	100	90	Yes	94	97	96.7	93.7	90	Yes	94	Yes	95		
55-079-0043	1	SLAMS	02-Jan-02	01-Jan-02	89.9	93.3	96.7	93.7	Yes	93	90	96.7	76.7	40	76	83.7	86.7	90	96.7	Yes	89	86				
55-079-0050	1	SLAMS	02-Jan-02	31-Jan-2003	100	90	97	87	Yes	93	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
55-079-0051	1	SLAMS	02-Jan-02	31-Jan-2003	96.6	96.7	94	96.7	Yes	96	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
55-079-0059	2	SLAMS	02-Jan-02	31-Jan-2003	100	100	100	90.3	Yes	98	100	100	100	100	Yes	100	100	96.7	100	96.7	Yes	98	Yes	99		
55-079-0099	1	SLAMS	02-Jan-02	31-Jan-2003	100	96.7	100	100	Yes	99	100	100	100	100	Yes	100	100	100	100	100	Yes	100	Yes	100		
55-087-0009	1	SLAMS	02-Jan-02	31-Jan-2003	100	100	100	100	Yes	100	100	96.7	93.3	100	Yes	98	97	96.7	100	100	Yes	98	Yes	99		
55-089-0008	1	SLAMS	02-Jan-02	31-Jan-2003	100	96.7	100	96.7	Yes	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
55-089-0009	1	SLAMS	23-Jun-03	23-Jun-03	100	96.7	100	96.7	Yes	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
55-105-0024	1	SLAMS	02-Jan-02	5-Mar-2003	93.5	93.3	90.3	96.7	Yes	93	100	95.3	100	100	99	97	100	100	96.7	100	96.7	Yes	98	Yes	97	
55-111-0007	1	SLAMS	12-May-03	12-May-03	100	100	100	90.3	Yes	98	80	74.3	100	100	85	100	100	93.3	100	100	Yes	98				
55-119-8001	1	SLAMS	03-May-03	03-May-03	100	100	100	100	Yes	98	81.1	81.1	81.1	81.1	81	81	81	81	81	81	81	81	81	81		
55-133-0027	2	SLAMS	01-Jan-02	01-Jan-02	100	100	100	100	Yes	100	96.3	100	93.7	100	Yes	98	100	90	97	100	Yes	97	Yes	98		
55-133-0034	1	SLAMS	02-Jan-02	31-Jan-2003	86.8	86.7	93.3	100	Yes	92	100	100	93.7	100	100	100	100	100	100	100	100	100	100	100	100	100
55-139-0011	1	SLAMS	02-Jan-02	6-Mar-2003	100	96.7	100	96.7	Yes	98	100	96.7	90.3	96.7	90.3	93	100	100	64.7	100	96.7	Yes	90			
55-141-0016	1	SLAMS	02-Jan-02	25-Mar-2003	86.5	90	100	90.3	Yes	92	79.5	79.5	79.5	79.5	79	79	79	79	79	79	79	79	79	79	79	79
<b>Wyoming</b>																										
56-013-1003	1	SLAMS	02-Jan-02	25-Mar-2003	100	96.7	100	96.7	Yes	98	97	100	100	96.7	Yes	98	86	93.3	93.7	96.7	Yes	93	Yes	96		
56-021-0001	1	SLAMS	02-Jan-02	25-Mar-2003	86.5	86.7	96.7	83.7	Yes	88	100	93.3	90.7	93.3	Yes	94	97	100	90	90	Yes	94	Yes	92		
56-033-0001	1	SLAMS	02-Jan-02	25-Mar-2003	100	96.7	84.3	96.7	Yes	94	100	96.7	77.3	100	Yes	93	100	100	64.7	100	96.7	Yes	90			
56-033-0002	1	SLAMS	02-Jan-02	25-Mar-2003	100	93.3	97	97	Yes	97	100	96.7	90.3	96.7	Yes	96	96.3	100	97	90	Yes	96	Yes	96		
56-039-0006	1	SLAMS	02-Jan-02	25-Mar-2003	66.8	63.3	83.3	0		53	21.3	100	97	100	80	91	90	93.3	46.7	80	80	71				

## Attachment 2

### 2002-2004 PM<sub>2.5</sub> Collocated Precision Completeness at the Site and Reporting Organization Level and 3-Year Precision Estimate

#### Notes

The completeness estimates are generated from the number of routine sites of each method designation within a reporting organization. For the information attached, EPA pooled all sites from a reporting organization and then only counted sites that operated a minimum of 6 out of the 12 quarters for the 3-year assessment period. EPA used this site value for estimating the 15% required collocated sites (column identified as “# Required Collocated”) and multiplied this by 182 (1-in-6 day collocations over 3 years) to determine the number of required collocated samples for the 3-year period (column identified as “# Calc Required”)

#### Completeness Estimates

**“Site % Comp”** - Completeness values at the site level are based on the start and end date of the site and would represent the number of possible 1-in-6 day collocated values for the time period of when the collocated site was active.

**“Reporting Org. % Comp”** is estimated by summing the site level “# Collocated” for a reporting organization and dividing this value by the sum of the site level “Required Collocated Pairs”. As an example, for the CT Reporting organization, 373 collocated values were collected from 4 sites and there should have been 364 (182\*2) collocated values from 2 (“# Req. Collocated) sites. Therefore the average completeness was  $(373/364)*100 = 102\%$  which was rounded to 100% in all cases where value were >100%

**“# Valid Pairs”** – are the number of pairs in which both the routine and collocated values were  $\geq 3 \text{ ug/m}^3$ . These represent the values used for the precision estimate. They were not the values used to estimate completeness.

**“CV”** – is the 3-year estimate of precision at the reporting organization level and follows the 2006, 40 CFR Part 58 Appendix A estimation requirements.

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**2002-2004 Collocated Precision Completeness (based on routine sites operating at least 6 quarters) and Reporting Organization Precision Estimate**

Region	State	Agency	Site ID	Begin Date	End Date	# Required	# Collected	Site % Comp	# Routine Sites	# Req Collocated	# Collocated Sites	Required Collocated Pairs	Reporting Org % Comp	# Valid Pairs	CV
04	TN	0673	471570047	1-Jan-02	31-Dec-04	182	144	79	5	1	2	182	80	144	7.11
		0673 Total					145						145		
04	TN	0682	470370023	1-Jan-02	31-Dec-04	182	154	85	3	1	1	182	85	154	7.13
		0682 Total					154						154		
04	TN	1025	471130006	17-Nov-04	31-Dec-04	7	11	100						11	
04	TN	1025	471130004	1-Jan-02	30-Apr-03	80	103	100						103	
04	TN	1025	471631007	1-Jan-02	31-Dec-04	182	80	44						80	
04	TN	1025	471650007	1-Jan-02	31-Dec-04	182	315	100						314	
		1025 Total					509		5	1	4	182	100	508	6.07
05	IL	0258	170310050	3-Jan-03	31-Dec-04	121	165	100						165	
05	IL	0258	170310052	1-Jan-02	31-Dec-04	182	145	80						144	
05	IL	0258	170313301	1-Jan-02	31-Dec-04	182	160	88						160	
		0258 Total					470		9	1	3	182	100	469	8.88
05	IL	0513	171150013	1-Jan-02	17-Nov-03	114	84	74						84	
05	IL	0513	171670012	3-Jan-03	31-Dec-04	121	108	89						105	
05	IL	0513	170314201	1-Jan-02	31-Dec-04	182	161	88						160	
05	IL	0513	171191007	1-Jan-02	31-Dec-04	182	143	79						143	
05	IL	0513	171193007	1-Jan-02	31-Dec-04	182	112	62						112	
05	IL	0513	171430037	1-Jan-02	31-Dec-04	182	130	71						130	
05	IL	0513	171613002	1-Jan-02	31-Dec-04	182	27	15						27	
		0513 Total					765		26	4	7	728	100	761	8.43
05	IN	0520	181570007	1-Jan-02	31-Jul-02	35	29	83						29	
05	IN	0520	180891016	1-Jan-02	30-Sep-02	45	34	76						34	
05	IN	0520	181570008	1-Oct-02	31-Dec-04	137	115	84						113	
05	IN	0520	180030004	1-Jan-02	31-Dec-04	182	50	27						50	
05	IN	0520	180431004	1-Jan-02	31-Dec-04	182	160	88						160	
05	IN	0520	180950009	1-Jan-02	31-Dec-04	182	29	16						29	
05	IN	0520	181411008	1-Jan-02	31-Dec-04	182	164	90						163	
05	IN	0520	181630006	1-Jan-02	31-Dec-04	182	152	84						152	
05	IN	0520	181670023	1-Jan-02	31-Dec-04	182	44	24						44	
		0520 Total					777		31	5	9	910	85	774	5.56
05	IN	0523	180970079	1-Jan-02	29-Sep-02	45	26	58						26	
05	IN	0523	180970083	1-Jan-02	28-Dec-02	60	59	98						59	
05	IN	0523	180970081	1-Jan-02	31-Dec-04	182	147	81						146	
		0523 Total					232		5	1	3	182	100	231	4.75
05	MI	0685	261630001	3-Apr-03	31-Dec-04	106	125	100						125	
05	MI	0685	260650012	15-Jan-03	31-Dec-04	119	102	86						98	
05	MI	0685	260770008	3-Jan-03	31-Dec-04	121	153	100						152	
05	MI	0685	260810020	3-Jan-03	31-Dec-04	121	174	100						173	
05	MI	0685	261470005	3-Jan-03	31-Dec-04	121	106	88						103	
05	MI	0685	261610008	3-Jan-03	31-Dec-04	121	155	100						155	
		0685 Total					815		24	4	6	728	100	806	7.21
05	MN	0700	271230866	1-Jan-02	31-Dec-04	182	161	88						159	
05	MN	0700	271230868	1-Jan-02	31-Dec-04	182	150	82						149	
05	MN	0700	271230871	1-Jan-02	31-Dec-04	182	164	90						158	
05	MN	0700	271377550	1-Jan-02	31-Dec-04	182	167	92						136	
		0700 Total					642		19	3	4	546	100	602	8.09
05	OH	0012	391530017	1-Jan-02	31-Dec-04	182	169	93						169	
		0012 Total					169		3	1	1	182	93	169	4.03
05	OH	0151	391510017	1-Jan-02	31-Dec-04	182	158	87						158	
05	OH	0220	390950024	1-Jan-02	31-Dec-04	182	150	82						150	
05	OH	0229	390350038	1-Jan-02	31-Dec-04	182	153	84						152	
05	OH	0229	390350060	1-Jan-02	31-Dec-04	182	156	86						155	
		0229 Total					309		9	1	2	182	100	307	7.50
05	OH	0287	390230005	1-Jan-02	31-Dec-04	182	3	2						3	
05	OH	0287	391130032	1-Jan-02	31-Dec-04	182	147	81						147	
		0287 Total					150		4	1	2	182	82	150	5.54
05	OH	0595	390851001	1-Jan-02	31-Dec-04	182	155	85						152	
05	OH	0595	390990005	1-Jan-02	31-Dec-04	182	155	88						152	
		0595 Total					155		1	1	1	182	85	152	5.73
05	OH	0634	390490025	1-Jan-02	31-Dec-04	182	161	88						161	
		0634 Total					161		3	1	1	182	88	161	3.75
05	OH	0805	390801001	1-Jan-02	31-Dec-04	182	161	88						160	
05	OH	0805	390933002	5-Jan-02	31-Dec-04	181	133	73						130	
		0805 Total					133		2	1	1	182	73	130	6.96
05	OH	0809	390811001	1-Jan-02	31-Dec-04	182	131	72						131	
		0809 Total					131		3	1	1	182	72	131	6.44
05	OH	0880	391450013	1-Jan-02	31-Dec-04	182	148	81						148	
		0880 Total					148		2	1	1	182	81	148	8.18
05	OH	1259	390170003	1-Jan-02	31-Dec-04	182	176	97						164	
05	OH	1259	390610014	1-Jan-02	31-Dec-04	182	174	96						172	
05	OH	1259	390610041	1-Jan-02	31-Dec-04	182	118	65						117	
		1259 Total					468		11	2	3	364	100	453	3.09
05	WI	1175	550310025	3-Jan-03	5-Feb-03	5	79	100						79	
05	WI	1175	550250025	3-Jan-03	15-Feb-03	14	63	100						63	
05	WI	1175	550090005	1-Apr-04	31-Dec-04	45	268	100						263	
05	WI	1175	550790026	1-Apr-04	31-Dec-04	45	132	100						131	
05	WI	1175	551110007	1-Apr-04	31-Dec-04	45	139	100						133	



**2002-2004 Collocated Precision Completeness (based on routine sites operating at least 6 quarters) and Reporting Organization Precision Estimate**

Region	State	Agency	Site ID	Begin Date	End Date	# Required	# Collected	Site Comp	# Routine Sites	# Req Collocated	# Collocated Sites	Required Collocated Pairs	Reporting Org % Comp	# Valid Pairs	CV
08	SD	0973	461030020	4-Jan-04	31-Dec-04	60	62	100						62	
08	SD	0973	460130003	1-Jan-02	31-Dec-04	182	165	91						163	
08	SD	0973	460990006	1-Jan-02	31-Dec-04	182	170	93						170	
08	SD	0973	461031001	1-Jan-02	31-Dec-04	182	114	63						110	
		0973 Total					511		9	1	4	182	100	505	11.13
08	UT	1113	490110001	3-Jan-03	20-Jun-03	28	80	100						74	
08	UT	1113	490110004	20-Jul-03	31-Dec-04	88	35	40						33	
08	UT	1113	490353007	1-Jan-02	31-Dec-04	180	157	87						152	
08	UT	1113	490494001	1-Jan-02	31-Dec-04	181	167	92						162	
		1113 Total					439		8	1	4	182	100	421	7.68
08	WY	1188	560330002	1-Jan-02	31-Dec-04	182	172	95						171	
		1188 Total					172							171	5.64
09	AZ	0053	040130019	1-Jan-04	31-Dec-04	60	108	100						108	
09	AZ	0053	040070008	1-Jan-02	31-Dec-03	121	85	70						82	
09	AZ	0053	040230004	1-Jan-02	31-Dec-04	182	170	93						167	
		0053 Total					363		6	1	3	182	100	357	15.80
09	AZ	0864	040191028	1-Jan-02	31-Dec-04	182	152	84						147	
		0864 Total					152							147	16.70
09	CA	0086	060850004	1-Jan-02	30-Apr-02	19	19	100						18	
09	CA	0086	060011001	4-Nov-02	15-Apr-03	27	25	93						24	
09	CA	0086	060531003	1-Jan-02	12-Aug-03	98	82	84						80	
09	CA	0086	060130002	1-Jan-02	31-Dec-04	182	209	100						204	
		0086 Total					335							326	5.40
09	CA	0145	060190008	8-Jan-03	31-Dec-04	120	185	100						182	
09	CA	0145	060571001	3-Jan-03	31-Dec-04	121	163	100						158	
09	CA	0145	060670006	3-Jan-03	31-Dec-04	121	144	100						140	
09	CA	0145	061010003	3-Jan-03	31-Dec-04	121	172	100						162	
09	CA	0145	060170011	1-Jan-02	21-Feb-04	130	29	22						23	
		0145 Total					693		20	3	5	364	92	665	10.70
09	CA	0458	060271003	1-Jan-02	31-Dec-04	182	36	20						36	
		0458 Total					36							36	8.20
09	CA	0709	060710306	15-Jan-03	31-Dec-04	119	78	66						77	
		0709 Total					78		1	1	1	182	43	77	16.21
09	CA	0942	060250005	1-Jan-02	31-Dec-04	182	107	59						107	
09	CA	0942	060730006	1-Jan-02	31-Dec-04	182	106	58						106	
		0942 Total					213		10	2	2	364	59	213	5.40
09	CA	0972	060370002	1-Jan-02	30-Jan-03	65	75	100						75	
09	CA	0972	060712002	1-Jan-02	27-Jan-03	65	54	83						54	
09	CA	0972	060371103	1-Jan-02	31-Dec-04	182	152	84						152	
09	CA	0972	060652002	1-Jan-02	31-Dec-04	182	166	91						164	
09	CA	0972	060658001	1-Jan-02	31-Dec-04	182	153	84						151	
		0972 Total					600							596	4.75
09	CA	1118	060290014	1-Jan-02	31-Dec-04	182	141	77						140	
09	CA	1118	060798001	1-Jan-02	31-Dec-04	182	172	95						167	
09	CA	1118	061110007	1-Jan-02	31-Dec-04	182	157	86						153	
		1118 Total					470							460	6.66
09	HI	0481	150032004	15-Jan-03	31-Dec-04	119	104	87						82	
09	HI	0481	150031001	3-Jan-03	31-Dec-04	121	152	100						106	
		0481 Total					256							188	13.48
09	NV	0226	320030561	14-Apr-04	31-Dec-04	43	40	93						39	
09	NV	0226	320030560	1-Jan-02	12-Apr-04	138	66	48						62	
		0226 Total					106		5	1	2	182	58	101	11.29
09	NV	1138	320310016	1-Jan-02	31-Dec-04	182	199	100						191	
		1138 Total					199		1	1	1	182	100	191	2.48
10	AK	0015	020200018	1-Jan-02	31-Dec-04	182	168	92						140	
10	AK	0015	020900010	1-Jan-02	31-Dec-04	182	150	82						138	
10	AK	0015	021100004	1-Jan-02	31-Dec-04	182	72	40						58	
		0015 Total					390		4	1	3	182	100	336	9.71
10	ID	0511	160550006	1-Jan-02	26-Jun-03	90	81	90						70	
10	ID	0511	160690009	1-Jan-02	26-Jun-03	90	83	92						77	
10	ID	0511	160050015	1-Jan-02	31-Dec-04	182	134	74						116	
10	ID	0511	160270004	1-Jan-02	31-Dec-04	182	169	93						146	
		0511 Total					467		8	1	4	182	100	409	6.32
10	OR	0821	410330107	1-Jan-02	17-Jul-02	32	30	94						27	
10	OR	0821	410370001	1-Jan-02	1-Nov-03	111	90	81						73	
10	OR	0821	410671003	1-Jan-02	23-Aug-04	160	51	32						46	
10	OR	0821	410290133	1-Jan-02	31-Dec-04	182	163	90						151	
10	OR	0821	410510080	1-Jan-02	31-Dec-04	182	165	91						155	
10	OR	0821	410650007	1-Jan-02	31-Dec-04	182	58	32						47	
10	OR	0821	410390060	2-Jan-02	31-Dec-04	182	236	100						210	
10	OR	0821	410330114	15-Jun-02	3-Apr-04	218	23	11						22	
		0821 Total					816							731	4.51
10	WA	1136	530730015	3-Jan-03	26-Feb-03	9	67	100						60	
10	WA	1136	530530031	1-Jan-02	6-Jan-03	61	55	90						55	
10	WA	1136	530770009	6-Jan-03	27-Feb-04	69	124	100						111	
10	WA	1136	530330057	3-Jan-03	31-Dec-04	121	174	100						174	
10	WA	1136	530630016	3-Jan-03	31-Dec-04	121	172	100						161	
10	WA	1136	530670013	1-Jan-02	29-Feb-04	131	60	46						53	
		1136 Total					652		14	2	6	364	100	614	4.82
<b>National</b>										866	167	291	89.80	6.91	

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### **Attachment 3**

#### **2002-2004 Precision Completeness and 3-Year Precision Summary by Reporting Organization and EPA Region**

##### **Notes**

The attached information is derived from Attachment 2 and is simply summarized by Reporting Organization and EPA Region.

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**2002-2004 Collocated Precision Completeness (based on routine sites  
operating at least 6 quarters) and Reporting Organization Precision Estimate**

Region	State	Reptring Org	# Routine Sites	# Req Collocated	# Collocated Sites	Required Collocated Pairs		Reporting Org % Comp	CV
						# Collected	Required Collocated Pairs		
01	CT	0251	11	2	4	364	373	100	6.89
01	MA	0660	21	3	5	546	1037	100	14.53
01	ME	0635	6	1	3	182	324	100	6.22
01	NH	0762	9	1	3	182	396	100	8.91
01	RI	0907	5	1	2	182	208	100	11.56
01	VT	1119	3	1	1	182	346	100	4.34
01	Region		55	9	18	1638	2684	100.0	8.7
02	NJ	0764	18	3	4	546	511	94	8.33
02	NY	0768	25	4	6	728	684	94	6.49
02	PR	0889	11	2	2	364	229	63	13.20
02	VI	1124	2	1	0	182	0	0	NA
02	Region		56	10	12	1638	1424	62.6	9.3
03	DC	0350	3	1	2	182	244	100	8.61
03	DE	0294	7	1	2	182	227	100	6.09
03	MD	1002	18	3	4	546	444	81	6.41
03	PA	0021	8	1	3	182	420	100	6.55
03	PA	0851	23	3	6	546	777	100	4.67
03	PA	0861	5	1	1	182	150	82	8.44
03	VA	1127	19	3	4	546	932	100	7.27
03	WV	1150	6	1	1	182	339	100	2.88
03	WV	1151	5	1	1	182	353	100	4.53
03	Region		94	15	24	2730	3886	96.0	6.2
04	AL	0013	12	2	5	364	505	100	5.03
04	AL	0300	1	1	1	182	169	93	2.63
04	AL	0550	3	1	3	182	371	100	4.12
04	FL	0121	3	1	1	182	163	90	5.01
04	FL	0274	2	1	1	182	114	63	6.97
04	FL	0391	1	1	1	182	165	91	8.70
04	FL	0392	3	1	1	182	172	95	5.91
04	FL	0393	1	1	1	182	186	100	4.95
04	FL	0394	1	1	1	182	139	76	8.55
04	FL	0395	2	1	1	182	159	87	8.22
04	FL	0396	4	1	1	182	172	95	6.17
04	FL	0491	2	1	1	182	160	88	5.89
04	FL	0544	2	1	1	182	138	76	4.16
04	FL	0820	2	1	1	182	143	79	5.22
04	FL	0833	2	1	1	182	123	68	7.81
04	FL	0867	2	1	1	182	189	100	5.18
04	FL	0951	1	1	1	182	153	84	7.90
04	FL	1224	2	1	1	182	188	100	4.59
04	FL	1226	1	1	1	182	128	70	6.21
04	GA	0437	23	3	6	546	444	81	5.21
04	KY	0549	3	1	1	182	511	100	6.31
04	KY	0584	16	2	6	364	570	100	6.31
04	MS	0703	17	3	4	546	483	88	6.87
04	NC	0403	2	1	1	182	252	100	4.75
04	NC	0669	3	1	1	182	154	85	4.41
04	NC	0776	22	3	6	546	836	100	8.02
04	NC	0779	1	1	1	182	152	84	7.22
04	SC	0971	14	2	4	364	790	100	4.48
04	TN	0170	1	1	1	182	302	100	2.87
04	TN	0581	3	1	1	182	142	78	5.73
04	TN	0673	5	1	2	182	145	80	7.11
04	TN	0682	3	1	1	182	154	85	7.13
04	TN	1025	5	1	4	182	509	100	6.07
04	Region		165	42	64	7644	8981	88.9	5.9
05	IL	0258	9	1	3	182	470	100	8.88
05	IL	0513	26	4	7	728	765	100	8.43
05	IN	0520	31	5	9	910	777	85	5.56
05	IN	0523	5	1	3	182	232	100	4.75
05	MI	0685	24	4	6	728	815	100	7.21
05	MN	0700	19	3	4	546	642	100	8.09
05	OH	0012	3	1	1	182	169	93	4.03

**2002-2004 Collocated Precision Completeness (based on routine sites  
operating at least 6 quarters) and Reporting Organization Precision Estimate**

Region	State	Reptring Org	# Routine Sites	# Req Collocated	# Collocated Sites	Required Collocated Pairs		Reporting Org % Comp	CV
						# Collected	Required Collocated Pairs		
05	OH	0151	2	1	1	182	158	87	4.94
05	OH	0220	3	1	1	182	150	82	8.11
05	OH	0229	9	1	2	182	309	100	7.50
05	OH	0287	4	1	2	182	150	82	5.54
05	OH	0595	1	1	1	182	155	85	5.73
05	OH	0634	3	1	1	182	161	88	3.75
05	OH	0805	5	1	1	182	161	88	14.79
05	OH	0807	2	1	1	182	133	73	6.96
05	OH	0809	3	1	1	182	131	72	6.44
05	OH	0880	2	1	1	182	148	81	8.18
05	OH	1259	11	2	3	364	468	100	3.09
05	WI	1175	8	1	5	182	681	100	5.18
05	Region		170	32	53	5824	6675	90.4	6.7
06	AR	0055	20	3	6	546	704	100	4.41
06	LA	1001	24	4	5	728	650	89	6.89
06	NM	0017	2	1	2	182	384	100	7.21
06	OK	0812	4	1	1	182	62	34	6.22
06	TX	1035	21	3	13	546	1374	100	7.94
06	Region		71	12	27	2184	3174	84.7	6.5
07	IA	0613	3	1	1	182	233	100	4.94
07	IA	0874	2	1	2	182	237	100	4.48
07	IA	1080	12	2	3	364	880	100	5.92
07	KS	0563	12	2	4	364	627	100	8.53
07	MO	0561	3	1	2	182	138	76	3.69
07	MO	0588	11	2	5	364	823	100	3.24
07	MO	0986	1	1	1	182	180	99	4.16
07	MO	0990	3	1	1	182	770	100	3.64
07	MO	0992	2	1	1	182	158	87	4.37
07	NE	0752	5	1	1	182	160	88	9.70
07	NE	0816	5	1	3	182	381	100	10.86
07	Region		59	14	24	2548	4587	95.4	5.8
08	CO	0240	13	2	4	364	495	100	9.72
08	MT	0730	9	1	3	182	290	100	7.64
08	ND	0782	7	1	2	182	260	100	6.89
08	SD	0973	9	1	4	182	511	100	11.13
08	UT	1113	8	1	4	182	439	100	7.68
08	WY	1188	5	1	1	182	172	95	5.64
08	Region		51	7	18	1274	2167	99.1	8.1
09	AZ	0053	6	1	3	182	363	100	15.80
09	AZ	0864	2	1	1	182	152	84	16.70
09	CA	0086	13	2	4	364	335	92	5.40
09	CA	0145	20	3	5	546	693	100	10.70
09	CA	0458	2	1	1	182	36	20	8.20
09	CA	0709	1	1	1	182	78	43	16.21
09	CA	0942	10	2	2	364	213	59	5.40
09	CA	0972	15	2	5	364	600	100	4.75
09	CA	1118	15	2	3	364	470	100	6.66
09	HI	0481	5	1	2	182	256	100	13.48
09	NV	0226	5	1	2	182	106	58	11.29
09	NV	1138	1	1	1	182	199	100	2.48
09	Region		95	18	30	3276	3501	79.6	9.8
10	AK	0015	4	1	3	182	390	100	9.71
10	ID	0511	8	1	4	182	467	100	6.32
10	OR	0821	24	4	8	728	816	100	4.51
10	WA	1136	14	2	6	364	652	100	4.82
10	Region		50	8	21	1456	2325	100.0	6.3
<b>National</b>			<b>866</b>	<b>167</b>	<b>291</b>	<b>30394</b>	<b>39404</b>	<b>89.8%</b>	<b>6.91</b>

## Attachment 4

### 2002-2004 PM<sub>2.5</sub> Flow Rate Completeness by SLAMS Sampler and Aggregated by Reporting Organization

#### Notes

The flow rate requirement is that every sampler (SLAMS) be audited 4 times a year. The flow rate estimate for each site was based on the sampler start and end dates. If a site was operating for the complete 3-years, then 12 audit are required and the completeness would be based on the number of audits submitted divided by 12. For any samplers not operating for the 3-year period the flow rate completeness would be based on the quarters the sampler operated (start and end date).

Monitor type listed as “All-NS” is the aggregated data of sites with a reporting organization. Since it was required that the audits be implemented over all quarters (audits of a site should not be implemented in one quarter) the estimates at the reporting organization level (identified as “All-NS”) contain a column (Q1/Q2/Q3/Q4) that provide estimates of the audits that occurred in each quarter over the 3-year period.

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2002-2004 PM2.5 Flow Rate Completeness for SLAMS Monitoring Type and by Reporting Organization (ALL-NS).

Region	State	Reporting Agency	Monitor Type	Site ID	Start Date	End Date	Number Required	Number Submitted	Comp. %	Total # of Sites	Q1/Q2/ Q3/Q4
01	CT	0251	All - NS	NA	NA	NA	100	103	97	10	25/28/26/24
01	CT	0251	SLAMS	090092008	1/1/2004	12/31/2004	4	3	75	NA	NA
01	CT	0251	SLAMS	090010010	Multiple	Multiple	12	11	92	NA	NA
01	CT	0251	SLAMS	090010113	Multiple	Multiple	8	8	100	NA	NA
01	CT	0251	SLAMS	090011123	Multiple	Multiple	12	12	100	NA	NA
01	CT	0251	SLAMS	090031003	Multiple	Multiple	12	12	100	NA	NA
01	CT	0251	SLAMS	090031018	Multiple	Multiple	9	9	100	NA	NA
01	CT	0251	SLAMS	090090018	Multiple	Multiple	12	15	100	NA	NA
01	CT	0251	SLAMS	090091123	Multiple	Multiple	12	13	100	NA	NA
01	CT	0251	SLAMS	090099005	Multiple	Multiple	7	8	100	NA	NA
01	CT	0251	SLAMS	090111302	Multiple	Multiple	12	12	100	NA	NA
01	MA	0660	All - NS	NA	NA	NA	141	135	95	14	34/33/34/34
01	MA	0660	SLAMS	250270016	Multiple	Multiple	12	9	75	NA	NA
01	MA	0660	SLAMS	250092006	Multiple	Multiple	12	10	83	NA	NA
01	MA	0660	SLAMS	250095005	Multiple	Multiple	12	11	92	NA	NA
01	MA	0660	SLAMS	250250002	Multiple	Multiple	12	11	92	NA	NA
01	MA	0660	SLAMS	250250042	Multiple	Multiple	12	11	92	NA	NA
01	MA	0660	SLAMS	250035001	Multiple	Multiple	12	12	100	NA	NA
01	MA	0660	SLAMS	250051004	Multiple	Multiple	8	8	100	NA	NA
01	MA	0660	SLAMS	250130016	Multiple	Multiple	12	12	100	NA	NA
01	MA	0660	SLAMS	250132009	Multiple	Multiple	12	12	100	NA	NA
01	MA	0660	SLAMS	250230004	Multiple	Multiple	12	13	100	NA	NA
01	MA	0660	SLAMS	250250027	Multiple	Multiple	7	7	100	NA	NA
01	MA	0660	SLAMS	250270020	1/3/2003	10/3/2003	2	4	100	NA	NA
01	MA	0660	SLAMS	250270023	1/1/2004	12/31/2004	4	4	100	NA	NA
01	ME	0635	All - NS	NA	NA	NA	84	70	69	7	17/19/17/17
01	ME	0635	SLAMS	230030013	Multiple	Multiple	12	7	58	NA	NA
01	ME	0635	SLAMS	230031011	Multiple	Multiple	12	7	58	NA	NA
01	ME	0635	SLAMS	230090103	Multiple	Multiple	12	9	75	NA	NA
01	ME	0635	SLAMS	230190002	Multiple	Multiple	12	11	92	NA	NA
01	ME	0635	SLAMS	230010011	Multiple	Multiple	12	12	100	NA	NA
01	ME	0635	SLAMS	230050027	Multiple	Multiple	12	24	100	NA	NA
01	NH	0762	All - NS	NA	NA	NA	109	98	89	10	22/24/26/26
01	NH	0762	SLAMS	330012004	Multiple	Multiple	12	11	92	NA	NA
01	NH	0762	SLAMS	330050007	Multiple	Multiple	12	12	100	NA	NA
01	NH	0762	SLAMS	330070014	Multiple	Multiple	12	12	100	NA	NA
01	NH	0762	SLAMS	330090008	Multiple	Multiple	9	10	100	NA	NA
01	NH	0762	SLAMS	330110020	Multiple	Multiple	12	12	100	NA	NA
01	NH	0762	SLAMS	330111010	Multiple	Multiple	11	11	100	NA	NA
01	NH	0762	SLAMS	330115001	Multiple	Multiple	10	10	100	NA	NA
01	NH	0762	SLAMS	330130003	Multiple	Multiple	8	8	100	NA	NA
01	NH	0762	SLAMS	330190003	Multiple	Multiple	12	12	100	NA	NA
01	RI	0907	All - NS	NA	NA	NA	40	37	77	4	8/11/10/8
01	RI	0907	SLAMS	440070028	1/1/2004	12/31/2004	4	1	25	NA	NA
01	RI	0907	SLAMS	440071010	Multiple	Multiple	12	10	83	NA	NA
01	RI	0907	SLAMS	440030002	Multiple	Multiple	12	14	100	NA	NA
01	RI	0907	SLAMS	440070026	Multiple	Multiple	12	12	100	NA	NA
01	VT	1119	All - NS	NA	NA	NA	22	24	100	3	6/6/6
01	VT	1119	SLAMS	500030004	Multiple	Multiple	7	8	100	NA	NA
01	VT	1119	SLAMS	500070012	Multiple	Multiple	12	12	100	NA	NA
01	VT	1119	SLAMS	500210002	1/25/2004	12/31/2004	3	4	100	NA	NA
02	NJ	0764	All - NS	NA	NA	NA	221	581	100	19	139/153/148/141
02	NJ	0764	SLAMS	340011006	Multiple	Multiple	12	27	100	NA	NA
02	NJ	0764	SLAMS	340030003	Multiple	Multiple	12	31	100	NA	NA
02	NJ	0764	SLAMS	340070003	Multiple	Multiple	12	25	100	NA	NA
02	NJ	0764	SLAMS	340071007	Multiple	Multiple	12	30	100	NA	NA
02	NJ	0764	SLAMS	340130015	Multiple	Multiple	12	36	100	NA	NA
02	NJ	0764	SLAMS	340130016	Multiple	Multiple	5	17	100	NA	NA
02	NJ	0764	SLAMS	340155001	Multiple	Multiple	12	30	100	NA	NA
02	NJ	0764	SLAMS	340171003	Multiple	Multiple	12	39	100	NA	NA
02	NJ	0764	SLAMS	340210008	Multiple	Multiple	12	33	100	NA	NA
02	NJ	0764	SLAMS	340218001	Multiple	Multiple	12	22	100	NA	NA
02	NJ	0764	SLAMS	340230006	Multiple	Multiple	12	36	100	NA	NA
02	NJ	0764	SLAMS	340270004	Multiple	Multiple	12	31	100	NA	NA
02	NJ	0764	SLAMS	340273001	Multiple	Multiple	12	37	100	NA	NA
02	NJ	0764	SLAMS	340292002	Multiple	Multiple	12	33	100	NA	NA
02	NJ	0764	SLAMS	340310005	Multiple	Multiple	12	31	100	NA	NA
02	NJ	0764	SLAMS	340390004	Multiple	Multiple	12	25	100	NA	NA
02	NJ	0764	SLAMS	340390006	Multiple	Multiple	12	35	100	NA	NA
02	NJ	0764	SLAMS	340392003	Multiple	Multiple	12	28	100	NA	NA
02	NJ	0764	SLAMS	340410006	Multiple	Multiple	12	35	100	NA	NA
02	NY	0768	All - NS	NA	NA	NA	303	310	95	37	84/76/74/76
02	NY	0768	SLAMS	360810094	Multiple	Multiple	4	0	0	NA	NA
02	NY	0768	SLAMS	360470052	Multiple	Multiple	4	3	75	NA	NA
02	NY	0768	SLAMS	360552002	Multiple	Multiple	5	4	80	NA	NA
02	NY	0768	SLAMS	360590012	Multiple	Multiple	5	4	80	NA	NA
02	NY	0768	SLAMS	360290005	Multiple	Multiple	12	11	92	NA	NA

Region	State	Reporting Agency	Monitor Type	Site ID	Start Date	End Date	Number Required	Number Submitted	Comp. %	Total # of Sites	Q1/Q2/ Q3/Q4
02	NY	0768	SLAMS	360610128	Multiple	Multiple	12	11	92	NA	NA
02	NY	0768	SLAMS	360850055	Multiple	Multiple	12	11	92	NA	NA
02	NY	0768	SLAMS	360850067	Multiple	Multiple	12	11	92	NA	NA
02	NY	0768	SLAMS	360010005	Multiple	Multiple	7	11	100	NA	NA
02	NY	0768	SLAMS	360010012	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	360050080	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360050083	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360050110	Multiple	Multiple	7	8	100	NA	NA
02	NY	0768	SLAMS	360070009	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	360130011	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360271004	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	360290002	Multiple	Multiple	5	6	100	NA	NA
02	NY	0768	SLAMS	360291007	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360310003	Multiple	Multiple	12	16	100	NA	NA
02	NY	0768	SLAMS	360470076	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	360470122	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360551007	8/1/2004	12/31/2004	1	1	100	NA	NA
02	NY	0768	SLAMS	360556001	Multiple	Multiple	5	6	100	NA	NA
02	NY	0768	SLAMS	360590008	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360590013	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	360610056	Multiple	Multiple	7	9	100	NA	NA
02	NY	0768	SLAMS	360652001	Multiple	Multiple	6	7	100	NA	NA
02	NY	0768	SLAMS	360670019	Multiple	Multiple	4	5	100	NA	NA
02	NY	0768	SLAMS	360670020	Multiple	Multiple	4	4	100	NA	NA
02	NY	0768	SLAMS	360710002	Multiple	Multiple	12	14	100	NA	NA
02	NY	0768	SLAMS	360810096	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	360810124	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	360893001	Multiple	Multiple	12	13	100	NA	NA
02	NY	0768	SLAMS	360930003	Multiple	Multiple	5	5	100	NA	NA
02	NY	0768	SLAMS	361010003	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	361030001	Multiple	Multiple	12	12	100	NA	NA
02	NY	0768	SLAMS	361191002	Multiple	Multiple	12	12	100	NA	NA
02	PR	0889	All - NS	NA	NA	NA	119	70	59	10	20/19/20/11
02	PR	0889	SLAMS	720810001	Multiple	Multiple	11	4	36	NA	NA
02	PR	0889	SLAMS	720210009	Multiple	Multiple	12	6	50	NA	NA
02	PR	0889	SLAMS	720570008	Multiple	Multiple	12	6	50	NA	NA
02	PR	0889	SLAMS	720690001	Multiple	Multiple	12	6	50	NA	NA
02	PR	0889	SLAMS	720970003	Multiple	Multiple	12	6	50	NA	NA
02	PR	0889	SLAMS	720530003	Multiple	Multiple	12	7	58	NA	NA
02	PR	0889	SLAMS	720590016	Multiple	Multiple	12	7	58	NA	NA
02	PR	0889	SLAMS	721130004	Multiple	Multiple	12	7	58	NA	NA
02	PR	0889	SLAMS	721270003	Multiple	Multiple	12	10	83	NA	NA
02	PR	0889	SLAMS	720610005	Multiple	Multiple	12	11	92	NA	NA
02	VI	1124	All - NS	NA	NA	NA	30	0	0	3	0/0/0
02	VI	1124	SLAMS	780100012	Multiple	Multiple	12	0	0	NA	NA
02	VI	1124	SLAMS	780300009	Multiple	Multiple	12	0	0	NA	NA
03	DC	0350	All - NS	NA	NA	NA	36	0	0	3	0/0/0
03	DC	0350	SLAMS	110010041	Multiple	Multiple	12	0	0	NA	NA
03	DC	0350	SLAMS	110010042	Multiple	Multiple	12	0	0	NA	NA
03	DC	0350	SLAMS	110010043	Multiple	Multiple	12	0	0	NA	NA
03	DE	0294	All - NS	NA	NA	NA	84	86	99	7	22/22/21/21
03	DE	0294	SLAMS	100051002	Multiple	Multiple	12	11	92	NA	NA
03	DE	0294	SLAMS	100010002	Multiple	Multiple	12	13	100	NA	NA
03	DE	0294	SLAMS	100010003	Multiple	Multiple	12	13	100	NA	NA
03	DE	0294	SLAMS	100031003	Multiple	Multiple	12	12	100	NA	NA
03	DE	0294	SLAMS	100031007	Multiple	Multiple	12	12	100	NA	NA
03	DE	0294	SLAMS	100031012	Multiple	Multiple	12	13	100	NA	NA
03	DE	0294	SLAMS	100032004	Multiple	Multiple	12	12	100	NA	NA
03	MD	1002	All - NS	NA	NA	NA	220	744	100	20	179/178/186/201
03	MD	1002	SLAMS	240030014	Multiple	Multiple	12	37	100	NA	NA
03	MD	1002	SLAMS	240030019	Multiple	Multiple	11	36	100	NA	NA
03	MD	1002	SLAMS	240031003	Multiple	Multiple	12	37	100	NA	NA
03	MD	1002	SLAMS	240032002	Multiple	Multiple	12	38	100	NA	NA
03	MD	1002	SLAMS	240051007	Multiple	Multiple	12	38	100	NA	NA
03	MD	1002	SLAMS	240053001	Multiple	Multiple	12	63	100	NA	NA
03	MD	1002	SLAMS	240150003	Multiple	Multiple	12	36	100	NA	NA
03	MD	1002	SLAMS	240251001	Multiple	Multiple	12	36	100	NA	NA
03	MD	1002	SLAMS	240313001	Multiple	Multiple	12	37	100	NA	NA
03	MD	1002	SLAMS	240330002	Multiple	Multiple	6	22	100	NA	NA
03	MD	1002	SLAMS	240330030	7/10/2004	12/31/2004	1	5	100	NA	NA
03	MD	1002	SLAMS	240338003	Multiple	Multiple	10	33	100	NA	NA
03	MD	1002	SLAMS	240430009	Multiple	Multiple	12	38	100	NA	NA
03	MD	1002	SLAMS	245100006	Multiple	Multiple	12	36	100	NA	NA
03	MD	1002	SLAMS	245100007	Multiple	Multiple	12	37	100	NA	NA
03	MD	1002	SLAMS	245100008	Multiple	Multiple	12	36	100	NA	NA
03	MD	1002	SLAMS	245100035	Multiple	Multiple	12	63	100	NA	NA
03	MD	1002	SLAMS	245100040	Multiple	Multiple	12	64	100	NA	NA
03	MD	1002	SLAMS	245100049	Multiple	Multiple	12	37	100	NA	NA

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03	PA	0021	All - NS	NA	NA	NA	60	155	100	5	39/37/38/41
03	PA	0021	SLAMS	420030021	Multiple	Multiple	12	35	100	NA	NA
03	PA	0021	SLAMS	420030067	Multiple	Multiple	12	38	100	NA	NA
03	PA	0021	SLAMS	420030116	Multiple	Multiple	12	34	100	NA	NA
03	PA	0021	SLAMS	420030131	Multiple	Multiple	12	15	100	NA	NA
03	PA	0021	SLAMS	420031008	Multiple	Multiple	12	33	100	NA	NA
03	PA	0851	All - NS	NA	NA	NA	246	251	99	23	63/62/64/62
03	PA	0851	SLAMS	420170012	Multiple	Multiple	12	11	92	NA	NA
03	PA	0851	SLAMS	420910013	Multiple	Multiple	12	11	92	NA	NA
03	PA	0851	SLAMS	420010001	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420070014	Multiple	Multiple	7	8	100	NA	NA
03	PA	0851	SLAMS	420110009	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420210011	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420270100	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420410101	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420430401	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420450002	Multiple	Multiple	7	8	100	NA	NA
03	PA	0851	SLAMS	420490003	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420692006	Multiple	Multiple	7	8	100	NA	NA
03	PA	0851	SLAMS	420710007	Multiple	Multiple	7	8	100	NA	NA
03	PA	0851	SLAMS	420770004	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420791101	Multiple	Multiple	12	13	100	NA	NA
03	PA	0851	SLAMS	420850100	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420950025	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	420990301	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	421250005	Multiple	Multiple	7	8	100	NA	NA
03	PA	0851	SLAMS	421250200	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	421255001	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	421290008	Multiple	Multiple	12	12	100	NA	NA
03	PA	0851	SLAMS	421330008	Multiple	Multiple	7	8	100	NA	NA
03	PA	0861	All - NS	NA	NA	NA	60	60	100	5	15/15/15/15
03	PA	0861	SLAMS	421010004	Multiple	Multiple	12	12	100	NA	NA
03	PA	0861	SLAMS	421010020	Multiple	Multiple	12	12	100	NA	NA
03	PA	0861	SLAMS	421010024	Multiple	Multiple	12	12	100	NA	NA
03	PA	0861	SLAMS	421010047	Multiple	Multiple	12	12	100	NA	NA
03	PA	0861	SLAMS	421010136	Multiple	Multiple	12	12	100	NA	NA
03	VA	1127	All - NS	NA	NA	NA	192	208	100	18	50/54/55/49
03	VA	1127	SLAMS	510360002	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	510410003	Multiple	Multiple	12	12	100	NA	NA
03	VA	1127	SLAMS	510590030	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	510591005	Multiple	Multiple	11	12	100	NA	NA
03	VA	1127	SLAMS	510595001	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	510870015	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	511071005	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	511390004	Multiple	Multiple	12	12	100	NA	NA
03	VA	1127	SLAMS	515200006	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	515500012	Multiple	Multiple	8	8	100	NA	NA
03	VA	1127	SLAMS	516500004	Multiple	Multiple	12	13	100	NA	NA
03	VA	1127	SLAMS	516800014	Multiple	Multiple	4	7	100	NA	NA
03	VA	1127	SLAMS	516800015	Multiple	Multiple	7	8	100	NA	NA
03	VA	1127	SLAMS	517000013	Multiple	Multiple	8	10	100	NA	NA
03	VA	1127	SLAMS	517600020	Multiple	Multiple	10	11	100	NA	NA
03	VA	1127	SLAMS	517700014	Multiple	Multiple	12	12	100	NA	NA
03	VA	1127	SLAMS	517750010	Multiple	Multiple	12	12	100	NA	NA
03	VA	1127	SLAMS	518100008	Multiple	Multiple	12	13	100	NA	NA
03	WV	1150	All - NS	NA	NA	NA	60	264	100	5	65/59/61/79
03	WV	1150	SLAMS	540030003	Multiple	Multiple	12	57	100	NA	NA
03	WV	1150	SLAMS	540390010	Multiple	Multiple	12	50	100	NA	NA
03	WV	1150	SLAMS	540391005	Multiple	Multiple	12	49	100	NA	NA
03	WV	1150	SLAMS	540610003	Multiple	Multiple	12	59	100	NA	NA
03	WV	1150	SLAMS	541071002	Multiple	Multiple	12	49	100	NA	NA
03	WV	1151	All - NS	NA	NA	NA	59	174	100	5	45/45/42/42
03	WV	1151	SLAMS	540090005	Multiple	Multiple	12	36	100	NA	NA
03	WV	1151	SLAMS	540290011	Multiple	Multiple	12	36	100	NA	NA
03	WV	1151	SLAMS	540291004	Multiple	Multiple	12	36	100	NA	NA
03	WV	1151	SLAMS	540511002	Multiple	Multiple	12	30	100	NA	NA
03	WV	1151	SLAMS	540690008	Multiple	Multiple	11	36	100	NA	NA
04	AL	0013	All - NS	NA	NA	NA	134	527	100	13	130/127/132/138
04	AL	0013	SLAMS	010270001	Multiple	Multiple	12	44	100	NA	NA
04	AL	0013	SLAMS	010331002	Multiple	Multiple	12	50	100	NA	NA
04	AL	0013	SLAMS	010690002	Multiple	Multiple	10	46	100	NA	NA
04	AL	0013	SLAMS	010970002	1/1/2002	5/27/2002	1	2	100	NA	NA
04	AL	0013	SLAMS	010970003	Multiple	Multiple	9	39	100	NA	NA
04	AL	0013	SLAMS	011010007	Multiple	Multiple	12	48	100	NA	NA
04	AL	0013	SLAMS	011030011	Multiple	Multiple	9	39	100	NA	NA
04	AL	0013	SLAMS	011130001	Multiple	Multiple	12	49	100	NA	NA
04	AL	0013	SLAMS	011170006	Multiple	Multiple	12	43	100	NA	NA
04	AL	0013	SLAMS	011190002	Multiple	Multiple	12	48	100	NA	NA

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04	AL	0013	SLAMS	011210002	Multiple	Multiple	12	42	100	NA	NA
04	AL	0013	SLAMS	011250004	Multiple	Multiple	9	37	100	NA	NA
04	AL	0013	SLAMS	011270002	Multiple	Multiple	12	40	100	NA	NA
04	AL	0300	All - NS	NA	NA	NA	12	17	100	1	3/6/4/4
04	AL	0300	SLAMS	010890014	Multiple	Multiple	12	17	100	NA	NA
04	AL	0550	All - NS	NA	NA	NA	48	104	50	4	22/28/29/25
04	AL	0550	SLAMS	010730023	Multiple	Multiple	12	0	0	NA	NA
04	AL	0550	SLAMS	010732003	Multiple	Multiple	12	66	100	NA	NA
04	AL	0550	SLAMS	010735002	Multiple	Multiple	12	38	100	NA	NA
04	FL	0121	All - NS	NA	NA	NA	36	35	97	3	9/9/8/9
04	FL	0121	SLAMS	120113002	Multiple	Multiple	12	11	92	NA	NA
04	FL	0121	SLAMS	120111002	Multiple	Multiple	12	12	100	NA	NA
04	FL	0121	SLAMS	120111204	Multiple	Multiple	12	12	100	NA	NA
04	FL	0274	All - NS	NA	NA	NA	36	25	70	3	6/5/6/8
04	FL	0274	SLAMS	120861016	Multiple	Multiple	12	11	92	NA	NA
04	FL	0274	SLAMS	120866001	Multiple	Multiple	12	12	100	NA	NA
04	FL	0391	All - NS	NA	NA	NA	24	10	42	2	2/3/2/3
04	FL	0391	SLAMS	120010023	Multiple	Multiple	12	10	83	NA	NA
04	FL	0392	All - NS	NA	NA	NA	44	34	77	4	8/8/8/10
04	FL	0392	SLAMS	120051004	Multiple	Multiple	12	12	100	NA	NA
04	FL	0392	SLAMS	120330004	Multiple	Multiple	12	13	100	NA	NA
04	FL	0392	SLAMS	121130014	Multiple	Multiple	8	8	100	NA	NA
04	FL	0393	All - NS	NA	NA	NA	24	12	50	2	4/2/3/3
04	FL	0393	SLAMS	120710005	Multiple	Multiple	12	11	92	NA	NA
04	FL	0394	All - NS	NA	NA	NA	24	10	42	2	2/3/3/2
04	FL	0394	SLAMS	121111002	Multiple	Multiple	12	10	83	NA	NA
04	FL	0395	All - NS	NA	NA	NA	36	24	67	3	5/7/6/6
04	FL	0395	SLAMS	120814012	Multiple	Multiple	12	11	92	NA	NA
04	FL	0395	SLAMS	121056006	Multiple	Multiple	12	12	100	NA	NA
04	FL	0396	All - NS	NA	NA	NA	96	49	51	8	12/12/12/13
04	FL	0396	SLAMS	120090007	Multiple	Multiple	12	11	92	NA	NA
04	FL	0396	SLAMS	120830003	Multiple	Multiple	12	11	92	NA	NA
04	FL	0396	SLAMS	121275002	Multiple	Multiple	12	11	92	NA	NA
04	FL	0396	SLAMS	121171002	Multiple	Multiple	12	12	100	NA	NA
04	FL	0491	All - NS	NA	NA	NA	36	22	61	3	5/5/6/6
04	FL	0491	SLAMS	120571075	Multiple	Multiple	12	8	67	NA	NA
04	FL	0491	SLAMS	120570030	Multiple	Multiple	12	12	100	NA	NA
04	FL	0544	All - NS	NA	NA	NA	36	23	64	3	5/6/6/6
04	FL	0544	SLAMS	120310098	Multiple	Multiple	12	11	92	NA	NA
04	FL	0544	SLAMS	120310099	Multiple	Multiple	12	12	100	NA	NA
04	FL	0820	All - NS	NA	NA	NA	36	25	69	3	6/6/6/7
04	FL	0820	SLAMS	120951004	Multiple	Multiple	12	12	100	NA	NA
04	FL	0820	SLAMS	120952002	Multiple	Multiple	12	12	100	NA	NA
04	FL	0833	All - NS	NA	NA	NA	24	24	100	2	6/6/6/6
04	FL	0833	SLAMS	120990009	Multiple	Multiple	12	12	100	NA	NA
04	FL	0833	SLAMS	120992005	Multiple	Multiple	12	12	100	NA	NA
04	FL	0867	All - NS	NA	NA	NA	29	18	67	3	4/4/4/6
04	FL	0867	SLAMS	121030018	Multiple	Multiple	12	11	92	NA	NA
04	FL	0867	SLAMS	121031009	Multiple	Multiple	5	6	100	NA	NA
04	FL	0951	All - NS	NA	NA	NA	24	11	46	2	2/3/3/3
04	FL	0951	SLAMS	121150013	Multiple	Multiple	12	10	83	NA	NA
04	FL	1224	All - NS	NA	NA	NA	36	9	25	3	2/2/2/3
04	FL	1224	SLAMS	120010024	Multiple	Multiple	12	0	0	NA	NA
04	FL	1224	SLAMS	120170005	Multiple	Multiple	12	9	75	NA	NA
04	FL	1226	All - NS	NA	NA	NA	18	13	67	3	3/3/3/4
04	FL	1226	SLAMS	120730012	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	All - NS	NA	NA	NA	223	212	94	19	53/54/52/53
04	GA	0437	SLAMS	130510091	Multiple	Multiple	12	11	92	NA	NA
04	GA	0437	SLAMS	132150001	Multiple	Multiple	12	11	92	NA	NA
04	GA	0437	SLAMS	130210012	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	130590001	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	130630091	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	130670003	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	130670004	Multiple	Multiple	7	8	100	NA	NA
04	GA	0437	SLAMS	130890002	Multiple	Multiple	12	13	100	NA	NA
04	GA	0437	SLAMS	130950007	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	131150005	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	131210039	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	131270006	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	131390003	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	132150011	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	132230003	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	132450091	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	133030001	Multiple	Multiple	12	12	100	NA	NA
04	GA	0437	SLAMS	133190001	Multiple	Multiple	12	12	100	NA	NA
04	KY	0549	All - NS	NA	NA	NA	36	68	100	3	17/15/18/18
04	KY	0549	SLAMS	211110043	Multiple	Multiple	12	22	100	NA	NA
04	KY	0549	SLAMS	211110044	Multiple	Multiple	12	23	100	NA	NA

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04	KY	0549	SLAMS	211110048	Multiple	Multiple	12	23	100	NA	NA
04	KY	0584	All - NS	NA	NA	NA	168	166	99	15	40/44/40/42
04	KY	0584	SLAMS	210670014	Multiple	Multiple	12	11	92	NA	NA
04	KY	0584	SLAMS	210730006	Multiple	Multiple	12	11	92	NA	NA
04	KY	0584	SLAMS	210190017	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210290006	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210370003	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210430500	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210470006	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210590014	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210670012	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	210930006	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	211010006	Multiple	Multiple	5	5	100	NA	NA
04	KY	0584	SLAMS	211010014	Multiple	Multiple	7	7	100	NA	NA
04	KY	0584	SLAMS	211170007	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	211451004	Multiple	Multiple	12	12	100	NA	NA
04	KY	0584	SLAMS	211510003	Multiple	Multiple	12	12	100	NA	NA
04	MS	0703	All - NS	NA	NA	NA	176	169	93	16	43/44/43/39
04	MS	0703	SLAMS	280010004	Multiple	Multiple	12	8	67	NA	NA
04	MS	0703	SLAMS	281490004	Multiple	Multiple	12	9	75	NA	NA
04	MS	0703	SLAMS	281230001	Multiple	Multiple	12	10	83	NA	NA
04	MS	0703	SLAMS	280110001	Multiple	Multiple	12	11	92	NA	NA
04	MS	0703	SLAMS	280750003	Multiple	Multiple	12	11	92	NA	NA
04	MS	0703	SLAMS	280810005	Multiple	Multiple	12	11	92	NA	NA
04	MS	0703	SLAMS	280870001	Multiple	Multiple	12	11	92	NA	NA
04	MS	0703	SLAMS	280330002	Multiple	Multiple	7	8	100	NA	NA
04	MS	0703	SLAMS	280350004	Multiple	Multiple	12	12	100	NA	NA
04	MS	0703	SLAMS	280470008	Multiple	Multiple	12	13	100	NA	NA
04	MS	0703	SLAMS	280490010	Multiple	Multiple	12	12	100	NA	NA
04	MS	0703	SLAMS	280490018	Multiple	Multiple	12	13	100	NA	NA
04	MS	0703	SLAMS	280590006	Multiple	Multiple	12	12	100	NA	NA
04	MS	0703	SLAMS	280670002	Multiple	Multiple	7	7	100	NA	NA
04	MS	0703	SLAMS	281090001	Multiple	Multiple	12	12	100	NA	NA
04	MS	0703	SLAMS	281210001	Multiple	Multiple	6	9	100	NA	NA
04	NC	0403	All - NS	NA	NA	NA	27	23	38	5	6/6/6/5
04	NC	0403	SLAMS	370670030	8/1/2004	12/31/2004	1	0	0	NA	NA
04	NC	0403	SLAMS	370670022	Multiple	Multiple	12	11	92	NA	NA
04	NC	0403	SLAMS	370670024	Multiple	Multiple	12	12	100	NA	NA
04	NC	0669	All - NS	NA	NA	NA	36	39	100	3	9/12/9/9
04	NC	0669	SLAMS	371190010	Multiple	Multiple	12	13	100	NA	NA
04	NC	0669	SLAMS	371190041	Multiple	Multiple	12	13	100	NA	NA
04	NC	0669	SLAMS	371190042	Multiple	Multiple	12	13	100	NA	NA
04	NC	0776	All - NS	NA	NA	NA	222	121	55	20	17/35/34/35
04	NC	0776	SLAMS	371390002	Multiple	Multiple	12	1	8	NA	NA
04	NC	0776	SLAMS	370650003	Multiple	Multiple	12	2	17	NA	NA
04	NC	0776	SLAMS	371830015	Multiple	Multiple	8	2	25	NA	NA
04	NC	0776	SLAMS	370710016	Multiple	Multiple	9	4	44	NA	NA
04	NC	0776	SLAMS	370010002	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	370350004	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	370510009	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	370630001	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	370870010	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371210001	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371350007	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371470005	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371550005	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371730002	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371830014	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	371910005	Multiple	Multiple	12	7	58	NA	NA
04	NC	0776	SLAMS	370610002	Multiple	Multiple	12	8	67	NA	NA
04	NC	0776	SLAMS	371330005	Multiple	Multiple	12	8	67	NA	NA
04	NC	0776	SLAMS	371290002	Multiple	Multiple	10	8	80	NA	NA
04	NC	0776	SLAMS	370650004	1/6/2004	12/31/2004	3	4	100	NA	NA
04	NC	0779	All - NS	NA	NA	NA	12	8	67	1	2/2/2/2
04	NC	0779	SLAMS	370210034	Multiple	Multiple	12	8	67	NA	NA
04	SC	0971	All - NS	NA	NA	NA	168	1064	100	14	265/258/275/266
04	SC	0971	SLAMS	450130007	Multiple	Multiple	12	77	100	NA	NA
04	SC	0971	SLAMS	450190048	Multiple	Multiple	12	81	100	NA	NA
04	SC	0971	SLAMS	450190049	Multiple	Multiple	12	74	100	NA	NA
04	SC	0971	SLAMS	450370001	Multiple	Multiple	12	78	100	NA	NA
04	SC	0971	SLAMS	450410002	Multiple	Multiple	12	76	100	NA	NA
04	SC	0971	SLAMS	450450008	Multiple	Multiple	12	81	100	NA	NA
04	SC	0971	SLAMS	450450009	Multiple	Multiple	12	76	100	NA	NA
04	SC	0971	SLAMS	450470003	Multiple	Multiple	12	80	100	NA	NA
04	SC	0971	SLAMS	450510002	Multiple	Multiple	12	71	100	NA	NA
04	SC	0971	SLAMS	450630008	Multiple	Multiple	12	79	100	NA	NA
04	SC	0971	SLAMS	450730001	Multiple	Multiple	12	76	100	NA	NA
04	SC	0971	SLAMS	450790007	Multiple	Multiple	12	67	100	NA	NA

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04	SC	0971	SLAMS	450790019	Multiple	Multiple	12	76	100	NA	NA
04	SC	0971	SLAMS	450830010	Multiple	Multiple	12	72	100	NA	NA
04	TN	0170	All - NS	NA	NA	NA	12	12	100	1	3/3/3/3
04	TN	0170	SLAMS	470654002	Multiple	Multiple	12	12	100	NA	NA
04	TN	0581	All - NS	NA	NA	NA	47	49	75	4	10/13/15/11
04	TN	0581	SLAMS	470931013	Multiple	Multiple	11	0	0	NA	NA
04	TN	0581	SLAMS	470930028	Multiple	Multiple	12	12	100	NA	NA
04	TN	0581	SLAMS	470931017	Multiple	Multiple	12	20	100	NA	NA
04	TN	0581	SLAMS	470931020	Multiple	Multiple	12	17	100	NA	NA
04	TN	0673	All - NS	NA	NA	NA	59	35	58	5	5/9/10/11
04	TN	0673	SLAMS	471570024	Multiple	Multiple	11	0	0	NA	NA
04	TN	0673	SLAMS	471570014	Multiple	Multiple	12	8	67	NA	NA
04	TN	0673	SLAMS	471570038	Multiple	Multiple	12	8	67	NA	NA
04	TN	0673	SLAMS	471571004	Multiple	Multiple	12	9	75	NA	NA
04	TN	0673	SLAMS	471570047	Multiple	Multiple	12	10	83	NA	NA
04	TN	0682	All - NS	NA	NA	NA	36	29	81	3	6/9/7/7
04	TN	0682	SLAMS	470370025	Multiple	Multiple	12	9	75	NA	NA
04	TN	0682	SLAMS	470370036	Multiple	Multiple	12	9	75	NA	NA
04	TN	0682	SLAMS	470370023	Multiple	Multiple	12	11	92	NA	NA
04	TN	1025	All - NS	NA	NA	NA	65	62	95	6	15/16/16/15
04	TN	1025	SLAMS	470450004	Multiple	Multiple	12	11	92	NA	NA
04	TN	1025	SLAMS	470990002	Multiple	Multiple	12	11	92	NA	NA
04	TN	1025	SLAMS	471251009	Multiple	Multiple	12	11	92	NA	NA
04	TN	1025	SLAMS	471631007	Multiple	Multiple	12	11	92	NA	NA
04	TN	1025	SLAMS	471130004	Multiple	Multiple	5	6	100	NA	NA
04	TN	1025	SLAMS	471650007	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	All - NS	NA	NA	NA	103	104	100	9	26/26/26/26
05	IL	0258	SLAMS	170310014	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170310022	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170310050	Multiple	Multiple	7	8	100	NA	NA
05	IL	0258	SLAMS	170310052	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170310057	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170310076	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170312001	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170313301	Multiple	Multiple	12	12	100	NA	NA
05	IL	0258	SLAMS	170316005	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	All - NS	NA	NA	NA	310	284	89	28	66/74/76/68
05	IL	0513	SLAMS	170314007	Multiple	Multiple	12	4	33	NA	NA
05	IL	0513	SLAMS	170314201	Multiple	Multiple	12	7	58	NA	NA
05	IL	0513	SLAMS	170890003	Multiple	Multiple	12	7	58	NA	NA
05	IL	0513	SLAMS	170971007	Multiple	Multiple	12	7	58	NA	NA
05	IL	0513	SLAMS	171110001	Multiple	Multiple	12	7	58	NA	NA
05	IL	0513	SLAMS	171570001	Multiple	Multiple	12	10	83	NA	NA
05	IL	0513	SLAMS	171630010	Multiple	Multiple	12	10	83	NA	NA
05	IL	0513	SLAMS	170190004	Multiple	Multiple	12	11	92	NA	NA
05	IL	0513	SLAMS	170990007	Multiple	Multiple	12	11	92	NA	NA
05	IL	0513	SLAMS	171190023	Multiple	Multiple	12	11	92	NA	NA
05	IL	0513	SLAMS	171634001	Multiple	Multiple	12	11	92	NA	NA
05	IL	0513	SLAMS	171971002	Multiple	Multiple	12	11	92	NA	NA
05	IL	0513	SLAMS	171971011	Multiple	Multiple	12	11	92	NA	NA
05	IL	0513	SLAMS	170010006	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	SLAMS	170191001	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	SLAMS	170311016	Multiple	Multiple	12	13	100	NA	NA
05	IL	0513	SLAMS	170313103	1/1/2004	12/31/2004	4	4	100	NA	NA
05	IL	0513	SLAMS	170434002	Multiple	Multiple	12	13	100	NA	NA
05	IL	0513	SLAMS	170831001	1/1/2004	12/31/2004	4	4	100	NA	NA
05	IL	0513	SLAMS	171132002	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	SLAMS	171150013	Multiple	Multiple	7	9	100	NA	NA
05	IL	0513	SLAMS	171191007	Multiple	Multiple	12	13	100	NA	NA
05	IL	0513	SLAMS	171192009	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	SLAMS	171193007	Multiple	Multiple	12	14	100	NA	NA
05	IL	0513	SLAMS	171430037	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	SLAMS	171613002	Multiple	Multiple	12	12	100	NA	NA
05	IL	0513	SLAMS	171670012	Multiple	Multiple	7	11	100	NA	NA
05	IL	0513	SLAMS	172010010	Multiple	Multiple	12	13	100	NA	NA
05	IN	0520	All - NS	NA	NA	NA	369	369	98	32	97/92/88/92
05	IN	0520	SLAMS	180190006	Multiple	Multiple	6	5	83	NA	NA
05	IN	0520	SLAMS	181570008	Multiple	Multiple	9	8	89	NA	NA
05	IN	0520	SLAMS	180372001	Multiple	Multiple	12	11	92	NA	NA
05	IN	0520	SLAMS	180890006	Multiple	Multiple	12	11	92	NA	NA
05	IN	0520	SLAMS	180890026	Multiple	Multiple	12	11	92	NA	NA
05	IN	0520	SLAMS	180891003	Multiple	Multiple	12	11	92	NA	NA
05	IN	0520	SLAMS	180892004	Multiple	Multiple	12	11	92	NA	NA
05	IN	0520	SLAMS	181630012	Multiple	Multiple	12	11	92	NA	NA
05	IN	0520	SLAMS	180030004	Multiple	Multiple	12	13	100	NA	NA
05	IN	0520	SLAMS	180030014	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180190005	Multiple	Multiple	6	6	100	NA	NA
05	IN	0520	SLAMS	180350006	Multiple	Multiple	12	12	100	NA	NA

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05	IN	0520	SLAMS	180390003	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180431004	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180650003	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180670003	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180830004	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180890022	Multiple	Multiple	12	13	100	NA	NA
05	IN	0520	SLAMS	180890027	Multiple	Multiple	12	13	100	NA	NA
05	IN	0520	SLAMS	180892010	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180910011	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180910012	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	180950009	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181270020	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181270024	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181410014	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181411008	Multiple	Multiple	12	17	100	NA	NA
05	IN	0520	SLAMS	181412004	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181630006	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181630016	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181670018	Multiple	Multiple	12	12	100	NA	NA
05	IN	0520	SLAMS	181670023	Multiple	Multiple	12	12	100	NA	NA
05	IN	0523	All - NS	NA	NA	NA	65	65	98	7	17/16/16/16
05	IN	0523	SLAMS	180970081	Multiple	Multiple	12	10	83	NA	NA
05	IN	0523	SLAMS	180970042	Multiple	Multiple	12	12	100	NA	NA
05	IN	0523	SLAMS	180970043	Multiple	Multiple	12	12	100	NA	NA
05	IN	0523	SLAMS	180970066	Multiple	Multiple	12	12	100	NA	NA
05	IN	0523	SLAMS	180970078	Multiple	Multiple	12	12	100	NA	NA
05	IN	0523	SLAMS	180970079	1/1/2002	9/29/2002	2	3	100	NA	NA
05	IN	0523	SLAMS	180970083	1/1/2002	12/28/2002	3	4	100	NA	NA
05	MI	0685	All - NS	NA	NA	NA	264	245	92	25	58/57/65/65
05	MI	0685	SLAMS	261630015	Multiple	Multiple	12	10	83	NA	NA
05	MI	0685	SLAMS	261630016	Multiple	Multiple	12	10	83	NA	NA
05	MI	0685	SLAMS	261630019	Multiple	Multiple	12	10	83	NA	NA
05	MI	0685	SLAMS	261630025	Multiple	Multiple	12	10	83	NA	NA
05	MI	0685	SLAMS	261630036	Multiple	Multiple	12	10	83	NA	NA
05	MI	0685	SLAMS	261210040	Multiple	Multiple	12	11	92	NA	NA
05	MI	0685	SLAMS	261630033	Multiple	Multiple	12	11	92	NA	NA
05	MI	0685	SLAMS	260050003	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	260170014	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	260210014	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	260490021	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	260650012	Multiple	Multiple	7	8	100	NA	NA
05	MI	0685	SLAMS	260770008	Multiple	Multiple	7	7	100	NA	NA
05	MI	0685	SLAMS	260810020	Multiple	Multiple	7	8	100	NA	NA
05	MI	0685	SLAMS	260990009	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	261130001	Multiple	Multiple	7	8	100	NA	NA
05	MI	0685	SLAMS	261150005	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	261250001	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	261390005	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	261450018	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	261470005	Multiple	Multiple	7	8	100	NA	NA
05	MI	0685	SLAMS	261610005	Multiple	Multiple	12	12	100	NA	NA
05	MI	0685	SLAMS	261610008	Multiple	Multiple	7	8	100	NA	NA
05	MI	0685	SLAMS	261630001	Multiple	Multiple	6	6	100	NA	NA
05	MN	0700	All - NS	NA	NA	NA	214	185	79	20	46/48/45/46
05	MN	0700	SLAMS	270530050	Multiple	Multiple	10	0	0	NA	NA
05	MN	0700	SLAMS	270530964	Multiple	Multiple	8	0	0	NA	NA
05	MN	0700	SLAMS	270530968	6/1/2004	12/31/2004	2	0	0	NA	NA
05	MN	0700	SLAMS	271230868	Multiple	Multiple	12	2	17	NA	NA
05	MN	0700	SLAMS	270376018	Multiple	Multiple	8	7	88	NA	NA
05	MN	0700	SLAMS	271230872	Multiple	Multiple	8	7	88	NA	NA
05	MN	0700	SLAMS	270530961	Multiple	Multiple	12	11	92	NA	NA
05	MN	0700	SLAMS	270530963	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	270530965	Multiple	Multiple	10	10	100	NA	NA
05	MN	0700	SLAMS	270531007	Multiple	Multiple	12	14	100	NA	NA
05	MN	0700	SLAMS	270532006	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	270953051	Multiple	Multiple	12	13	100	NA	NA
05	MN	0700	SLAMS	271095008	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	271230866	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	271230871	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	271377001	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	271377550	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	271377551	Multiple	Multiple	12	12	100	NA	NA
05	MN	0700	SLAMS	271390505	Multiple	Multiple	12	13	100	NA	NA
05	MN	0700	SLAMS	271453052	Multiple	Multiple	12	12	100	NA	NA
05	OH	0012	All - NS	NA	NA	NA	48	47	98	4	12/12/12/11
05	OH	0012	SLAMS	391530023	Multiple	Multiple	12	11	92	NA	NA
05	OH	0012	SLAMS	391330002	Multiple	Multiple	12	12	100	NA	NA
05	OH	0012	SLAMS	391530017	Multiple	Multiple	12	12	100	NA	NA

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05	OH	0151	All - NS	NA	NA	NA	36	36	69	3	9/9/9/9
05	OH	0151	SLAMS	391510017	Multiple	Multiple	12	22	100	NA	NA
05	OH	0151	SLAMS	391510020	Multiple	Multiple	12	13	100	NA	NA
05	OH	0220	All - NS	NA	NA	NA	36	35	97	3	9/9/8/9
05	OH	0220	SLAMS	390950026	Multiple	Multiple	12	11	92	NA	NA
05	OH	0220	SLAMS	390950024	Multiple	Multiple	12	12	100	NA	NA
05	OH	0220	SLAMS	390950025	Multiple	Multiple	12	12	100	NA	NA
05	OH	0229	All - NS	NA	NA	NA	100	117	99	9	29/28/29/31
05	OH	0229	SLAMS	390350034	Multiple	Multiple	12	11	92	NA	NA
05	OH	0229	SLAMS	390350013	Multiple	Multiple	7	7	100	NA	NA
05	OH	0229	SLAMS	390350027	Multiple	Multiple	12	12	100	NA	NA
05	OH	0229	SLAMS	390350038	Multiple	Multiple	12	22	100	NA	NA
05	OH	0229	SLAMS	390350045	Multiple	Multiple	12	12	100	NA	NA
05	OH	0229	SLAMS	390350060	Multiple	Multiple	12	20	100	NA	NA
05	OH	0229	SLAMS	390350065	Multiple	Multiple	12	12	100	NA	NA
05	OH	0229	SLAMS	390350066	Multiple	Multiple	9	9	100	NA	NA
05	OH	0229	SLAMS	390351002	Multiple	Multiple	12	12	100	NA	NA
05	OH	0287	All - NS	NA	NA	NA	52	50	83	5	8/16/12/14
05	OH	0287	SLAMS	390570005	Multiple	Multiple	4	3	75	NA	NA
05	OH	0287	SLAMS	391351001	Multiple	Multiple	12	9	75	NA	NA
05	OH	0287	SLAMS	390230005	Multiple	Multiple	12	10	83	NA	NA
05	OH	0287	SLAMS	391130031	Multiple	Multiple	12	10	83	NA	NA
05	OH	0287	SLAMS	391130032	Multiple	Multiple	12	18	100	NA	NA
05	OH	0595	All - NS	NA	NA	NA	16	12	50	2	3/4/2/3
05	OH	0595	SLAMS	390851001	Multiple	Multiple	12	12	100	NA	NA
05	OH	0634	All - NS	NA	NA	NA	44	43	75	4	9/11/11/12
05	OH	0634	SLAMS	390990005	Multiple	Multiple	12	22	100	NA	NA
05	OH	0634	SLAMS	390990014	Multiple	Multiple	8	9	100	NA	NA
05	OH	0634	SLAMS	391550007	Multiple	Multiple	12	12	100	NA	NA
05	OH	0805	All - NS	NA	NA	NA	48	43	69	4	8/12/11/12
05	OH	0805	SLAMS	390490024	Multiple	Multiple	12	10	83	NA	NA
05	OH	0805	SLAMS	390490081	Multiple	Multiple	12	11	92	NA	NA
05	OH	0805	SLAMS	390490025	Multiple	Multiple	12	22	100	NA	NA
05	OH	0807	All - NS	NA	NA	NA	29	33	78	3	7/8/9/9
05	OH	0807	SLAMS	390930016	Multiple	Multiple	12	12	100	NA	NA
05	OH	0807	SLAMS	390933002	Multiple	Multiple	11	19	100	NA	NA
05	OH	0809	All - NS	NA	NA	NA	35	41	98	4	10/12/8/11
05	OH	0809	SLAMS	390090003	Multiple	Multiple	12	11	92	NA	NA
05	OH	0809	SLAMS	390810016	Multiple	Multiple	7	7	100	NA	NA
05	OH	0809	SLAMS	390810017	Multiple	Multiple	4	4	100	NA	NA
05	OH	0809	SLAMS	390811001	Multiple	Multiple	12	19	100	NA	NA
05	OH	0880	All - NS	NA	NA	NA	24	29	92	2	6/7/9/7
05	OH	0880	SLAMS	390870010	Multiple	Multiple	12	10	83	NA	NA
05	OH	0880	SLAMS	391450013	Multiple	Multiple	12	19	100	NA	NA
05	OH	1259	All - NS	NA	NA	NA	158	130	78	14	26/38/33/33
05	OH	1259	SLAMS	390170003	Multiple	Multiple	12	11	92	NA	NA
05	OH	1259	SLAMS	390171004	Multiple	Multiple	12	11	92	NA	NA
05	OH	1259	SLAMS	390610040	Multiple	Multiple	12	11	92	NA	NA
05	OH	1259	SLAMS	390170016	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390170017	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390610014	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390610041	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390610042	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390610043	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390617001	Multiple	Multiple	12	12	100	NA	NA
05	OH	1259	SLAMS	390618001	Multiple	Multiple	12	12	100	NA	NA
05	WI	1175	All - NS	NA	NA	NA	149	148	93	23	44/38/39/27
05	WI	1175	SLAMS	550090005	4/1/2004	12/31/2004	3	2	67	NA	NA
05	WI	1175	SLAMS	550790026	4/1/2004	12/31/2004	3	2	67	NA	NA
05	WI	1175	SLAMS	551110007	4/1/2004	12/31/2004	3	2	67	NA	NA
05	WI	1175	SLAMS	550890009	Multiple	Multiple	6	5	83	NA	NA
05	WI	1175	SLAMS	550270007	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550590019	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550710007	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550790010	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550790043	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550790099	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550870009	Multiple	Multiple	12	11	92	NA	NA
05	WI	1175	SLAMS	550090026	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	550090028	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	550290004	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	550790050	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	550790051	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	550890008	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	551050024	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	551198001	Multiple	Multiple	6	6	100	NA	NA
05	WI	1175	SLAMS	551330027	Multiple	Multiple	4	4	100	NA	NA
05	WI	1175	SLAMS	551330034	Multiple	Multiple	4	5	100	NA	NA

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05	WI	1175	SLAMS	551390011	Multiple	Multiple	4	5	100	NA	NA
05	WI	1175	SLAMS	551410016	Multiple	Multiple	4	5	100	NA	NA
06	AR	0055	All - NS	NA	NA	NA	229	130	54	25	27/38/26/39
06	AR	0055	SLAMS	051390005	Multiple	Multiple	5	1	20	NA	NA
06	AR	0055	SLAMS	050310001	Multiple	Multiple	8	3	38	NA	NA
06	AR	0055	SLAMS	050690006	Multiple	Multiple	8	3	38	NA	NA
06	AR	0055	SLAMS	051150003	Multiple	Multiple	12	5	42	NA	NA
06	AR	0055	SLAMS	050510002	Multiple	Multiple	4	2	50	NA	NA
06	AR	0055	SLAMS	050930007	Multiple	Multiple	12	6	50	NA	NA
06	AR	0055	SLAMS	051191005	Multiple	Multiple	8	4	50	NA	NA
06	AR	0055	SLAMS	051191008	Multiple	Multiple	4	2	50	NA	NA
06	AR	0055	SLAMS	050510003	Multiple	Multiple	7	4	57	NA	NA
06	AR	0055	SLAMS	051430004	Multiple	Multiple	7	4	57	NA	NA
06	AR	0055	SLAMS	051130002	Multiple	Multiple	12	7	58	NA	NA
06	AR	0055	SLAMS	051190007	Multiple	Multiple	12	7	58	NA	NA
06	AR	0055	SLAMS	051450001	Multiple	Multiple	12	7	58	NA	NA
06	AR	0055	SLAMS	051390006	Multiple	Multiple	10	6	60	NA	NA
06	AR	0055	SLAMS	050010011	Multiple	Multiple	12	8	67	NA	NA
06	AR	0055	SLAMS	050450002	Multiple	Multiple	12	8	67	NA	NA
06	AR	0055	SLAMS	050890001	Multiple	Multiple	6	4	67	NA	NA
06	AR	0055	SLAMS	051070001	Multiple	Multiple	12	8	67	NA	NA
06	AR	0055	SLAMS	051191004	Multiple	Multiple	12	8	67	NA	NA
06	AR	0055	SLAMS	051310008	Multiple	Multiple	12	8	67	NA	NA
06	AR	0055	SLAMS	050030005	Multiple	Multiple	12	9	75	NA	NA
06	AR	0055	SLAMS	050350004	Multiple	Multiple	12	9	75	NA	NA
06	AR	0055	SLAMS	050910004	Multiple	Multiple	6	5	83	NA	NA
06	LA	1001	All - NS	NA	NA	NA	384	245	63	33	62/61/61/61
06	LA	1001	SLAMS	220290003	Multiple	Multiple	12	10	83	NA	NA
06	LA	1001	SLAMS	220171002	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220190009	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220190010	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220330002	Multiple	Multiple	7	8	100	NA	NA
06	LA	1001	SLAMS	220330009	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220331001	Multiple	Multiple	12	15	100	NA	NA
06	LA	1001	SLAMS	220470005	Multiple	Multiple	12	13	100	NA	NA
06	LA	1001	SLAMS	220470009	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220511001	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220512001	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220550005	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220550006	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220710010	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220710012	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220730004	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	220790001	Multiple	Multiple	5	6	100	NA	NA
06	LA	1001	SLAMS	220870004	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	221050001	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	221090001	Multiple	Multiple	12	12	100	NA	NA
06	LA	1001	SLAMS	221210001	Multiple	Multiple	12	13	100	NA	NA
06	NM	0017	All - NS	NA	NA	NA	24	16	67	2	5/4/3/4
06	NM	0017	SLAMS	350010024	Multiple	Multiple	12	7	58	NA	NA
06	NM	0017	SLAMS	350010023	Multiple	Multiple	12	9	75	NA	NA
06	OK	0812	All - NS	NA	NA	NA	53	52	97	5	13/14/12/13
06	OK	0812	SLAMS	401210415	Multiple	Multiple	12	11	92	NA	NA
06	OK	0812	SLAMS	401430110	Multiple	Multiple	12	11	92	NA	NA
06	OK	0812	SLAMS	400190295	Multiple	Multiple	12	12	100	NA	NA
06	OK	0812	SLAMS	401430131	Multiple	Multiple	5	6	100	NA	NA
06	OK	0812	SLAMS	401431127	Multiple	Multiple	12	12	100	NA	NA
06	TX	1035	All - NS	NA	NA	NA	443	511	99	55	133/135/124/119
06	TX	1035	SLAMS	480290053	Multiple	Multiple	5	4	80	NA	NA
06	TX	1035	SLAMS	480290052	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	480290060	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	480370004	Multiple	Multiple	12	12	100	NA	NA
06	TX	1035	SLAMS	480391003	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	480550062	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	480612002	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	480850005	Multiple	Multiple	4	5	100	NA	NA
06	TX	1035	SLAMS	481130035	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	481130057	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	481130069	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	481130087	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	481133004	Multiple	Multiple	9	11	100	NA	NA
06	TX	1035	SLAMS	481350003	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	481410002	Multiple	Multiple	5	6	100	NA	NA
06	TX	1035	SLAMS	481410037	Multiple	Multiple	5	6	100	NA	NA
06	TX	1035	SLAMS	481410038	Multiple	Multiple	5	6	100	NA	NA
06	TX	1035	SLAMS	481410044	Multiple	Multiple	5	7	100	NA	NA
06	TX	1035	SLAMS	481410045	Multiple	Multiple	5	6	100	NA	NA
06	TX	1035	SLAMS	481410057	Multiple	Multiple	5	7	100	NA	NA

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06	TX	1035	SLAMS	481410058	Multiple	Multiple	3	4	100	NA	NA
06	TX	1035	SLAMS	481670053	Multiple	Multiple	4	5	100	NA	NA
06	TX	1035	SLAMS	481671005	Multiple	Multiple	4	5	100	NA	NA
06	TX	1035	SLAMS	481830001	Multiple	Multiple	12	13	100	NA	NA
06	TX	1035	SLAMS	482010051	Multiple	Multiple	4	5	100	NA	NA
06	TX	1035	SLAMS	482010058	Multiple	Multiple	12	15	100	NA	NA
06	TX	1035	SLAMS	482010062	Multiple	Multiple	4	4	100	NA	NA
06	TX	1035	SLAMS	482010075	Multiple	Multiple	4	5	100	NA	NA
06	TX	1035	SLAMS	482011035	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	482150042	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	482150043	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	482450021	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	483030001	Multiple	Multiple	4	5	100	NA	NA
06	TX	1035	SLAMS	483091002	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	483550032	Multiple	Multiple	12	15	100	NA	NA
06	TX	1035	SLAMS	483611001	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	483750005	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	484391002	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	484391006	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	484393006	Multiple	Multiple	12	14	100	NA	NA
06	TX	1035	SLAMS	484393010	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	484530020	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	484530021	Multiple	Multiple	5	5	100	NA	NA
06	TX	1035	SLAMS	484790016	Multiple	Multiple	6	7	100	NA	NA
07	IA	0613	All - NS	NA	NA	NA	24	24	100	2	6/6/6
07	IA	0613	SLAMS	190130008	Multiple	Multiple	12	12	100	NA	NA
07	IA	0613	SLAMS	191130037	Multiple	Multiple	12	12	100	NA	NA
07	IA	0874	All - NS	NA	NA	NA	23	24	100	3	6/6/6
07	IA	0874	SLAMS	191530030	Multiple	Multiple	7	8	100	NA	NA
07	IA	0874	SLAMS	191532510	Multiple	Multiple	12	12	100	NA	NA
07	IA	0874	SLAMS	191532520	1/1/2002	12/31/2002	4	4	100	NA	NA
07	IA	1080	All - NS	NA	NA	NA	134	138	100	12	34/35/35/34
07	IA	1080	SLAMS	190330019	Multiple	Multiple	10	11	100	NA	NA
07	IA	1080	SLAMS	190450021	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	190630003	Multiple	Multiple	11	12	100	NA	NA
07	IA	1080	SLAMS	191032001	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	191370002	Multiple	Multiple	10	11	100	NA	NA
07	IA	1080	SLAMS	191390015	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	191550009	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	191630015	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	191630018	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	191770005	Multiple	Multiple	11	12	100	NA	NA
07	IA	1080	SLAMS	191930017	Multiple	Multiple	12	12	100	NA	NA
07	IA	1080	SLAMS	191970004	Multiple	Multiple	8	8	100	NA	NA
07	KS	0563	All - NS	NA	NA	NA	123	131	99	13	32/32/36/31
07	KS	0563	SLAMS	201910002	Multiple	Multiple	12	11	92	NA	NA
07	KS	0563	SLAMS	200910007	Multiple	Multiple	7	9	100	NA	NA
07	KS	0563	SLAMS	200910008	Multiple	Multiple	7	8	100	NA	NA
07	KS	0563	SLAMS	200910009	Multiple	Multiple	12	13	100	NA	NA
07	KS	0563	SLAMS	200910010	1/1/2004	12/31/2004	4	4	100	NA	NA
07	KS	0563	SLAMS	201070002	Multiple	Multiple	7	8	100	NA	NA
07	KS	0563	SLAMS	201730008	Multiple	Multiple	12	12	100	NA	NA
07	KS	0563	SLAMS	201730009	Multiple	Multiple	12	12	100	NA	NA
07	KS	0563	SLAMS	201730010	Multiple	Multiple	7	8	100	NA	NA
07	KS	0563	SLAMS	201770010	Multiple	Multiple	12	13	100	NA	NA
07	KS	0563	SLAMS	201770011	Multiple	Multiple	12	13	100	NA	NA
07	KS	0563	SLAMS	202090021	Multiple	Multiple	7	8	100	NA	NA
07	KS	0563	SLAMS	202090022	Multiple	Multiple	12	12	100	NA	NA
07	MO	0561	All - NS	NA	NA	NA	16	9	55	3	5/2/2/0
07	MO	0561	SLAMS	290950034	2/2/2003	9/30/2003	2	1	50	NA	NA
07	MO	0561	SLAMS	290370003	Multiple	Multiple	7	4	57	NA	NA
07	MO	0561	SLAMS	290950037	Multiple	Multiple	7	4	57	NA	NA
07	MO	0588	All - NS	NA	NA	NA	120	97	82	14	25/24/26/22
07	MO	0588	SLAMS	290470041	Multiple	Multiple	12	1	8	NA	NA
07	MO	0588	SLAMS	290950041	Multiple	Multiple	8	3	38	NA	NA
07	MO	0588	SLAMS	290990012	Multiple	Multiple	12	9	75	NA	NA
07	MO	0588	SLAMS	290470005	Multiple	Multiple	12	10	83	NA	NA
07	MO	0588	SLAMS	290950010	Multiple	Multiple	6	5	83	NA	NA
07	MO	0588	SLAMS	291860006	Multiple	Multiple	12	10	83	NA	NA
07	MO	0588	SLAMS	290190004	Multiple	Multiple	11	10	91	NA	NA
07	MO	0588	SLAMS	290390001	Multiple	Multiple	12	11	92	NA	NA
07	MO	0588	SLAMS	290210005	6/11/2004	12/31/2004	2	2	100	NA	NA
07	MO	0588	SLAMS	290210010	Multiple	Multiple	4	6	100	NA	NA
07	MO	0588	SLAMS	290370003	Multiple	Multiple	5	5	100	NA	NA
07	MO	0588	SLAMS	290950034	Multiple	Multiple	5	5	100	NA	NA
07	MO	0588	SLAMS	291370001	Multiple	Multiple	12	12	100	NA	NA
07	MO	0588	SLAMS	291831002	Multiple	Multiple	7	8	100	NA	NA
07	MO	0986	All - NS	NA	NA	NA	19	8	50	2	2/2/2

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07	MO	0986	SLAMS	290770032	Multiple	Multiple	7	8	100	NA	NA
07	MO	0990	All - NS	NA	NA	NA	32	31	96	3	8/8/8/7
07	MO	0990	SLAMS	295100085	Multiple	Multiple	8	7	88	NA	NA
07	MO	0990	SLAMS	295100007	Multiple	Multiple	12	12	100	NA	NA
07	MO	0990	SLAMS	295100086	Multiple	Multiple	12	12	100	NA	NA
07	MO	0992	All - NS	NA	NA	NA	37	32	90	4	10/8/9/5
07	MO	0992	SLAMS	291890004	Multiple	Multiple	12	10	83	NA	NA
07	MO	0992	SLAMS	291892003	Multiple	Multiple	7	7	100	NA	NA
07	MO	0992	SLAMS	291895001	Multiple	Multiple	6	6	100	NA	NA
07	NE	0752	All - NS	NA	NA	NA	59	55	86	6	15/13/15/12
07	NE	0752	SLAMS	310790004	5/9/2004	12/31/2004	2	1	50	NA	NA
07	NE	0752	SLAMS	311111002	Multiple	Multiple	12	10	83	NA	NA
07	NE	0752	SLAMS	310790003	Multiple	Multiple	9	8	89	NA	NA
07	NE	0752	SLAMS	311570003	Multiple	Multiple	12	11	92	NA	NA
07	NE	0752	SLAMS	310250002	Multiple	Multiple	12	12	100	NA	NA
07	NE	0752	SLAMS	311090022	Multiple	Multiple	12	13	100	NA	NA
07	NE	0816	All - NS	NA	NA	NA	72	72	100	6	18/18/18/18
07	NE	0816	SLAMS	310550019	Multiple	Multiple	12	12	100	NA	NA
07	NE	0816	SLAMS	310550051	Multiple	Multiple	12	12	100	NA	NA
07	NE	0816	SLAMS	310550052	Multiple	Multiple	12	12	100	NA	NA
07	NE	0816	SLAMS	311530007	Multiple	Multiple	12	12	100	NA	NA
07	NE	0816	SLAMS	311770002	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	All - NS	NA	NA	NA	150	150	99	14	36/37/39/38
08	CO	0240	SLAMS	081010012	Multiple	Multiple	12	11	92	NA	NA
08	CO	0240	SLAMS	080010006	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080050005	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080130003	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080130012	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080310002	Multiple	Multiple	6	7	100	NA	NA
08	CO	0240	SLAMS	080390001	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080410008	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080410011	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080690009	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	080770003	Multiple	Multiple	8	8	100	NA	NA
08	CO	0240	SLAMS	080770017	1/1/2004	12/31/2004	4	4	100	NA	NA
08	CO	0240	SLAMS	081230006	Multiple	Multiple	12	12	100	NA	NA
08	CO	0240	SLAMS	081230008	Multiple	Multiple	12	12	100	NA	NA
08	MT	0730	All - NS	NA	NA	NA	101	97	94	9	22/24/25/26
08	MT	0730	SLAMS	300530018	Multiple	Multiple	12	10	83	NA	NA
08	MT	0730	SLAMS	300630031	Multiple	Multiple	10	9	90	NA	NA
08	MT	0730	SLAMS	300131026	Multiple	Multiple	12	11	92	NA	NA
08	MT	0730	SLAMS	300490018	Multiple	Multiple	12	11	92	NA	NA
08	MT	0730	SLAMS	300810001	Multiple	Multiple	12	11	92	NA	NA
08	MT	0730	SLAMS	300290009	Multiple	Multiple	12	13	100	NA	NA
08	MT	0730	SLAMS	300290047	Multiple	Multiple	12	13	100	NA	NA
08	MT	0730	SLAMS	300490019	Multiple	Multiple	7	7	100	NA	NA
08	MT	0730	SLAMS	301111065	Multiple	Multiple	12	12	100	NA	NA
08	ND	0782	All - NS	NA	NA	NA	54	56	93	5	13/18/13/12
08	ND	0782	SLAMS	380070002	Multiple	Multiple	12	8	67	NA	NA
08	ND	0782	SLAMS	380130002	Multiple	Multiple	12	15	100	NA	NA
08	ND	0782	SLAMS	380130003	Multiple	Multiple	12	14	100	NA	NA
08	ND	0782	SLAMS	380530002	Multiple	Multiple	12	13	100	NA	NA
08	ND	0782	SLAMS	380570004	Multiple	Multiple	6	6	100	NA	NA
08	SD	0973	All - NS	NA	NA	NA	112	118	100	11	34/30/26/28
08	SD	0973	SLAMS	460110002	Multiple	Multiple	12	12	100	NA	NA
08	SD	0973	SLAMS	460130003	Multiple	Multiple	12	13	100	NA	NA
08	SD	0973	SLAMS	460290002	Multiple	Multiple	8	8	100	NA	NA
08	SD	0973	SLAMS	460710001	Multiple	Multiple	12	13	100	NA	NA
08	SD	0973	SLAMS	460930001	Multiple	Multiple	12	12	100	NA	NA
08	SD	0973	SLAMS	460990006	Multiple	Multiple	12	12	100	NA	NA
08	SD	0973	SLAMS	460990007	Multiple	Multiple	12	12	100	NA	NA
08	SD	0973	SLAMS	461030016	Multiple	Multiple	12	13	100	NA	NA
08	SD	0973	SLAMS	461030019	Multiple	Multiple	5	6	100	NA	NA
08	SD	0973	SLAMS	461030020	1/4/2004	12/31/2004	3	4	100	NA	NA
08	SD	0973	SLAMS	461031001	Multiple	Multiple	12	13	100	NA	NA
08	UT	1113	All - NS	NA	NA	NA	101	285	100	9	74/72/73/66
08	UT	1113	SLAMS	490110004	Multiple	Multiple	5	18	100	NA	NA
08	UT	1113	SLAMS	490350003	Multiple	Multiple	12	34	100	NA	NA
08	UT	1113	SLAMS	490353006	Multiple	Multiple	12	33	100	NA	NA
08	UT	1113	SLAMS	490353007	Multiple	Multiple	12	41	100	NA	NA
08	UT	1113	SLAMS	490450002	Multiple	Multiple	12	17	100	NA	NA
08	UT	1113	SLAMS	490490002	Multiple	Multiple	12	37	100	NA	NA
08	UT	1113	SLAMS	490494001	Multiple	Multiple	12	35	100	NA	NA
08	UT	1113	SLAMS	490570002	Multiple	Multiple	12	37	100	NA	NA
08	UT	1113	SLAMS	490571003	Multiple	Multiple	12	33	100	NA	NA
08	WY	1188	All - NS	NA	NA	NA	48	52	98	4	16/10/15/11
08	WY	1188	SLAMS	560390006	Multiple	Multiple	12	11	92	NA	NA
08	WY	1188	SLAMS	560131003	Multiple	Multiple	12	12	100	NA	NA

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08	WY	1188	SLAMS	560210001	Multiple	Multiple	12	14	100	NA	NA
08	WY	1188	SLAMS	560330001	Multiple	Multiple	12	15	100	NA	NA
09	AZ	0053	All - NS	NA	NA	NA	70	51	72	7	14/14/11/12
09	AZ	0053	SLAMS	040070008	Multiple	Multiple	8	4	50	NA	NA
09	AZ	0053	SLAMS	040051008	Multiple	Multiple	12	8	67	NA	NA
09	AZ	0053	SLAMS	040230004	Multiple	Multiple	12	8	67	NA	NA
09	AZ	0053	SLAMS	040139990	Multiple	Multiple	10	7	70	NA	NA
09	AZ	0053	SLAMS	040031005	Multiple	Multiple	12	9	75	NA	NA
09	AZ	0053	SLAMS	040139997	Multiple	Multiple	12	9	75	NA	NA
09	AZ	0053	SLAMS	040130019	1/1/2004	12/31/2004	4	6	100	NA	NA
09	AZ	615	All - NS	NA	NA	NA	2	0	0	1	0/0/0/0
09	AZ	615	SLAMS	040137020	5/14/2004	12/31/2004	2	0	0	NA	NA
09	AZ	0864	All - NS	NA	NA	NA	24	23	96	2	5/7/6/5
09	AZ	0864	SLAMS	040190011	Multiple	Multiple	12	11	92	NA	NA
09	AZ	0864	SLAMS	040191028	Multiple	Multiple	12	12	100	NA	NA
09	CA	0042	All - NS	NA	NA	NA	12	4	33	1	2/1/0/1
09	CA	0042	SLAMS	060379033	Multiple	Multiple	12	4	33	NA	NA
09	CA	0086	All - NS	NA	NA	NA	116	113	81	12	25/26/23/39
09	CA	0086	SLAMS	060450006	Multiple	Multiple	12	4	33	NA	NA
09	CA	0086	SLAMS	060231002	Multiple	Multiple	12	7	58	NA	NA
09	CA	0086	SLAMS	060333001	Multiple	Multiple	12	9	75	NA	NA
09	CA	0086	SLAMS	060010007	Multiple	Multiple	12	15	100	NA	NA
09	CA	0086	SLAMS	060011001	Multiple	Multiple	1	2	100	NA	NA
09	CA	0086	SLAMS	060130002	Multiple	Multiple	12	15	100	NA	NA
09	CA	0086	SLAMS	060531003	Multiple	Multiple	6	7	100	NA	NA
09	CA	0086	SLAMS	060850005	Multiple	Multiple	8	10	100	NA	NA
09	CA	0086	SLAMS	060852003	Multiple	Multiple	12	15	100	NA	NA
09	CA	0086	SLAMS	060950004	Multiple	Multiple	12	14	100	NA	NA
09	CA	0086	SLAMS	060970003	Multiple	Multiple	12	15	100	NA	NA
09	CA	0145	All - NS	NA	NA	NA	259	148	57	24	36/39/28/45
09	CA	0145	SLAMS	060631009	Multiple	Multiple	12	2	17	NA	NA
09	CA	0145	SLAMS	060890004	Multiple	Multiple	12	4	33	NA	NA
09	CA	0145	SLAMS	060670010	Multiple	Multiple	12	5	42	NA	NA
09	CA	0145	SLAMS	060571001	Multiple	Multiple	7	3	43	NA	NA
09	CA	0145	SLAMS	060170011	Multiple	Multiple	8	4	50	NA	NA
09	CA	0145	SLAMS	060631006	Multiple	Multiple	12	6	50	NA	NA
09	CA	0145	SLAMS	060674001	Multiple	Multiple	12	6	50	NA	NA
09	CA	0145	SLAMS	060190008	Multiple	Multiple	7	4	57	NA	NA
09	CA	0145	SLAMS	060670006	Multiple	Multiple	7	4	57	NA	NA
09	CA	0145	SLAMS	061010003	Multiple	Multiple	7	4	57	NA	NA
09	CA	0145	SLAMS	060090001	Multiple	Multiple	12	7	58	NA	NA
09	CA	0145	SLAMS	060570005	Multiple	Multiple	12	7	58	NA	NA
09	CA	0145	SLAMS	060990005	Multiple	Multiple	12	7	58	NA	NA
09	CA	0145	SLAMS	061072002	Multiple	Multiple	12	7	58	NA	NA
09	CA	0145	SLAMS	060070002	Multiple	Multiple	12	8	67	NA	NA
09	CA	0145	SLAMS	060610006	Multiple	Multiple	12	8	67	NA	NA
09	CA	0145	SLAMS	060771002	Multiple	Multiple	12	8	67	NA	NA
09	CA	0145	SLAMS	061131003	Multiple	Multiple	12	8	67	NA	NA
09	CA	0145	SLAMS	060111002	Multiple	Multiple	12	9	75	NA	NA
09	CA	0145	SLAMS	060490001	Multiple	Multiple	7	6	86	NA	NA
09	CA	0458	All - NS	NA	NA	NA	36	21	58	3	5/4/8/4
09	CA	0458	SLAMS	060510001	Multiple	Multiple	12	5	42	NA	NA
09	CA	0458	SLAMS	060271003	Multiple	Multiple	12	9	75	NA	NA
09	CA	0709	All - NS	NA	NA	NA	19	10	51	2	4/3/2/1
09	CA	0709	SLAMS	060710306	Multiple	Multiple	7	3	43	NA	NA
09	CA	0942	All - NS	NA	NA	NA	119	45	37	11	8/7/19/11
09	CA	0942	SLAMS	060250007	Multiple	Multiple	4	0	0	NA	NA
09	CA	0942	SLAMS	060730001	Multiple	Multiple	12	3	25	NA	NA
09	CA	0942	SLAMS	060730003	Multiple	Multiple	12	3	25	NA	NA
09	CA	0942	SLAMS	060730006	Multiple	Multiple	12	3	25	NA	NA
09	CA	0942	SLAMS	060731002	Multiple	Multiple	12	3	25	NA	NA
09	CA	0942	SLAMS	060731007	Multiple	Multiple	12	3	25	NA	NA
09	CA	0942	SLAMS	060290015	Multiple	Multiple	12	4	33	NA	NA
09	CA	0942	SLAMS	060250005	Multiple	Multiple	12	6	50	NA	NA
09	CA	0942	SLAMS	060251003	Multiple	Multiple	12	7	58	NA	NA
09	CA	0942	SLAMS	060290011	Multiple	Multiple	12	7	58	NA	NA
09	CA	0942	SLAMS	060250003	Multiple	Multiple	7	6	86	NA	NA
09	CA	0972	All - NS	NA	NA	NA	186	159	86	17	43/43/34/39
09	CA	0972	SLAMS	060590001	Multiple	Multiple	10	0	0	NA	NA
09	CA	0972	SLAMS	060590007	Multiple	Multiple	12	9	75	NA	NA
09	CA	0972	SLAMS	060651003	Multiple	Multiple	12	10	83	NA	NA
09	CA	0972	SLAMS	060652002	Multiple	Multiple	12	10	83	NA	NA
09	CA	0972	SLAMS	060658001	Multiple	Multiple	12	10	83	NA	NA
09	CA	0972	SLAMS	060710025	Multiple	Multiple	12	10	83	NA	NA
09	CA	0972	SLAMS	060371201	Multiple	Multiple	12	11	92	NA	NA
09	CA	0972	SLAMS	060371301	Multiple	Multiple	12	11	92	NA	NA
09	CA	0972	SLAMS	060372005	Multiple	Multiple	12	11	92	NA	NA
09	CA	0972	SLAMS	060374002	Multiple	Multiple	12	11	92	NA	NA

Region	State	Reporting Agency	Monitor Type	Site ID	Start Date	End Date	Number Required	Number Submitted	Comp. %	Total # of Sites	Q1/Q2/ Q3/Q4
09	CA	0972	SLAMS	060655001	Multiple	Multiple	12	11	92	NA	NA
09	CA	0972	SLAMS	060719004	Multiple	Multiple	12	11	92	NA	NA
09	CA	0972	SLAMS	060370002	Multiple	Multiple	4	4	100	NA	NA
09	CA	0972	SLAMS	060371002	Multiple	Multiple	12	12	100	NA	NA
09	CA	0972	SLAMS	060371103	Multiple	Multiple	12	12	100	NA	NA
09	CA	0972	SLAMS	060371601	Multiple	Multiple	12	12	100	NA	NA
09	CA	0972	SLAMS	060712002	Multiple	Multiple	4	4	100	NA	NA
09	CA	1118	All - NS	NA	NA	NA	214	127	59	18	30/33/32/32
09	CA	1118	SLAMS	060831008	Multiple	Multiple	12	0	0	NA	NA
09	CA	1118	SLAMS	060195025	Multiple	Multiple	12	5	42	NA	NA
09	CA	1118	SLAMS	060830011	Multiple	Multiple	10	5	50	NA	NA
09	CA	1118	SLAMS	060798001	Multiple	Multiple	12	7	58	NA	NA
09	CA	1118	SLAMS	061110007	Multiple	Multiple	12	7	58	NA	NA
09	CA	1118	SLAMS	061112002	Multiple	Multiple	12	7	58	NA	NA
09	CA	1118	SLAMS	060195001	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	060290014	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	060290016	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	060310004	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	060472510	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	060792002	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	061110009	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	061113001	Multiple	Multiple	12	8	67	NA	NA
09	CA	1118	SLAMS	060290010	Multiple	Multiple	12	9	75	NA	NA
09	HI	0481	All - NS	NA	NA	NA	64	64	96	7	16/16/14/18
09	HI	0481	SLAMS	150030010	Multiple	Multiple	12	12	100	NA	NA
09	HI	0481	SLAMS	150031001	Multiple	Multiple	7	8	100	NA	NA

Region	State	Reporting Agency	Monitor Type	Site ID	Start Date	End Date	Number Required	Number Submitted	Comp. %	Total # of Sites	Q1/Q2/ Q3/Q4
09	HI	0481	SLAMS	150031004	Multiple	Multiple	12	12	100	NA	NA
09	HI	0481	SLAMS	150032004	Multiple	Multiple	7	8	100	NA	NA
09	HI	0481	SLAMS	150090006	Multiple	Multiple	12	12	100	NA	NA
09	NV	0226	All - NS	NA	NA	NA	68	0	0	7	0/0/0/0
09	NV	0226	SLAMS	320030022	Multiple	Multiple	12	0	0	NA	NA
09	NV	0226	SLAMS	320030298	Multiple	Multiple	12	0	0	NA	NA
09	NV	0226	SLAMS	320030560	Multiple	Multiple	9	0	0	NA	NA
09	NV	0226	SLAMS	320030561	4/14/2004	12/31/2004	2	0	0	NA	NA
09	NV	0226	SLAMS	320031019	Multiple	Multiple	12	0	0	NA	NA
09	NV	0226	SLAMS	320032002	Multiple	Multiple	12	0	0	NA	NA
09	NV	1138	All - NS	NA	NA	NA	24	20	83	2	6/6/4/4
09	NV	1138	SLAMS	320310016	Multiple	Multiple	12	10	83	NA	NA
10	AK	0015	All - NS	NA	NA	NA	54	46	83	5	10/13/10/13
10	AK	0015	SLAMS	022900003	Multiple	Multiple	6	4	67	NA	NA
10	AK	0015	SLAMS	021100004	Multiple	Multiple	12	9	75	NA	NA
10	AK	0015	SLAMS	020200018	Multiple	Multiple	12	10	83	NA	NA
10	AK	0015	SLAMS	020900010	Multiple	Multiple	12	11	92	NA	NA
10	AK	0015	SLAMS	021700008	Multiple	Multiple	12	12	100	NA	NA
10	ID	0511	All - NS	NA	NA	NA	110	111	96	14	32/31/24/24
10	ID	0511	SLAMS	160010011	Multiple	Multiple	12	12	100	NA	NA
10	ID	0511	SLAMS	160050006	Multiple	Multiple	6	6	100	NA	NA
10	ID	0511	SLAMS	160050015	Multiple	Multiple	12	12	100	NA	NA
10	ID	0511	SLAMS	160170004	Multiple	Multiple	4	5	100	NA	NA
10	ID	0511	SLAMS	160190010	Multiple	Multiple	4	4	100	NA	NA
10	ID	0511	SLAMS	160270004	Multiple	Multiple	12	12	100	NA	NA
10	ID	0511	SLAMS	160270005	Multiple	Multiple	9	10	100	NA	NA
10	ID	0511	SLAMS	160550006	Multiple	Multiple	5	6	100	NA	NA
10	ID	0511	SLAMS	160690009	Multiple	Multiple	5	6	100	NA	NA
10	ID	0511	SLAMS	160790017	Multiple	Multiple	12	12	100	NA	NA
10	ID	0511	SLAMS	160830010	Multiple	Multiple	7	7	100	NA	NA
10	OR	0821	All - NS	NA	NA	NA	255	166	66	25	46/43/41/36
10	OR	0821	SLAMS	410510244	Multiple	Multiple	12	2	17	NA	NA
10	OR	0821	SLAMS	410470040	Multiple	Multiple	12	3	25	NA	NA
10	OR	0821	SLAMS	410470110	Multiple	Multiple	12	4	33	NA	NA
10	OR	0821	SLAMS	410610117	Multiple	Multiple	12	4	33	NA	NA
10	OR	0821	SLAMS	410590121	Multiple	Multiple	5	2	40	NA	NA
10	OR	0821	SLAMS	410391061	Multiple	Multiple	8	4	50	NA	NA
10	OR	0821	SLAMS	410250002	Multiple	Multiple	7	4	57	NA	NA
10	OR	0821	SLAMS	410510246	Multiple	Multiple	12	7	58	NA	NA
10	OR	0821	SLAMS	410350004	Multiple	Multiple	12	8	67	NA	NA
10	OR	0821	SLAMS	410392013	Multiple	Multiple	12	8	67	NA	NA
10	OR	0821	SLAMS	410430009	Multiple	Multiple	12	8	67	NA	NA
10	OR	0821	SLAMS	410510080	Multiple	Multiple	12	8	67	NA	NA
10	OR	0821	SLAMS	410292129	Multiple	Multiple	10	7	70	NA	NA
10	OR	0821	SLAMS	410330114	Multiple	Multiple	7	5	71	NA	NA
10	OR	0821	SLAMS	410390060	Multiple	Multiple	11	8	73	NA	NA
10	OR	0821	SLAMS	410291001	Multiple	Multiple	12	9	75	NA	NA
10	OR	0821	SLAMS	410391007	Multiple	Multiple	12	9	75	NA	NA
10	OR	0821	SLAMS	410670111	Multiple	Multiple	12	9	75	NA	NA
10	OR	0821	SLAMS	410671003	Multiple	Multiple	10	8	80	NA	NA
10	OR	0821	SLAMS	410090004	Multiple	Multiple	12	10	83	NA	NA
10	OR	0821	SLAMS	410290133	Multiple	Multiple	12	10	83	NA	NA
10	OR	0821	SLAMS	410170120	Multiple	Multiple	10	9	90	NA	NA
10	OR	0821	SLAMS	410391009	1/4/2004	12/31/2004	3	3	100	NA	NA
10	OR	0821	SLAMS	410610119	Multiple	Multiple	4	5	100	NA	NA
10	OR	0821	SLAMS	410650007	Multiple	Multiple	12	12	100	NA	NA
10	WA	1136	All - NS	NA	NA	NA	136	144	97	19	40/35/35/34
10	WA	1136	SLAMS	530330021	Multiple	Multiple	4	2	50	NA	NA
10	WA	1136	SLAMS	530611007	Multiple	Multiple	12	11	92	NA	NA
10	WA	1136	SLAMS	530050002	Multiple	Multiple	12	12	100	NA	NA
10	WA	1136	SLAMS	530110013	Multiple	Multiple	4	4	100	NA	NA
10	WA	1136	SLAMS	530330017	Multiple	Multiple	11	12	100	NA	NA
10	WA	1136	SLAMS	530330024	Multiple	Multiple	12	12	100	NA	NA
10	WA	1136	SLAMS	530330027	Multiple	Multiple	4	5	100	NA	NA
10	WA	1136	SLAMS	530330037	Multiple	Multiple	8	9	100	NA	NA
10	WA	1136	SLAMS	530330057	Multiple	Multiple	7	8	100	NA	NA
10	WA	1136	SLAMS	530330080	Multiple	Multiple	4	4	100	NA	NA
10	WA	1136	SLAMS	530332004	Multiple	Multiple	8	8	100	NA	NA
10	WA	1136	SLAMS	530530029	Multiple	Multiple	12	12	100	NA	NA
10	WA	1136	SLAMS	530530031	Multiple	Multiple	4	6	100	NA	NA
10	WA	1136	SLAMS	530531018	Multiple	Multiple	4	4	100	NA	NA
10	WA	1136	SLAMS	530610005	Multiple	Multiple	8	8	100	NA	NA
10	WA	1136	SLAMS	530630016	Multiple	Multiple	7	9	100	NA	NA
10	WA	1136	SLAMS	530630047	Multiple	Multiple	4	4	100	NA	NA
10	WA	1136	SLAMS	530670013	Multiple	Multiple	8	9	100	NA	NA
10	WA	1136	SLAMS	530770009	Multiple	Multiple	3	5	100	NA	NA

## Attachment 5

### 2002-2004 PM2.5 Performance Evaluation Program (PEP) Completeness Aggregated by Reporting Organization and 3-Year Bias Estimate

#### Notes

PEP completeness is based upon sites were active at the time that audits were planned for the particular year. It is based on the requirement of performing audits at 25% of the monitoring sites of each method designation within a reporting organization, 4 times a year.

States that have the word “Total” after its State abbreviation refer to the aggregation of multiple reporting organizations within that state. They are highlighted in yellow, along with the bias estimate which is averaged across all reporting organizations within the state.

Any values in green represent PEP audits equal to or greater than the completeness requirement while those in tan refer to PEP audits that did not achieve the completeness requirements.

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2002-2004 Performance Evaluation Program Completeness and Bias Estimates by Reporting Organization and State

Region	State	Reporting Org.	2002		2002		2003		2003		2004		% Comp 3-Year	Bias
			Active	Req	Audits	Active	Req	Audits	Active	2004 Req	Audits			
01	CT	0251	10	9	10	10	9	13	10	9	13	100%	-1.45	
01	MA	0660	22	18	26	15	12	12	15	12	17	100%	6.82	
01	ME	0635	6	6	14	6	6	13	6	6	13	100%	14.75	
01	NH	0762	12	9	12	10	9	10	11	9	13	100%	1.39	
01	RI	0907	6	6	8	4	3	8	5	3	11	100%	1.80	
01	VT	1119	5	3	8	5	3	3	5	3	6	100%	-3.78	
02	NJ	0764	24	18	24	23	18	17	21	15	17	100%	-7.75	
02	NY	0768	46	36	43	46	36	34	29	21	37	100%	-10.01	
02	PR	0889	10	9	10	10	9	9	10	9	11	100%	-19.74	
02	VI	1124	2	3	3	3	3	3	2	3	4	100%	NA	
03	DC	0350	5	3	4	5	3	4	4	3	4	100%	-0.05	
03	DE	0294	9	6	6	8	6	8	8	6	10	100%	-1.12	
03	MD	1002	23	18	20	21	15	24	22	18	20	100%	-7.20	
03	PA	0021	8	6	7	8	6	12	7	6	12	100%	12.73	
03	PA	0851	23	18	33	23	18	23	23	18	24	100%	-1.25	
03	PA	0861	5	3	4	5	3	4	5	3	4	100%	-1.86	
03	<b>PA Total</b>		36	27	44	36	27	39	35	27	40	100%	3.21	
03	VA	1127	20	15	15	21	15	18	18	15	16	100%	-4.54	
03	WV	1150	7	6	6	7	6	8	7	6	8	100%	0.29	
03	WV	1151	6	6	7	6	6	8	6	6	7	100%	-6.08	
03	<b>WV Total</b>		13	9	13	13	9	16	13	9	15	100%	-3.44	
04	AL	0013	13	9	9	13	9	16	13	9	16	100%	1.81	
04	AL	0300	1	3	5	1	3	0	1	3	0	56%	-7.07	
04	AL	0550	7	6	0	7	6	8	6	6	4	67%	-0.09	
04	<b>AL Total</b>		21	15	14	21	15	24	20	15	20	100%	-1.79	
04	FL	0121	3	3	0	3	3	0	3	3	0	0%		
04	FL	0274	2	3	0	2	3	0	2	3	0	0%		
04	FL	0391	1	3	4	1	3	0	1	3	0	44%	-10.34	
04	FL	0392	3	3	4	3	3	16	3	3	0	100%	-10.95	
04	FL	0393	1	3	4	1	3	0	1	3	0	44%	-10.73	
04	FL	0394	1	3	0	1	3	0	1	3	0	0%	0.00	
04	FL	0395	2	3	4	2	3	0	2	3	4	89%	-7.15	
04	FL	0396	4	3	0	4	3	0	4	3	12	100%	-3.67	
04	FL	0491	2	3	0	2	3	10	1	3	0	100%	-0.78	
04	FL	0544	2	3	0	2	3	0	2	3	8	89%	-6.75	
04	FL	0820	2	3	0	2	3	0	2	3	7	78%	-9.06	
04	FL	0833	2	3	0	2	3	0	2	3	0	0%		
04	FL	0867	2	3	0	2	3	5	2	3	4	100%	-10.20	
04	FL	0951	1	3	4	1	3	0	1	3	0	44%	-19.20	
04	FL	1224	2	3	4	2	3	0	2	3	0	44%	-9.36	
04	FL	1226	1	3	4	1	3	0	1	3	0	44%	-1.58	
04	<b>FL Total</b>		31	24	28	31	24	31	30	24	35	100%	-7.67	
04	GA	0437	22	18	25	26	21	23	23	18	8	98%	-0.55	
04	KY	0549	3	3	0	3	3	4	3	3	0	44%	-0.05	
04	KY	0584	16	12	20	17	12	9	16	12	16	100%	-5.92	
04	<b>KY Total</b>		19	15	20	20	15	13	19	15	16	100%	-2.98	
04	MS	0703	16	12	13	16	12	16	16	12	20	100%	-7.31	
04	NC	0403	2	3	0	2	3	8	2	3	0	89%	-1.12	
04	NC	0669	3	3	0	3	3	12	3	3	0	100%	1.05	
04	NC	0776	26	21	25	24	18	16	21	15	23	100%	-5.86	
04	NC	0779	2	3	0	2	3	0	2	3	0	0%		
04	<b>NC Total</b>		33	24	25	31	24	36	28	21	23	100%	-1.98	
04	SC	0971	14	12	12	14	12	12	14	12	23	100%	-3.94	
04	TN	0170	2	3	0	2	3	8	2	3	0	89%	-3.89	
04	TN	0581	3	3	0	3	3	4	3	3	0	44%	1.20	
04	TN	0673	4	3	8	4	3	0	4	3	8	100%	-10.34	
04	TN	0682	3	3	0	3	3	0	3	3	8	89%	-6.01	
04	TN	1025	6	6	8	6	6	5	7	6	0	72%	-7.54	
04	<b>TN Total</b>		18	15	16	18	15	17	19	15	16	100%	-5.32	
05	IL	0258	State Perform Audits											
05	IL	0513	State Perform Audits											
05	IN	0520	42	33	29	36	27	33	35	27	28	100%	1.66	
05	IN	0523	10	9	11	8	6	3	8	6	4	86%	2.57	
05	<b>IN Total</b>		52	39	40	44	33	36	43	33	32	100%	2.11	
05	MI	0685	31	24	23	30	24	20	29	21	30	100%	-1.17	
05	MI	1143	0	3	0	0	3	0	1	3	0	0%		
05	<b>MI Total</b>		31	24	23	30	24	20	30	24	30	100%	-1.17	
05	MN	0700	23	18	14	23	18	19	22	18	7	74%	-4.13	
05	OH	0012	3	3	4	3	3	3	3	3	3	100%	-2.09	

2002-2004 Performance Evaluation Program Completeness and Bias Estimates by Reporting Organization and State

Region	State	Reporting Org.	2002 Active	2002 Req	2002 Audits	2003 Active	2003 Req	2003 Audits	2004 Active	2004 Req	2004 Audits	% Comp 3-Year	Bias
05	OH	0151	3	3	4	3	3	2	3	3	3	100%	-0.73
05	OH	0220	3	3	3	3	3	4	3	3	1	89%	10.80
05	OH	0229	9	6	8	9	6	11	8	6	4	100%	-3.60
05	OH	0287	4	3	6	5	3	8	5	3	3	100%	-5.53
05	OH	0595	1	3	3	2	3	3	2	3	0	67%	3.81
05	OH	0634	3	3	4	3	3	6	3	3	3	100%	-0.39
05	OH	0805	3	3	0	4	3	8	4	3	0	89%	-9.76
05	OH	0807	2	3	4	3	3	0	3	3	6	100%	-4.90
05	OH	0809	3	3	4	4	3	0	3	3	0	44%	0.84
05	OH	0880	2	3	3	2	3	3	2	3	3	100%	-4.49
05	OH	1259	12	9	9	12	9	10	11	9	7	96%	-4.49
05	<b>OH Total</b>		48	36	52	53	39	58	50	39	33	100%	-1.71
05	WI	1175	22	18	8	26	21	19	16	12	11	75%	-0.62
06	AR	0055	27	21	24	27	21	23	20	15	18	100%	-0.89
06	LA	1001	26	21	25	26	21	21	24	18	20	100%	-14.30
06	NM	0017	3	3	4	3	3	5	3	3	4	100%	5.25
06	OK	0812	5	3	12	5	3	12	4	3	12	100%	-10.45
06	TX	1035	61	45	53	56	42	39	26	21	35	100%	-5.02
07	IA	0613	3	3	8	2	3	0	2	3	8	100%	-10.31
07	IA	0874	4	3	0	3	3	8	3	3	0	89%	-4.75
07	IA	1080	11	9	21	12	9	17	14	12	23	100%	-8.72
07	<b>IA Total</b>		18	15	29	17	12	25	19	15	31	100%	-7.93
07	KS	0563	12	9	12	12	9	20	12	9	20	100%	-3.48
07	MO	0561	3	3	0	4	3	4	0	3	4	89%	-8.33
07	MO	0588	8	6	18	11	9	16	12	9	9	100%	-2.74
07	MO	0986	1	3	4	1	3	0	1	3	4	89%	-0.14
07	MO	0990	3	3	0	3	3	12	3	3	4	100%	-7.74
07	MO	0992	4	3	4	4	3	6	3	3	4	100%	-7.04
07	<b>MO Total</b>		16	12	26	19	15	34	19	15	21	100%	-5.20
07	NE	0752	12	9	13	9	6	18	10	9	4	100%	-9.27
07	NE	0816	5	3	10	5	3	0	5	3	9	100%	0.42
07	<b>NE Total</b>		17	12	23	14	12	18	15	12	13	100%	
08	CO	0240	14	12	13	14	12	13	13	9	13	100%	6.97
08	MT	0730	11	9	8	11	9	8	11	9	12	100%	1.77
08	ND	0782	8	6	8	8	6	4	7	6	8	100%	7.99
08	SD	0973	10	9	12	11	9	12	10	9	17	100%	32.57
08	UT	1113	9	6	16	13	9	15	9	6	16	100%	9.40
08	WY	1188	5	3	8	5	3	4	5	3	5	100%	8.66
09	AZ	0053	8	6	6	8	6	9	9	6	4	100%	14.57
09	AZ	0615	0	3	0	0	3	0	0	3	0	0%	
09	AZ	0643	0	3	0	0	3	0	0	3	0	0%	
09	AZ	0864	2	3	4	2	3	4	2	3	4	100%	-12.66
09	<b>AZ Total</b>		10	9	10	10	9	13	11	9	8	100%	0.96
09	CA	0042	1	3	0	1	3	0	1	3	0	0%	
09	CA	0086	16	12	16	15	12	20	15	12	16	100%	3.30
09	CA	0145	26	21	23	24	18	43	23	18	16	100%	-0.80
09	CA	0458	2	3	1	3	3	4	3	3	0	56%	-2.39
09	CA	0709	2	3	0	2	3	0	2	3	4	44%	4.76
09	CA	0942	10	9	11	10	9	6	10	9	9	96%	-0.35
09	CA	0972	21	15	21	20	15	12	19	15	17	100%	4.41
09	CA	1118	17	12	21	17	12	8	17	12	7	100%	2.18
09	<b>CA Total</b>		95	72	93	92	69	93	90	69	69	100%	1.59
09	HI	0481	5	3	8	5	3	8	5	3	9	100%	-4.53
09	NV	0145	2	3	0	0	3	0	0	3	0	0%	
09	NV	0226	6	6	4	6	6	4	8	6	8	89%	-0.88
09	NV	1138	2	3	4	2	3	4	2	3	4	100%	6.74
09	<b>NV Total</b>		10	12	8	8	12	8	10	12	12	78%	2.93
10	AK	0015	7	6	7	5	3	6	4	3	6	100%	4.02
10	ID	0511	16	12	6	16	12	26	7	6	7	100%	-5.04
10	OR	0821	27	21	44	25	18	46	20	15	38	100%	-6.51
10	WA	1136	20	15	23	19	15	27	11	9	18	100%	-2.45
<b>Grand Total</b>			1502	1233	1486	1471	1200	1520	1350	1122	1351	83%*	-2.11*

\* are not included in the national bias estimate