



# Annual Air Monitoring Data Certification and Concurrence Process

Note: More detail on the actual AQS process  
on Wed, AQS Session

National Ambient Air Monitoring Conference August 2016

# The Certification Requirement Due May 1 each year



- 1) Formal statement attesting to ambient data completeness and accuracy  
**40CFR § 58.15**

(a) **Data certification letter**- that the previous year of ambient concentration and quality assurance data are completely submitted to AQS and that the ambient concentration data are accurate to the best of her or his knowledge, taking into consideration the quality assurance findings.

(b) **An annual summary report (AMP450 NC)** of all the ambient air quality data collected by FRM, FEM, and ARM monitors at SLAMS and SPM sites.

(c) A **summary of the precision and accuracy data (AMP600) for all ambient air quality data collected** by FRM, FEM, and ARM monitors at SLAMS and SPMs ...” **Annual air monitoring data certification.**

- 2) followed by an EPA review and concurrence

# Data Certification Information On AMTIC <https://www3.epa.gov/ttn/amtic/>



- [Passive Monitoring](#)



## **Quality Assurance/Quality Control**

- [Quality Assurance Guidance Documents](#)
- [National Performance Evaluation Program](#)
- [Quality Indicator Assessment Reports](#)
- [QA/QC Workgroup Activities \(national meeting\)](#)
- [Newsletters](#)
- [Pollutant/Network Specific QA](#)
- [QC of Filters for PM2.5, PM10 and Low Volume PM](#)
- [Data Certification/Validation](#)



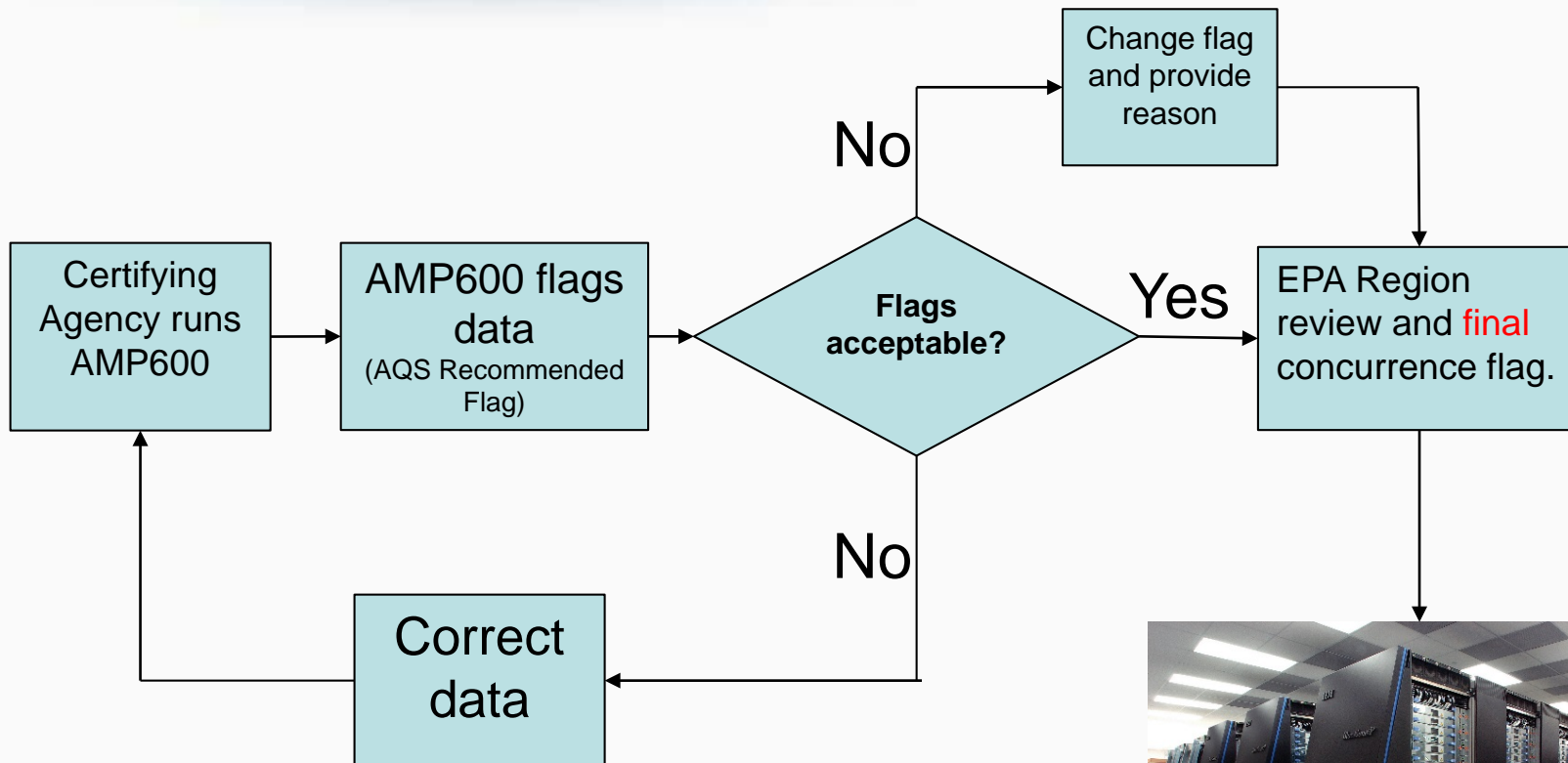
## **Regulations and Guidance**

- [National Air Monitoring Strategy](#)

## **Data Certification/Validation**

- [Ambient Air Monitoring Data Certification Q&A for CY2015 \(PDF\) \(4pp, 258k\)](#)
- [Data Certification Flag Values \(PDF\) \(1pg, 59k\)](#)
- [Additional Information Related to the 2014 AMP600 Data Certification Process \(PDF\) \(11pp, 1.2 MB\)](#)

# Certification/Concurrence Process



# Data Certification Flag Values



Flag Value	Application
<b>X</b>	<b>Certification is not required</b> by 40 CFR 58.15 and no conditions apply to be the basis for assigning another flag value
<b>U</b>	<b>Uncertified.</b> The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
<b>S</b>	The certifying agency has <b>submitted</b> the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
<b>N</b>	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that <b>issues regarding the quality of the ambient concentration data cannot be resolved</b> due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP256 report or the certification and quality assurance report.
<b>Y</b>	The certifying agency has submitted a certification letter, <b>and EPA has no unresolved reservations about data quality</b> (after reviewing the letter, the attached summary reports, <u>the</u> amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).
<b>M</b>	<b>The monitoring organization has revised data</b> from this monitor since the most recent certification letter received from the state.

# Criteria that Generate Green (Acceptable) Warning (Yellow) and “N” Qualifiers (Red)



Assessment	Current CFR Requirement or Guidance	Green (Acceptable)	Yellow (Warning)	Red (Recommend N Flag)	Comments
<b>Gaseous Criteria Pollutants</b>					
Routine Data Completeness	75%	≥80%	80-70%	<70%	Based on CFR criteria for data use 100* Number of hourly obs/number of hours in monitor sample period
QAPP Approval	Approval date within 5 years of current date	Approval date within 5 years of current date	Approval date between 5-10 years	Not approved and/or approval date greater than 10 years	Could be sole reason for “N” flag if QAPP not approved.
1-Point QC Completeness	75%	≥75%	65-75%	<65%	Based on 26, 1-point QC for a year. Calculated based on the number of days the monitor operated.
1-Point QC Precision	7% O3, 10% others	≤7% O3, 10% others	8-20% O3 11-25% others	> 20% O3 > 25% others	Based on all valid 1-point QC checks in AQS for the year. Value should reflect AMP255 value
1-Point QC Bias	±7% O3, ±10% others	≤ ±7% O3, ≤ ±10% others	± 8-20% O3 ±11-25% others	> ±20% O3 > ±25% others	Based on all valid 1-point QC checks in AQS. Value should reflect AMP255 value
Annual PE Completeness	1 PE/year 3 audit levels	1 PE/year 3 audit levels	1 PE/year 2 audit levels	No PE or 1 audit level	Will not count more than one actual value in an audit level. For example, two audit in one level count as 1 audit level.
Annual PE Bias O3 , SO2 , NO2 CO	≤±1.5 ppb / ±15% ≤±0.03 ppm/ ± 15%	≤ ±1.5 ppb / ±15% ≤ ±0.03 ppm/ ± 15%	≤ ± 1.6-3.0 ppb / ± 16-25% ≤ ± 0.04-0.06 ppm/ ± 16-25%	> ±3.0 ppb / ± 25% > ±0.06 ppm/ ± 25%	Average PD of all PE values for the monitor
NPAP Audit Completeness - PQAO	20% of sites in PQAO	20% of sites in PQAO	10-19% of sites in PQAO	<10% of sites in PQAO	Not a monitoring Org responsibility. Will be marked as “Y”
NPAP Bias	≤ ±10% O3 ≤ ±15% others	≤ ±10% O3 ≤ ±15% others	± 11-20% O3 ±16-25% others	> ±20% O3 > ±25% others	median PD for all values at a site and median PD for PQAO level estimate
NPAP Audit Completeness - Site	4 levels	4 levels	2-3 levels	≤1 level	Not a monitoring Org responsibility
Outliers					See Attachment 4 not implemented in 2012
<b>PM2.5 Criteria</b>					
Routine Data Completeness	75%	≥80%	80-70%	<70%	Based on CFR criteria for data use 100 * number of creditable samples/number of scheduled samples in monitor sample period

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<b>Gaseous Criteria Pollutants</b>					
Routine Data Completeness	75%	≥80%	80-70%	<70%	Based on CFR criteria for data use 100* Number of hourly obs/number of hours in monitor sample period
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1-Point QC Completeness	75%	≥75%	65-75%	<65%	Based on 26, 1-point QC for a year. Calculated based on the number of days the monitor operated.
1-Point QC	7% O3	<7% O3	8-20% O3	> 20% O3	Based on all valid 1-point QC checks in AQS for the

1. Blue shaded rows are evaluations that will be reported (when data is available) but not used in certification flag settings
2. One Red for any monitor will elicit a AQS recommended “N” flag
3. Three warnings for any monitor will elicit an AQS recommended “N” flag
4. Outlier reports not in use.

# AMP600 Summary Report Before Certifying Agency Certification



## Data Evaluation and Concurrence Report Summary

Jul. 22, 2014

Certification Year: 2012  
Certifying Agency (CA)

### Pollutants in Report:

<u>Parameter Name</u>	<u>Code</u>	<u>Monitors Evaluated</u>	<u>Monitors Recommended for Concurrence by AQS</u>	<u>Monitors NOT Recommended for Concurrence by AQS</u>
Carbon monoxide	42101	3	3	0
Nitrogen dioxide (NO2)	42602	2	2	0
Ozone	44201	16	14	2
PM10 Total 0-10um STP	81102	8	7	1
PM2.5 - Local Conditions	88101	12	9	3
Sulfur dioxide	42401	4	4	0



### PQAOs in Report:

<u>PQAO Name</u>	<u>PQAO Code</u>	<u>TSA Date</u>
		09/27/12

### Summary of 'N' flags for all pollutants:

<u>PQAO</u>	<u>Parameter Code</u>	<u>AQS Site-ID</u>	<u>POC</u>	<u>AQS Recommended Flag</u>	<u>Cert. Agency Recommended Flag</u>	<u>Reason for AQS Recommendation</u>
⇒	44201	-019-1100	1	N		Annual Performance Evaluation Audit Missing or 1 Level.
⇒	44201	-029-0032	1	N		Annual Performance Evaluation Audit Missing or 1 Level.
	88101	-011-0016	2	N		Annual Summary completeness < 70%.
	88101	-003-0014	1	N		Annual Summary completeness < 70%.
	88101	-009-0103	1	N		PQAO-Level Collocation criteria not met.
	81102	-003-0014	1	N		Flow Rate Audit completeness < 65%.

Signature of Monitoring Organization Representative: \_\_\_\_\_



# AMP600- Ozone Before Certification



Certifying Year 2012  
 Certifying Agency Code  
 Parameter Ozone (44201) (ppm)

PQAO Name  
 QAPP Approval Date 06/23/2009

NPAP Audit Summary: Number of Valid Audits 7 NPAP Bias 1.21951 Criteria Met Y

AQS Site ID	POC Monitor Type	Routine Data						One Point Quality Check			Annual PE		NPAP		QAPP Appr.	Concur. Flag		
		Mean	Min	Max	Exceed. Count	Outlier Count	Perc. Comp.	Precision	Bias	Complete	Bias	Complete	Bias	PQAO Level Criteria		Aqs Rec Flag	CA Rec Flag	Epa Concur
001-0014	2 SPM	0.042	0.016	0.085	0	0	93	2.95	+/-2.39	100	- 3.54	100		Y	Y	Y	N o v a l u e s	
003-1100	1 TRIBAL	0.038	0.014	0.059	0	0	91	1.87	+/-1.36	100	- 0.43	100		Y	Y	Y		
005-2003	1 SLAMS	0.046	0.014	0.094	0	0	99	1.52	+3.35	100	0.90	100	0.00	Y	Y	Y		
009-0102	1 SLAMS	0.047	0.024	0.080	0	0	98	2.64	+/-1.99	100	- 3.74	100	1.01	Y	Y	Y		
009-0103	1 SLAMS	0.044	0.017	0.078	0	0	95	1.43	-2.56	100	- 1.35	100	1.22	Y	Y	Y		
011-2005	1 SLAMS	0.042	0.014	0.082	0	0	99	1.40	+/-1.28	100	- 2.02	100		Y	Y	Y		
013-0004	2 SLAMS	0.043	0.021	0.087	0	0	96	4.69	+/-3.63	100	0.41	100		Y	Y	Y		
017-3001	1 SPM	0.038	0.010	0.081	0	0	99	0.93	+/-1.13	100	- 1.41	100		Y	Y	Y		
019-1100	1 TRIBAL	0.040	0.019	0.071	0	0	89	1.53	+/-1.04	100		0	3.70	Y	Y	N		
019-4008	1 SLAMS	0.041	0.018	0.069	0	0	99	2.27	+/-1.96	100	0.67	100		Y	Y	Y		
023-0006	1 SPM	0.043	0.014	0.108	0	0	99	8.98	+/-5.88	100	0.07	100	1.00	Y	Y	Y		
029-0019	1 SPM	0.040	0.021	0.075	0	0	98	3.91	+/-3.60	100	0.72	100		Y	Y	Y		
029-0032	1 TRIBAL	0.038	0.011	0.062	0	0	99	1.27	+/-1.46	100		0		Y	Y	N		
031-0038	1 SPM	0.044	0.011	0.094	0	0	99	1.89	+3.68	100	3.43	100		Y	Y	Y		
031-0040	1 SPM	0.044	0.017	0.088	0	0	98	1.13	+2.30	100	2.61	100		Y	Y	Y		
031-2002	1 SLAMS	0.047	0.016	0.096	0	0	99	1.59	+/-1.82	100	0.30	100	1.89	Y	Y	Y		

# Certification Form for Certifying Agency



**Query Criteria**

Year  Agency  County Code  State  CBSA Code

Classification  Parameter  Ozone Certification Flag

**Certifications**

Year	AQS Monitor ID	AQS Recommended Flag	Monitoring Agency Request	EPA Evaluation Value	Monitoring Agency Comment	Region Comment
2012	001-0014-44201-2	Y	Y			
2012	005-0029-44201-1	Y	Y			
2012	005-2003-44201-1	Y	Y			
2012	009-0102-44201-1	Y	Y			
2012	009-0103-44201-1	Y	Y			
2012	011-2005-44201-1	Y	Y			
2012	013-0004-44201-2	Y	Y			
2012	017-3001-44201-1	Y	Y			
2012	019-4008-44201-1	Y	Y			
2012	023-0006-44201-1	Y	Y			
2012	029-0019-44201-1	Y	Y			
2012	031-0038-44201-1	Y	Y			
2012	031-0040-44201-1	Y	Y			
2012	031-2002-44201-1	Y	Y			
2012	029-0032-44201-1	N	Y		We believe the data is valid although we did not perform a PE	
2012	019-1100-44201-1	N	Y		We believe the data is valid although we did not perform a PE	
2012	003-1100-44201-1	Y	Y			

Comments required if Certifying Agency changes an AQS Recommended Flag



Monitoring Agency Requests do not show up on 450 only the "S" qualifier

# AMP600

## After Certifying Agency Certification



Certifying Year 2012

Certifying Agency Code

Parameter Ozone (44201) (ppm)

PQAO Name

QAPP Approval Date 06/23/2009

**NPAP Audit Summary:**

Number of Valid Audits	NPAP Bias	Criteria Met
7	1.21951	Y

AQS Site ID	POC Monitor Type	Routine Data						One Point Quality Check			Annual PE		NPAP		QAPP Appr.	Aqs Rec Flag	Concur. Flag		
		Mean	Min	Max	Exceed. Count	Outlier Count	Perc. Comp.	Precision	Bias	Complete	Bias	Complete	Bias	PQAO Level Criteria			CA Rec Flag	Epa Concur	
001-0014	2 SPM	0.042	0.016	0.085	0	0	93	2.95	+/-2.39	100	- 3.54	100		Y	Y	Y	Y		
003-1100	1 TRIBAL	0.038	0.014	0.059	0	0	91	1.87	+/-1.36	100	- 0.43	100		Y	Y	Y	Y		
005-2003	1 SLAMS	0.046	0.014	0.094	0	0	99	1.52	+3.35	100	0.90	100	0.00	Y	Y	Y	Y		
009-0102	1 SLAMS	0.047	0.024	0.080	0	0	98	2.64	+/-1.99	100	- 3.74	100	1.01	Y	Y	Y	Y		
009-0103	1 SLAMS	0.044	0.017	0.078	0	0	95	1.43	-2.56	100	- 1.35	100	1.22	Y	Y	Y	Y		
011-2005	1 SLAMS	0.042	0.014	0.082	0	0	99	1.40	+/-1.28	100	- 2.02	100		Y	Y	Y	Y		
013-0004	2 SLAMS	0.043	0.021	0.087	0	0	96	4.69	+/-3.63	100	0.41	100		Y	Y	Y	Y		
017-3001	1 SPM	0.038	0.010	0.081	0	0	99	0.93	+/-1.13	100	- 1.41	100		Y	Y	Y	Y		
019-1100	1 TRIBAL	0.040	0.019	0.071	0	0	89	1.53	+/-1.04	100		0	3.70	Y	Y	N	Y	★	
019-4008	1 SLAMS	0.041	0.018	0.069	0	0	99	2.27	+/-1.96	100	0.67	100		Y	Y	Y	Y	★	
023-0006	1 SPM	0.043	0.014	0.108	0	0	99	8.98	+/-5.88	100	0.07	100	1.00	Y	Y	Y	Y	★	
029-0019	1 SPM	0.040	0.021	0.075	0	0	98	3.91	+/-3.60	100	0.72	100		Y	Y	Y	Y	★	
029-0032	1 TRIBAL	0.038	0.011	0.062	0	0	99	1.27	+/-1.46	100		0		Y	Y	N	Y	★	
031-0038	1 SPM	0.044	0.011	0.094	0	0	99	1.89	+3.68	100	3.43	100		Y	Y	Y	Y	★	
031-0040	1 SPM	0.044	0.017	0.088	0	0	98	1.13	+2.30	100	2.61	100		Y	Y	Y	Y	★	
031-2002	1 SLAMS	0.047	0.016	0.096	0	0	99	1.59	+/-1.82	100	0.30	100	1.89	Y	Y	Y	Y	★	

# AMP600 Summary

## After Certifying Agency Certification



### Data Evaluation and Concurrence Report Summary

Jul. 22, 2014

Certification Year: 2012

Certifying Agency (CA):

#### Pollutants in Report:

<u>Parameter Name</u>	<u>Code</u>	<u>Monitors Evaluated</u>	<u>Monitors Recommended for Concurrence by AQS</u>	<u>Monitors NOT Recommended for Concurrence by AQS</u>
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Nitrogen dioxide (NO2)	42602	2	2	0
Ozone	44201	16	14	2
PM10 Total 0-10um STP	81102	8	7	1
PM2.5 - Local Conditions	88101	12	9	3
Sulfur dioxide	42401	4	4	0

#### PQAOs in Report:

PQAO Name

PQAO Code    TSA Date

09/27/12

#### Summary of 'N' flags for all pollutants:

<u>PQAO</u>	<u>Parameter Code</u>	<u>AQS Site-ID</u>	<u>POC</u>	<u>AQS Recommended Flag</u>	<u>Cert. Agency Recommended Flag</u>	<u>Reason for AQS Recommendation</u>
44201	-019-1100	1	N	N	Y	Annual Performance Evaluation Audit Missing or 1 Level.
44201	-029-0032	1	N	N	Y	Annual Performance Evaluation Audit Missing or 1 Level.
88101	-011-0016	2	N	N	Y	Annual Summary completeness < 70%.
88101	-003-0014	1	N	N	Y	Annual Summary completeness < 70%.
88101	-009-0103	1	N	N	Y	PQAO-Level Collocation criteria not met.
81102	-003-0014	1	N	N	Y	Flow Rate Audit completeness < 65%.

Signature of Monitoring Organization Representative: \_\_\_\_\_

# Evaluation/Concurrence Form for EPA Regions



**Query Criteria**

Year  Agency

State

Classification  Parameter

**Certifications**

Year	AQS Monitor ID	AQS Recommended Flag	Monitoring Agency Request		EPA Evaluation Value	
			Request		Value	
2012	-001-0014-44201-2	Y	Y	<input checked="" type="checkbox"/>	Y	<input checked="" type="checkbox"/>
2012	-005-0029-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-005-2003-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-009-0102-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-009-0103-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-011-2005-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-013-0004-44201-2	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-017-3001-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-019-4008-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-023-0006-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-029-0019-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-031-0038-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-031-0040-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-031-2002-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>
2012	-029-0032-44201-1	N	★ Y	<input type="checkbox"/>	N	<input type="checkbox"/>
2012	-019-1100-44201-1	N	★ Y	<input type="checkbox"/>	N	<input type="checkbox"/>
2012	-003-1100-44201-1	Y	Y	<input type="checkbox"/>	Y	<input type="checkbox"/>



# AMP 450 Quick Look Report

(Pulled 8/4/2016)



Ozone (44201)

Parts per million (007)

1-HOUR

SITE ID	P O C	YEAR	METH	VALID DAYS MEAS	NUM DAYS REQ	1ST MAX 1-HR	2ND MAX 1-HR	3RD MAX 1-HR	4TH MAX 1-HR	DAY MAX> STD	EST DAYS> STD	MISS DAYS< STD	CERT and EVAL	EDT
-019-1100	1	2012	047	163	183	.071	.068	.066	.065	0	0.0	2	N	0
-019-4008	1	2012	047	183	183	.069	.069	.068	.067	0	0.0	0	Y	0
-023-0006	1	2012	047	182	183	.108	.096	.077	.073	0	0.0	1	Y	0
-029-0019	1	2012	047	182	183	.075	.063	.061	.061	0	0.0	1	Y	0
-029-0032	1	2012	047	182	183	.062	.060	.059	.058	0	0.0	1	N	0

# Certification Process: Thoughts and Steps Forward



- It works
  - Some refinement have been made and we continue to look for improvements
- Use it often
  - Don't wait till May to run the report
  - It can run on a partial year based on the date the report is run. This may not be perfect but can help.
- By the time data is in AQS it may be to late
  - Internal QC is critical
- Will eventually add outlier statistics.