

Data Certification Exercise

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PQAO Training

January 25, 2017

What is Data Certification?

- It is a **formal statement** from the submitting agency attesting to ambient data **completeness** and **accuracy**
- ***State and local agencies are responsible for data certification***
- Only **criteria pollutants** using Federal Reference Method (FRM), Federal Equivalent Method (FEM), and Approved Regional Method (ARM) monitors at State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitoring (SPM) stations must be certified:
 - CO, NO₂, SO₂, O₃, Pb, PM₁₀, PM_{10-2.5}, PM_{2.5}
 - Excludes: CSN, Meteorological, and PAMS data

Why is Data Certification Important?

- Ensures that all ambient data meets the quality requirements as outlined in the QA Handbook and in the air monitoring regulations, and is submitted to AQS
- Ensures the results of periodic quality control checks and other performance assessments are considered
- Important to ensure that data is of the **utmost quality** (and is defensible) for uses such as attainment statuses, health standards, or scientific studies

Data Certification Process

Monthly validation and review of monitoring data

Certifying Agency retrieves AMP600 report

Address any recommendations, correct or justify the data

Update AQS and re-run the AMP600 report

Assemble package for submittal: final AMP600 report and certification letter

Submit package to ARB/EPA

AQS AMP600 Report

- Certification Evaluation and Concurrence Report
- Shows recommended certification for each monitor based on the criteria in CFR 58
- Identifies any incomplete ambient or precision and accuracy data

Report Code Report Name

Reports

Find %

Rep_Report_Code	Report_Name
AMP410	AIR QUALITY INDEX REPORT
AMP410S	AIR QUALITY SUMMARY REPORT
AMP395	AUDIT HISTORY REPORT
AMP600	CERTIFICATION EVALUATION AND CONCURRENCE
AMP355	COMBINED SITE SAMPLE VALUES
G74	CR RAW DATA
AMP435	DAILY SUMMARY REPORT

AQS AMP600 Report – Example

Data Evaluation and Concurrence Report Summary

Certification Year: 2016
Certifying Agency (CA): California Air Resources Board (0145)

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	1	0	1
Lead PM10 LC FRM/FEM	85129	1	0	1
Nitrogen dioxide (NO2)	42602	1	0	1
Ozone	44201	1	0	1
PM10 Total 0-10um STP	81102	2	0	2
PM2.5 - Local Conditions	88101	2	0	2
Sulfur dioxide	42401	1	0	1

PQAOs in Report:

<u>PQAO Name</u>	<u>PQAO Code</u>	<u>TSA Date</u>
California Air Resources Board	0145	08/06/15

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>
0145	42101	06-067-0006	1	N
0145	88101	06-067-0006	2	N
0145	42101	06-067-0006	1	N
0145	42401	06-067-0006	1	N
0145	42401	06-067-0006	1	N
0145	42401	06-067-0006	1	N
0145	42602	06-067-0006	1	N
0145	42602	06-067-0006	1	N
0145	42602	06-067-0006	1	N
0145	44201	06-067-0006	1	N
0145	44201	06-067-0006	1	N
0145	44201	06-067-0006	1	N
0145	81102	06-067-0006	1	N
0145	81102	06-067-0006	1	N
0145	81102	06-067-0006	2	N
0145	81102	06-067-0006	2	N

Cert. Agency Recommended Flag

Reason for AQS Recommendation

Annual Summary completeness < 70%.
 Flow Rate Audit completeness < 65%.
 Annual Performance Evaluation Audit Missing or 1 Level.
 Annual Summary completeness < 70%.
 1-Point QC Completeness < 65%.
 Annual Performance Evaluation Audit Missing or 1 Level.
 Annual Summary completeness < 70%.
 1-Point QC Completeness < 65%.
 Annual Performance Evaluation Audit Missing or 1 Level.
 Annual Summary completeness < 70%.
 1-Point QC Completeness < 65%.
 Annual Performance Evaluation Audit Missing or 1 Level.
 Annual Summary completeness < 70%.
 Flow Rate Audit completeness < 65%.
 Annual Summary completeness < 70%.
 Flow Rate Audit completeness < 65%.
 Annual Summary completeness < 70%.

AQS AMP600 Report – “N” Flag

“The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved...”

Plain Language: “N” flag is generated by AQS and means that AQS is not recommending the data for certification due to reasons such as data completeness, the lack of performed QA checks or the results of uncertainty statistics.

The uncertainty statistics can be found in the **AMP256** report or the certification and quality assurance report.

AQS AMP600 Report

- **Data Quality Indicator Report**
- Shows background information if there is something perplexing on the AMP600

Report Code Report Name

Reports

Find

Rep_Report_Code	Report_Name
AMP504	EXTRACT QA DATA
AMP501	EXTRACT RAW DATA
AMP503	EXTRACT SAMPLE BLANK DATA
AMP500	EXTRACT SITE/MONITOR DATA
AMP230	FREQUENCY DISTRIBUTION REPORT
AMP440	MAXIMUM VALUES REPORT
AMP390	MONITOR DESCRIPTION REPORT
AMP220D	MONITOR NETWORK REPORT
AMP256	QA Data Quality Indicator Report
AMP251	QA Raw Assessment Report
AMP450NC	QUICKLOOK ALL PARAMETERS
AMP450	QUICKLOOK CRITERIA PARAMETERS
AMP350MX	RAW DATA MAX VALUES REPORT
AMP350NW	RAW DATA NAAQS AVERAGES
AMP360	RAW DATA QUALIFIER REPORT
AMP350	RAW DATA REPORT
AMP470	RAW VAI UFS BY YEAR

0 <
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de TSA Date
08/06/15

ncy
ended

Reason for AQS Recommendation

Annual Summary completeness < 70%.
Flow Rate Audit completeness < 65%.
Annual Performance Evaluation Audit Missing or 1 Level.
Annual Summary completeness < 70%.
1-Point QC Completeness < 65%.
Annual Performance Evaluation Audit Missing or 1 Level.
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1-Point QC Completeness < 65%.
Annual Performance Evaluation Audit Missing or 1 Level.
Annual Summary completeness < 70%.
1-Point QC Completeness < 65%.
Annual Performance Evaluation Audit Missing or 1 Level.
Annual Summary completeness < 70%.
Flow Rate Audit completeness < 65%.
Annual Summary completeness < 70%.
Flow Rate Audit completeness < 65%.
Annual Summary completeness < 70%.



AQS AMP256 Report – Example

- **Data Quality Indicator Report**
- Shows background information if there is something perplexing on the AMP600
- Three examples of a data quality indicator:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Annual Performance Evaluation (APE)

Nov. 9, 2016

Pollutant:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Flow Rate Verifications (FRV)

Nov. 9, 2016

Year

2015

2015

SUMMARY

2015

Pollutant:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AIR QUALITY SYSTEM

DATA QUALITY INDICATOR REPORT

Semi-Annual Flow Rate Audits

Nov. 9, 2016

Year

2015

2015

Pollutant:

PM10 Total 0-10um STP (81102)

PQAO: California Air Resources Board (0145)

APP A?:Y

Year	Reg	St	AQIS Site ID	AQIS Loc ID	Begin Date	End Date	% Complete	Criteria Met?	Obs / Q	Avg % d	Conf. Limits		% Between Conf Lmt
											Lower	Upper	
2015	09	CA	06-067-0002	1	S: 01-OCT-15	31-DEC-15	100	Y	10	0	0	1	0
2015	09	CA	06-067-0002	1	S: 01-OCT-15	31-DEC-15	100	Y	10	0	0	1	0
2015	09	CA	06-067-0002	1	S: 01-OCT-15	31-DEC-15	100	Y	10	0	0	1	0

Annual performance evaluation for SO₂, NO₂, O₃, or CO (challenge the analyzer with a certified gas standard) performed at least once every concentration each automated analyzer used Every 6 months audit the flow rate of the PM₁₀, PM_{10-2.5} and PM_{2.5} particulate analyzers.

Reports to Review

AMP251

- *QA Raw Assessment Report*
- Report of submitted transactions in AMP256

AMP256

- *QA Data Quality Indicator Report*
- Calculates Part 58 Appendix A statistics
- Accuracy audits, precision QC Checks, flow rate verifications

AMP430

- *Data Completeness Report*

AMP350

- Raw Data Report

AMP503

- PM_{2.5} Field Blanks

Data Certification Exercise

- Begin with the **AMP600** report provided
- Look at the **AQS recommendations**
- Using the additional information provided, **address each of the recommendations** in the report

Data Evaluation and Concurrence Report Summary

Certification Year: 2015
Certifying Agency (CA): California Air Resources Board (0145)

Pollutants in Report:		Monitors		Monitors Recommended	Monitors NOT Recommended
<u>Parameter Name</u>	<u>Code</u>	<u>Evaluated</u>	<u>Concurrence by AQS</u>	<u>for Concurrence by AQS</u>	
Carbon monoxide	42101	4	2	2	
Lead PM10 LC FRM/FEM	85129	1	0	1	
Nitrogen dioxide (NO2)	42602	7	6	1	
Ozone	44201	7	7	0	
PM10 Total 0-10um STP	81102	8	1	7	
PM2.5 - Local Conditions	88101	6	5	1	
Sulfur dioxide	42401	1	1	0	

PQAOs in Report:

<u>PQAO Name</u>	<u>PQAO Code</u>	<u>TSA Date</u>
California Air Resources Board	0145	09/27/11

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
<u>PQAO</u>	<u>Code</u>	<u>AQS Site-ID</u>	<u>POC</u>	<u>Flag</u>	<u>Flag</u>	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Signature of Monitoring Organization Representative: _____

Data Certification Exercise

Disclaimer:

- Being provided with some of the information you'll need to assess each issue
- May not be all possible information available, may only be a subset
- Make a determination on the issue based on what information is available to you
- Think about what type of information could also be useful in your investigation of the issue

Data Certification Exercise

Begin with Recommendation #1:

Summary of 'N' flags for all pollutants:				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

Data Evaluation and Concurrence Report Summary

Certification Year: 2015
 Certifying Agency (CA): California Air Resources Board (0145)

Pollutants in Report:	Parameter Name	Code	Monitors		Monitors Recommended - Monitors NOT Recommended	
			Evaluated	Concurrence by AQS	for Concurrence by AQS	
	Carbon monoxide	42101	4	2	2	
	Lead PM10 LC FRM/FEM	85129	1	0	1	
	Nitrogen dioxide (NO2)	42602	7	6	1	
	Ozone	44201	7	7	0	
	PM10 Total 0-10um STP	81102	8	1	7	
	PM2.5 - Local Conditions	88101	6	5	1	
	Sulfur dioxide	42401	1	1	0	

PQAOs in Report:	PQAO Name	PQAO Code	TSA Date
	California Air Resources Board	0145	09/27/11

Summary of 'N' flags for all pollutants:				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Signature of Monitoring Organization Representative: _____

Issue #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
<u>PQAO</u>	<u>Code</u>	<u>AQS Site-ID</u>	<u>POC</u>	<u>Flag</u>	<u>Flag</u>	<u>Reason for AQS Recommendation</u>
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

Take 10 minutes to look through the documents, then we will discuss as a group.

The 1-Point QC Completeness < 65% flag indicates that for that year, the agency completed one-point QC checks during **less than 65%** of the **2 week periods**.

AQS calculates the percentage based on 26 intervals of two week periods.

Issue #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended Flag	Recommended Flag	Reason for AQS Recommendation
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

What we know:

- The site measures gaseous and particulate concentrations (continuous and filter)
- Through 10/7/2015, assume that **12 of the 1-Point QC were completed.**
- Assume all of the QC checks were **manual** QC checks
- Assume the monitor was operating all year long
- Assume that there is no available 1-Point QC control sheet for review
- AQS calculates the 2-week periods for 1-Point QC checks

Issue #1 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- AMP256: Data Quality Indicator Report – One Point Quality Control
- AMP251: Raw Monitor Assessment Report – One Point QC
- Calendar with two week intervals highlighted
- Logbook entries for October – December 2015

Issue #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
<u>PQAO</u>	<u>Code</u>	<u>AQS Site-ID</u>	<u>POC</u>	<u>Flag</u>	<u>Flag</u>	<u>Reason for AQS Recommendation</u>
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

Time to Investigate!
10 minutes

Recommendation for Issue #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

The 1-Point QC Completeness < 65% reason indicates that for that year, the agency completed one-point QC checks during less than 65% of the 2 week periods.

- *Through 10/7/2015, we were to **assume 12** (1-point QC checks) were completed*
- *Need to determine if **each 2 week period** has a completed 1-point QC check between the dates of 10/8 – 12/31*
- *Need to determine if a **minimum of 17 points** were completed for the year*

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

First, run the **AMP256** report and see that there were only **16** QCs done in 2015:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 DATA QUALITY INDICATOR REPORT
 One Point Quality Control

Pollutant:			44201 (Ozone)	PQAO:			California Air Resources Board (0145)	App A?		Y		
Year	Region	State	Site IDs	POC	MT	Begin Date	End Date	Intervals Required	Valued Intervals	% Complete	CV UB	Bias UB
2015	09	CA	06-067-0006	1	S	1-Jan-15	31-Dec-15	26	16	62	5.09	+ 5.01
2015			SUMMARY			1-Jan-15	31-Dec-15	26	16	62	5.09	+ 5.01
2015			SUMMARY			1-Jan-15	31-Dec-15	26	16	62	5.09	+ 5.01

Completeness of < 65%

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

Run the **AMP251** report, confirm that **6** QC checks were performed from October to December:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
Raw Monitor Assessment Report

ONE POINT QC

PQAO: California Air Resources Board (0145)

Parameter: Ozone (44201)

Method of Collection and Analysis

INSTRUMENTAL

ULTRA VIOLET ABSORPTION

6 QC checks



Site/Poc.	Method	Assess Date	Number	Assess Conc.	Monitor Conc.	% Diff	Unit Abbr.
06- 067- 0006- 1	087	2015- 10- 01	1	0.07	0.073	4.3	ppm
06- 067- 0006- 1	087	2015- 10- 14	1	0.07	0.073	4.3	ppm
06- 067- 0006- 1	087	2015- 10- 28	1	0.07	0.074	5.7	ppm
06- 067- 0006- 1	087	2015- 11- 12	1	0.07	0.068	-2.9	ppm
06- 067- 0006- 1	087	2015- 12- 07	1	0.07	0.071	1.4	ppm
06- 067- 0006- 1	087	2015- 12- 14	1	0.07	0.074	5.7	ppm

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Check the calendar and find a total of **6 intervals** from 10/8 – 12/31, and **5 out of the 6** need to have a check completed.

October

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Holiday

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Check the calendar and find a total of **6 intervals** from 10/8 – 12/31, and **5 out of the 6** need to have a check completed.
- Mark the **dates** from the AMP251 report:

October

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

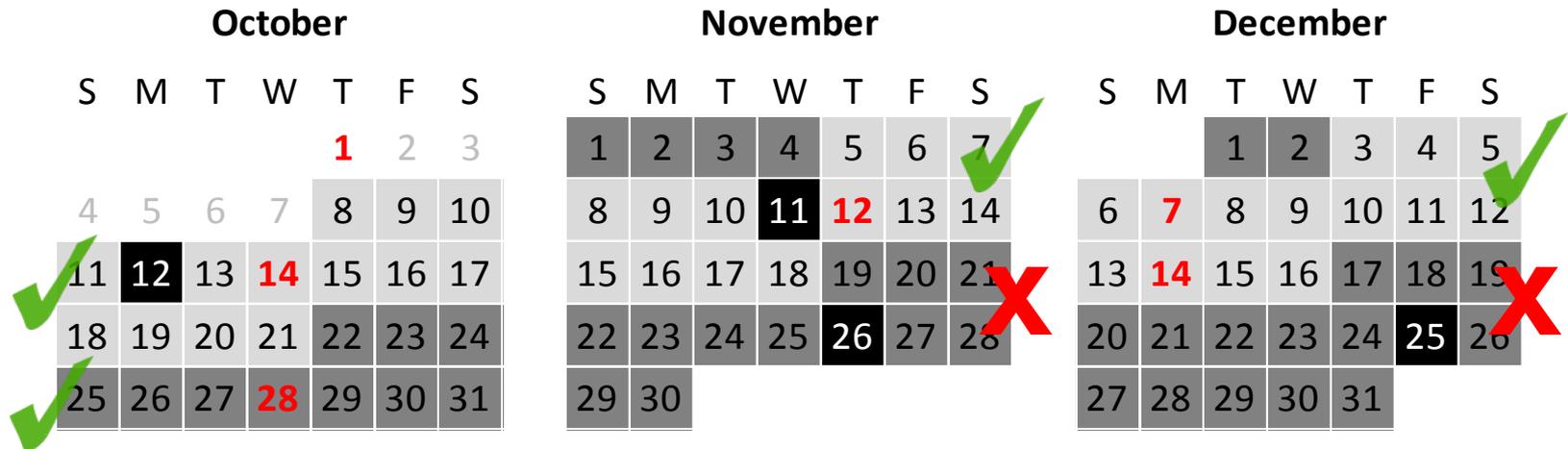
Holiday

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Check the calendar and find a total of **6 intervals** from 10/8 – 12/31, and **5 out of the 6** need to have a check completed.
- Mark the **dates** from the AMP251 report:
- Only **4** intervals are reported



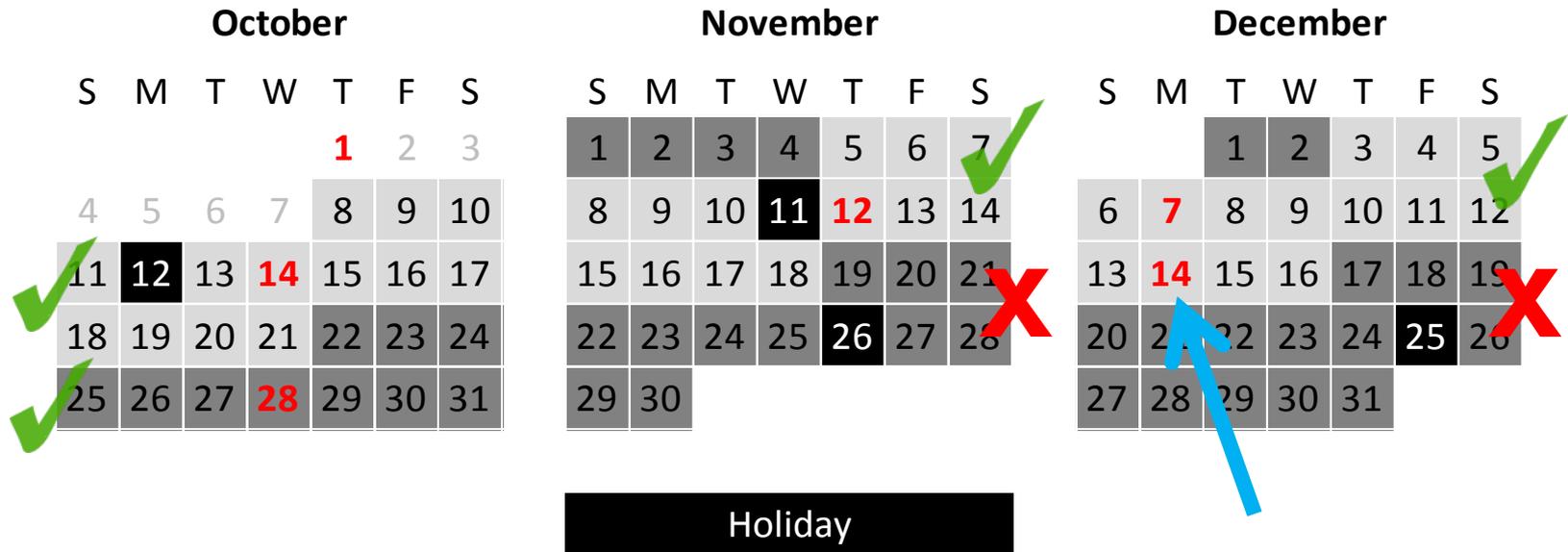
Holiday

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Check the calendar and find a total of **6 intervals** from 10/8 – 12/31, and **5 out of the 6** need to have a check completed.
- Mark the **dates** from the AMP251 report:
- Only **4** intervals are reported, but **2 in one period...**



Recommendation #1

Summary of 'N' flags for all pollutants:

AQS

Cert. Agency

Parameter

Recommended

Recommended

PQAO

Code

AQS Site-ID

POC

Flag

Flag

Reason for AQS Recommendation

0145

44201

06-067-0006

1

N

1-Point QC Completeness < 65%.

- Review the **logbook** to investigate discrepancies

DEL PASO MANOR October 2015

DATE	TIME	COMMENTS	INIT.
10/1	8:10-12:30	BAM flow and leak check, check methane operation. Fill FRM filters, change Hivol & SASS & 3000 N.	JD
10/4	16:10-17:15	Troubleshoot primary FRM filter advance error.	JD
10/5	9:30-12:10	Checked FRM, looks good. Finished BAM bkgd 72 hr testing. Weekly checks.	JD
10/7	8:10-11:45	Aethalometer flow check.	JD
10/14	8:30-11:10	Pickup FRMs, 3000N, change SASS, manual QC check gaseous	JD
10/15	12:40-3:10	Change Hivols, weekly checks	JD
10/19	8:10-12:30	Change Hivols, replace 400E ozone pump check ozone analyzer.	JD
10/21	9:15-12:45	Pick up FRMs.	JF
10/20	2:10-3:45	Check ozone pump, analyzer. Gaseous manual QC check completed. Prepared for truck-in-treaters.	JF

DEL PASO MANOR November 2015

DATE	TIME	COMMENTS	INIT.
11/9	8:10-12:10	Weekly checks, change inline filters	JD
11/12	12:45-4:05	Pickup and load FRM, change SASS & 3000N. Manual QC check on gaseous.	JD
11/16	8:45-11:10	Change Hivols, BAM flow check and leak check.	JD
11/19	8:10-10:45	Load FRM & 3000N & SAs. changed Hivols again. Chased away pesky bear.	JD
11/23	9:10-12:15	Load and pickup FRM. Site visit from UC Davis students.	JD
11/27	1:15-4:15	Monthly met check. Run sampling on 2129.	JD
11/30	8:10-9:15	Pick up 3000N & SAs. Change Hivols.	JD

DEL PASO MANOR DECEMBER 2015

DATE	TIME	COMMENTS	INIT.
12/2	7:55-10:15	Pulled FRM filters. Change compartment temp board from collocated FRM back to PM10C, reloaded filter list	JD
12/7	1:55-4:15	Manual gaseous QC check. Fixed water leak in primary FRM. Load SASS, 3000N and FRM.	JD
12/10	8:15-12:10	Weekly checks. CBRE fixed roof leaks.	JD
12/10	13:10-13:25	Investigated Envidas setting on computer. Compare calibrations between DRM and BER.	JP
12/17	8:10-11:55	Pickup and load FRM. Change SASS and 3000N. Check inline filters. Manual gaseous QC check.	JD
12/21	2:10-3:55	Pickup and load FRM. Prepared roof for Santa visit. Changed inline filters again. Cal zero on Co analyzer.	JD

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended Flag	Recommended Flag
					Reason for AQS Recommendation
0145	44201	06-067-0006	1	N	1-Point QC Completeness < 65%.

- Review the **logbook** to investigate why no checks were performed between 10/28-11/9:

10/19	8:10 - 12:30	Change HiVols, replace 400E ozone pump check ozone analyzer.	JF
10/21	9:15 - 12:45	Pick up FRMs.	JF
10/28	2:10 - 3:45	Check ozone pump, analyzer. 1-pt QC check complete.	JF

DEL PASO MANOR. NOVEMBER 2015

DATE	TIME	COMMENTS	INIT.
11/9	8:10 - 12:10	Weekly checks, change inline filters	AD

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Review the **logbook** to investigate why no checks were performed between 10/28-11/9:

10/19	8:10 - 12:30	Change HiVols, replace 400E ozone pump check ozone analyzer.	JF
10/21	9:15 - 12:45	Pick up FRMs.	JF
10/28	2:10 - 3:45	Check ozone pump, analyzer. 1-pt QC check complete.	JF

DEL PASO MANOR. NOVEMBER 2015

DATE	TIME	COMMENTS	INIT.
11/9	8:10 - 12:10	Weekly checks, change inline filters	AD

- Technician away from station 10/28 – 11/9
- No coverage? Missed QC Check?

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Review the **logbook** to investigate why no checks were performed between 10/28-11/9:

10/19	8:10 - 12:30	Change HiVols, replace 400E ozone pump check ozone analyzer.	JF
10/21	9:15 - 12:45	Pick up FRMs.	JF
10/28	2:10 - 3:45	Check ozone pump, analyzer. 1-pt QC check complete.	JF

Solution:

AQS is correct, no QC check was performed

DEL PASO MANOR. NOVEMBER 2015

DATE	TIME	COMMENTS	INIT.
11/9	8:10 - 12:10	Weekly checks, change inline filters	AD

- Technician away from station 10/28 – 11/9
- No coverage? Missed QC Check?

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Review the **logbook** to investigate why 2 checks were performed during the same period:

December

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

(Note: In the original image, a green checkmark is next to the 5th, a red X is next to the 19th, and a blue arrow points to the 21st.)

12/10	8:15 - 12:10	Weekly checks. CBRE fixed roof leaks.	AD.
12/10	13:10 - 13:25	Investigated Envidas settings on computer. Compare calibrations between DPM and BER.	KP
12/17	8:10 - 11:55	Pickup and load FRM. Change JASS and 3000N. Check inline filters. Manual gaseous QC check.	AD.
12/21	2:10 - 3:55	Pickup and load FRM. Prepared roof for Santa visit. Changed inline filters again. Cal zero on Co analyzer.	AD.

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended Flag	Recommended Flag
Reason for AQS Recommendation					
0145	44201	06-067-0006	1	N	1-Point QC Completeness < 65%.

- Review the **logbook** to investigate why 2 checks were performed during the same period:

December

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

(Note: In the original image, a green checkmark is next to 12/12, a red X is next to 12/19, and a blue arrow points to 12/21.)

12/10	8:15 - 12:10	Weekly checks. CBRE fixed roof leaks.	AD.
12/10	13:10 - 13:25	Investigated Envidas settings on computer. Compare calibrations between DPM and BER.	KP
12/17	8:10 - 11:55	Pickup and load FRM. Change JASS and 3000N. Check inline filters. Manual gaseous QC check.	AD.
12/21	2:10 - 3:55	Pickup and load FRM. Prepared roof for Santa visit. Changed inline filters again. Cal zero on Co analyzer.	AD.

- QC check was performed on **12/17**, entered into AQS as **12/14**

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO Code				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

- Review the **logbook** to investigate why 2 checks were performed during the same period:

Solution:
**Resubmit the correct date
(12/17) to AQS**

12/10	8:15 - 12:10	Weekly checks. CBRE fixed roof leaks.	AD.
12/10	13:10 - 13:25	Investigated Envidas settings on computer. Compare calibrations between DPM and BER.	KP
12/17	8:10 - 11:55	Pickup and load FRM. Change JASS and 3000N. Check inline filters. Manual gaxous QC check.	AD.
12/21	2:10 - 3:55	Pickup and load FRM. Prepared roof for Santa visit. Changed inline filters again. Cal zero on Co analyzer.	AD.

- QC check was performed on **12/17**, entered into AQS as **12/14**

Recommendation #1

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	44201	06-067-0006	1	N		1-Point QC Completeness < 65%.

Rerun the **AMP256** report and see that there are now **17** QCs done in 2015, and meet completeness:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 DATA QUALITY INDICATOR REPORT
 One Point Quality Control

Pollutant:			44201 (Ozone)	PQAO:			California Air Resources Board (0145)	App A? Y				
Year	Region	State	Site IDs	POC	MT	Begin Date	End Date	Intervals Required	Valued Intervals	% Complete	CV UB	Bias UB
2015	09	CA	06-067-0006	1	S	1-Jan-15	31-Dec-15	26	17	65	5.09	+ 5.01
2015			SUMMARY			1-Jan-15	31-Dec-15	26	17	65	5.09	+ 5.01
2015			SUMMARY			1-Jan-15	31-Dec-15	26	17	65	5.09	+ 5.01



Completeness of 65%

Issue #2

Summary of 'N' flags for all pollutants:				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

Definition: Annual Performance evaluation for SO₂, NO₂, O₃, or CO. “Each calendar quarter (during which analyzers are operated), evaluate at least 25% of the SLAMS analyzers that the monitor for SO₂, NO₂, O₃, or CO such that each analyzer is evaluated at least once per year”

What we know:

- AQS assumes the monitor is running all year

Issue #2 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

- AMP430: Data Completeness Report
- AMP390: Monitor Description Report

Investigate why the Annual Performance Evaluation Audit is missing

Issue #2 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

Time to Investigate!
5 minutes

Recommendation #2

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

- A performance evaluation must be done every year
- Check the **Data Completeness Report (AMP430)**:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

MONITORS REPORTING

DATE RANGE: OCT. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
STATE: California

REP ORG: California Air Resources Board
MONITOR TYPE: SLAMS

SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR
				NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
06-067-0015 Sacramento 100 Bercut Drive, Sacramento	42101 Carbon monoxide	1	1	0	0	0	0	0	0	0	0	0	403	683	726	1812
			593	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	95%	98%
06-067-0015 Sacramento 100 Bercut Drive, Sacramento	42602 Nitrogen dioxide (NO2)	1	1	0	0	0	0	0	0	0	0	0	424	252	726	1834
			200	0%	0%	0%	0%	0%	0%	0%	0%	0%	93%	35%	98%	21%
06-067-4001 Sacramento HLTH CTR-2221 STOCKTON BLVD, SACRAMENTO	81102 PM10 Total 0-10um STP	3	1	665	456	302	665	680	648	201	0	204	721	715	731	5988
			079	90%	68%	41%	92%	91%	90%	27%	0%	28%	97%	99%	98%	69%

Recommendation #2

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

- A performance evaluation must be done every year
- Check the **Data Completeness Report (AMP430):**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

MONITORS REPORTING

DATE RANGE: OCT. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
STATE: California

REP ORG: California Air Resources Board
MONITOR TYPE: SLAMS

SITE ID	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR	
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
06-067-0015 Sacramento 100 Bercut Drive, Sacramento	42101 Carbon monoxide	1	1	0	0	0	0	0	0	0	0	0	0	403	683	726	1812
			593	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	95%	98%	21%
06-067-0015 Sacramento 100 Bercut Drive, Sacramento	42602 Nitrogen dioxide (NO2)	1	1	0	0	0	0	0	0	0	0	0	424	252	726	1834	
			200	0%	0%	0%	0%	0%	0%	0%	0%	0%	93%	35%	98%	21%	
06-067-4001 Sacramento HLTH CTR-2221 STOCKTON BLVD, SACRAMENTO	81102 PM10 Total 0-10um STP	3	1	665	456	302	665	680	648	201	0	204	721	715	731	5988	
			079	90%	68%	41%	92%	91%	90%	27%	0%	28%	97%	99%	98%	69%	

Recommendation #2

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

- No data for dates before October!
- Check the history of the monitor using the **Monitor Description Report (AMP390)**:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MONITOR DESCRIPTION REPORT

California

Monitor ID: 06-067-0015-42101-1
 Date of Latest Collection: 20160929
 Screening Group: California

Parameter Measured: 42101
 Last Updated: 20160929
 City: Sacramento

Monitoring Agency/Owner: 0145 California Air Resources Board
 Street Address: 100 Bercut Drive, Sacramento
 Site Name: Sacramento-Bercut Drive
 County: Sacramento
 Project Type: SOURCE-ORIENTED AMBIENT SURVEILLANCE
 Meas. Scale: MICROSCALE
 Probe Location:
 Probe Height (m): 4.7 Surrogate?:
 Sample Residence Time: 8

CBSA: Sacramento--Roseville--Arden-Arcade, CA
 UAR: Sacramento, CA
 Dominant Source:
 Location Setting: Urban And Center City
 Horizontal Distance (m): 20.0
 Vertical Distance (m): 2.0
 Unrestricted Air FLOW?:

DATES OF OPERATION

AGENCY ROLES

Begin Date	End Date	Agency Role	Agency Name	Begin Date	End Date
20151013		COLLECTING	Sacramento County APCD	20151013	
		ANALYZING	Sacramento County APCD	20151013	
		REPORTING	California Air Resources Board	20151013	
		PQAO	California Air Resources Board	20151013	
		AUDIT	California Air Resources Board	20151013	
		CERTIFYING	California Air Resources Board	20151013	

Recommendation #2

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42101	06-067-0015	1	N		Annual Performance Evaluation Audit Missing or 1 Level.

- No data for dates before October!
- Check the history of the monitor using the **Monitor Description Report (AMP390)**:

Solution: Conclude that the site initial start date was on 10/13/2015, no audit was performed in that quarter, but data is valid and recommended to be certified.

Issue #3

Summary of 'N' flags for all pollutants:				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.

Definition: *Semi-Annual Flow Rate Audit for Particulate Matter.* “Every 6 months, audit the flow rate of the PM₁₀, PM_{10-2.5} and PM_{2.5} particulate analyzers.”

Meaning: The Flow Rate Audit Completeness < 65% reason indicates that for that year, the agency completed Flow Rate Audits less than 65% of the 2 required bi-annual audits, or **less than 2 out of a possible 2 audits.**

Issue #3

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.

Definition: *Semi-Annual Flow Rate Audit for Particulate Matter.* “Every 6 months, audit the flow rate of the PM₁₀, PM_{10-2.5} and PM_{2.5} particulate analyzers.”

Meaning: The Flow Rate Audit Completeness < 65% reason indicates that for that year, the agency completed Flow Rate Audits less than 65% of the 2 required bi-annual audits, or **less than 2 out of a possible 2 audits.**

Need to investigate why the completeness is < 65% for parameter 81102 at 06-067-0006 Site

Issue #3 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.

- AMP256: Data Quality Indicator Report – Semi-Annual Flow Rate Audits
- Email Communication with CARB
- Audit Report (cover sheet)
 - assume the audit was completed for parameter **81102** (PM₁₀ Continuous) at **06-067-0006**

Issue #3

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended Flag	Recommended Flag	Reason for AQS Recommendation
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.

Time to Investigate!
5 minutes

Recommendation #3

Summary of 'N' flags for all pollutants:				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.

First, run the **AMP256** report:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 DATA QUALITY INDICATOR REPORT
 Semi- Annual Flow Rate Audits

Pollutant: PM10 Total 0-10um STP (81102) **PQAO:** California Air Resources Board (0145) **App A?:** Y

Year	Reg	St	AQS Site ID	POC	MT	Begin Date	End Date	# Reg	#Q	% Complete	Criteria Met?	Obs / Q	Avg % d	Conf. Limits Lower	Upper	% Between Conf Lmt
2015	09	CA	06-067-0006	1	S	1-Jan-15	31-Dec-15	2	1	50	N	0 1 0 0 0				0
2015			SUMMARY			1-Jan-15	31-Dec-15	2	1	50	0	0 1 0 0 0				0
SUMMARY			SUMMARY			1-Jan-15	31-Dec-15	2	1	50	0	0 1 0 0 0				0

Recommendation #3

Summary of 'N' flags for all pollutants:

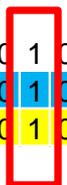
Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended
Flag	Reason for AQS Recommendation				
0145	81102	06-067-0006	1	N	Flow Rate Audit completeness < 65%.

First, run the **AMP256** report and see that according to AQS there was only **1 Flow Rate Audit performed** in 2015:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 DATA QUALITY INDICATOR REPORT
 Semi- Annual Flow Rate Audits

Pollutant: PM10 Total 0-10um STP (81102) **PQAO:** California Air Resources Board (0145) **App A?:** Y

Year	Reg	St	AQS Site ID	POC	MT	Begin Date	End Date	# Reg	#Q	% Complete	Criteria Met?	Obs / Q				Avg % d	Conf. Limits Lower	Upper	% Between Conf Lmt
												1	2	3	4				
2015	09	CA	06-067-0006	1	S	1-Jan-15	31-Dec-15	2	1	50	N	0	1	0	0	0			0
2015			SUMMARY			1-Jan-15	31-Dec-15	2	1	50	0	0	1	0	0	0			0
SUMMARY			SUMMARY			1-Jan-15	31-Dec-15	2	1	50	0	0	1	0	0	0			0



Recommendation #3

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended
				Flag	Flag
					Reason for AQS Recommendation
0145	81102	06-067-0006	1	N	Flow Rate Audit completeness < 65%.

Check for **email** to see if a second audit was scheduled for the site.

Audit seemed to have been scheduled....

Janice Lam

From: ARB Audit Staff
Sent: Monday, September 26, 2015 12:36 PM
To: Janice Lam
Cc: FieldTechs@airquality.org
Subject: RE: Scheduling FR Audit for 06-067-0006

Thanks Audit Staff!

Janice

Janice Lam Snyder
SMAQMD

From: ARB Audit Staff [mailto: ARBAuditStaff@arb.ca.gov]
Sent: Monday, September 26, 2015 11:48 AM
To: Janice Lam
Cc: FieldTechs@airquality.org
Subject: Scheduling FR Audit for 06-067-0006

Hi Janice,

We would be able to schedule a Flow Rate Audit for October 7th at the Sacramento-Del Paso Manor site (06-067-0006).

Thank you,

ARB Audit Staff
California Air Resources Board

Recommendation #3

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended
				Flag	Flag
0145	81102	06-067-0006	1	N	

Reason for AQS Recommendation
Flow Rate Audit completeness < 65%.

Check with CARB that the audit was completed by downloading the **Audit Report** for the station.

<https://www.arb.ca.gov/qaweb/panda/panda.php>

California Air Resources Board
Final Performance Audit Report by
Quality Assurance Section
Monitoring and Laboratory Division

Manager: Ranjit Bhullar

Phone: (916) 322-0223



AQS Number: 060670006

ARB Number:

Site Name:
Sacramento-Del Paso Manor

Audit Date:
2015-10-07

Auditors:

Station Operator:

Report Contents:
Executive Summaries
Technical Appendices
Audit Calculations
Site Survey Report

When this report has been finalized, it will be available at: <http://www.arb.ca.gov/qaweb/panda/panda.php>

Recommendation #3

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-0006	1	N		Flow Rate Audit completeness < 65%.

Check with CARB that the audit was completed by downloading the **Audit Report** for the station.

Conclude that audit **was performed, but not entered** into AQS.

California Air Resources Board
Final Performance Audit Report by
Quality Assurance Section
Monitoring and Laboratory Division

Manager: Ranjit Bhullar

Phone: (916) 322-0223



AQS Number: 060670006

ARB Number:

Site Name:
Sacramento-Del Paso Manor

Audit Date:
2015-10-07

Auditors:

Station Operator:

Report Contents:
Executive Summaries
Technical Appendices
Audit Calculations
Site Survey Report

Recommendation #3

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended
				Flag	Flag
0145	81102	06-067-0006	1	N	
					Reason for AQS Recommendation
					Flow Rate Audit completeness < 65%.

Check with CARB that the audit was completed by downloading the **Audit Report** for the station.

Conclude that audit **was performed, but not entered** into AQS.

Solution: Submit audit results performed on 10/07/2015 to AQS

California Air Resources Board
Final Performance Audit Report by
Quality Assurance Section
Monitoring and Laboratory Division

Manager: Ranjit Bhullar

Phone: (916) 322-0223



AQS Number: 060670006

ARB Number:

Site Name:
Sacramento-Del Paso Manor

Audit Date:
2015-10-07

Auditors:

Station Operator:

Report Contents:
Executive Summaries
Technical Appendices
Audit Calculations
Site Survey Report

Issue #4

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

Plain Language Definition: Annual Summary Completeness > 70% (data completeness) for each parameter should be greater than 70% of its sampling schedule

Issue #4 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

- AMP430:Data Completeness Report
- Data Validation Letter
- Logbook entry for November 2015

Issue #4 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

- AMP430:Data Completeness Report
- Data Validation Letter
- Logbook entry for November 2015

Investigate why the Annual Summary Completeness is < 70% for NO2 (parameter 81102)

Issue #4 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

Time to Investigate!
5 minutes

Issue #4

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

- Annual Summary Completeness < 70%
- Check the **Data Completeness Report (AMP430):**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

MONITORS REPORTING

DATE RANGE: JAN. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
STATE: California

REP ORG: California Air Resources Board
MONITOR TYPE: SLAMS

SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR
				NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
06-067-0012 Folsom 50 NATOMA STREET, FOLSOM	42602 Nitrogen dioxide (NO2)	1	1 000	545 73%	304 45%	421 57%	441 61%	614 83%	580 81%	601 81%	598 81%	587 81%	530 71%	112 16%	624 84%	5957 68%

Issue #4

Summary of 'N' flags for all pollutants:				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

- Annual Summary Completeness < 70%
- Check the **Data Completeness Report (AMP430)**:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

MONITORS REPORTING

DATE RANGE: JAN. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
STATE: California

REP ORG: California Air Resources Board
MONITOR TYPE: SLAMS

SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR
				NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
06-067-0012 Folsom 50 NATOMA STREET, FOLSOM	42602 Nitrogen dioxide (NO2)	1	1 000	545 73%	304 45%	421 57%	441 61%	614 83%	580 81%	601 81%	598 81%	587 81%	530 71%	112 16%	624 84%	5957 68%

Recommendation #4

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

- Look at the **monthly data validation letter** to see if there were any issues with the data for November

malfunction									
0012	43102	1	11/12 Hr 19	11/30 Hr 23	437	AN/BA	Carrier gas generator to NMH analyzer malfunctioned		
0012	42602	1	11/3 Hr 2	11/23 Hr 10	488	AN/BA	Malfunction of the flow pump		
0002	44201	1	11/4 Hr 20	11/5 Hr 10	15	BK	Hard drive failure affected all analyzers		
	42603	1							
	42601	1							

Recommendation #4

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

- Look at the **monthly data validation letter** to see if there were any issues with the data for November

0012	43102	1	11/12 Hr 19	11/30 Hr 23	437	AN/BA	Carrier gas generator to NMH analyzer malfunctioned
0012	42602	1	11/3 Hr 2	11/23 Hr 10	488	AN/BA	Malfunaction of the flow pump
0002	42601	1	11/4 Hr 20	11/5 Hr 10	15	BK	Hard drive failure affected all analyzers
	42603	1					
	42601	1					

Recommendation #4

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

Check with the station monthly logbook to **confirm the malfunction:**

FOLSOM NOV 2015

DATE	TIME	COMMENTS	INIT.
NOV 2	1300-1345	investigating calibrations and performing safety checks.	DA
NOV 3	810-1145	flow pump malfunction on NO ₂ . Taken offline, waiting for parts. Ordered this morning.	DA
NOV 12	1445-1600	weekly checks. Change inline filters. 633 flow check, clean inlets.	DA.
NOV 20	1305-1420	weekly checks. Change inline filters	DA.
NOV 23	755-1310	replaced flow pump on NO ₂ , working properly and online.	DA.
NOV 29	1100-1330	weekly check and inline filter check.	DA.

Recommendation #4

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency
PQAO	Code	AQS Site-ID	POC	Recommended Flag	Recommended Reason for AQS Recommendation
0145	42602	06-067-0012	1	N	Annual Summary completeness < 70%.

Check with the station monthly logbook to **confirm the malfunction:**

FOLSOM NOV 2015

DATE	TIME	COMMENTS	INIT.
NOV 2	1300-1345	investigating calibrations and performing safety checks.	DA
NOV 3	810-1145	flow pump malfunction on NO ₂ . Taken offline, waiting for parts. Ordered this morning.	DA
NOV 12	1445-1600	weekly checks. Change inline filters. 633 flow check, clean inlets.	DA.
NOV 20	1305-1420	weekly checks. Change inline filters	DA.
NOV 23	755-1310	replaced flow pump on NO ₂ , working properly and online.	DA.
NOV 29	1100-1330	weekly check and inline filter check.	DA.

Recommendation #4

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	42602	06-067-0012	1	N		Annual Summary completeness < 70%.

Solution: Conclude that there was a malfunction in the NO₂ flow pump during the period of 11/3-11/23 causing the annual data completeness to be <70%. Data is recommended for certification.

Issue #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	
<u>PQAO</u>	<u>Code</u>	<u>AQS Site-ID</u>	<u>POC</u>	<u>Flag</u>	<u>Flag</u>	<u>Reason for AQS Recommendation</u>
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Definition: Annual Summary Completeness > 70% (data completeness) for each parameter should be greater than 70% of its sampling schedule

Issue #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Definition: Annual Summary Completeness > 70% (data completeness) for each parameter should be greater than 70% of its sampling schedule

Investigate why the Annual Summary Completeness is < 70% for PM₁₀ Continuous (parameter 81102)

Issue #5 Information Provided

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

- AMP430: Data Completeness Report
- Logbook entry for September 2015
- Corrective Action Notice (CAN)
 - assume the CAN was completed for parameter **81102** (PM₁₀ TEOM Continuous) at **06-067-4001**

Issue #5

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	Reason for AQS Recommendation
				Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Time to Investigate!
5 minutes

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

- **Annual Summary Completeness < 70%**
- **Check the Data Completeness Report (AMP430):**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

MONITORS REPORTING

DATE RANGE: OCT. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
STATE: California

REP ORG: California Air Resources Board
MONITOR TYPE: SLAMS

SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR
				NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
06-067-0015 Sacramento 100 Bercut Drive, Sacramento	42101 Carbon monoxide	1	1	0	0	0	0	0	0	0	0	0	403	683	726	1812
			593	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	95%	98%
06-067-0015 Sacramento 100 Bercut Drive, Sacramento	42602 Nitrogen dioxide (NO2)	1	1	0	0	0	0	0	0	0	0	0	424	252	726	1834
			200	0%	0%	0%	0%	0%	0%	0%	0%	0%	93%	35%	98%	21%
06-067-4001 Sacramento HLTH CTR-2221 STOCKTON BLVD, SACRAMENTO	81102 PM10 Total 0-10um STP	3	1	665	456	302	665	680	648	201	0	204	721	715	731	5988
			079	90%	68%	41%	92%	91%	90%	27%	0%	28%	97%	99%	98%	69%

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

- **Annual Summary Completeness < 70%**
- **Check the Data Completeness Report (AMP430):**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

MONITORS REPORTING

DATE RANGE: OCT. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
STATE: California

REP ORG: California Air Resources Board
MONITOR TYPE: SLAMS

SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR
				NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
06-067-4001 Sacramento HLTH CTR-2221 STOCKTON BLVD, SACRAMENTO	PM10 Total 0-10um STP	3	1 079	665 90%	456 68%	302 41%	665 92%	680 91%	648 90%	201 27%	0 0%	204 28%	721 97%	715 99%	731 98%	5988 69%

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

- Annual Summary Completeness < 70%
- Check the Data Completeness Report (AMP430):

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

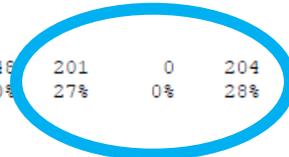
MONITORS REPORTING

DATE RANGE: OCT. 01, 2015 THRU DEC. 31, 2015
REGION: (09) SAN FRANCISCO
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SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS												YEAR
				NUMBER / PERCENT												
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
06-067-4001 Sacramento HLTH CTR-2221 STOCKTON BLVD, SACRAMENTO	PM10 Total 0-10um STP	3	1 079	665 90%	456 68%	302 41%	665 92%	680 91%	648 90%	201 27%	0 0%	204 28%	721 97%	715 99%	731 98%	5988 69%

What happened here?



Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
Parameter				Recommended	Recommended	
PQAO	Code	AQS Site-ID	POC	Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Check the station monthly **logbook** to see if anything happened to the monitor:

Stockton Blvd September 2015			
Date	Time	Comments	Initial
9-8	1400-1425	Pick up FRM	RJ
9-11	950 - 1010	Load Hivol 9/16/15 pick up 9/3/15	RJ
9-17	710 - 840	Change Hivol and flow check	RJ
9-21	720 - 1145	Fixed input port malfunction on TEOM	RJ
9-29	720 - 745	Changed Hivols and pickup FRM	RJ

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS	Cert. Agency	
PQAO	Code	AQS Site-ID	POC	Recommended	Recommended	
				Flag	Flag	Reason for AQS Recommendation
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Check the station monthly **logbook** to see if anything happened to the monitor:

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9-11	950 - 1010	Load Hivol 9/16/15 pick up 9/3/15	RJ
9-17	710 - 840	Change Hivol and flow check	RJ
9-21	720 - 1145	Fixed input port malfunction on TEOM	RJ
9-29	720 - 745	Changed Hivols and pickup FRM	RJ

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Check to see if a **Corrective Action Notification (CAN)** was submitted to CARB:

California Environmental Protection Agency
 **Air Resources Board**
 Corrective Action Notification

This form is used to document issues that may impact or potentially impact data quality, completeness, storage, or reporting.

Section I: (to be completed by Initiator)

Initiator: S. D'Andrea Date: 9/23/15
 Subject: TEOM Data Invalidation Agency: SMAQMD

Reason for Corrective Action Notification (continue on an attachment if needed):
Data logger was incorrectly recording TEOM data. On 7/9/15 the data logger somehow switched input ports for capturing data for the TEOM. If the port was monitoring the NMHC concentration on the TEOM channel.

Start Date & Time: 7/9/15 08:00 End Date & Time: 9/21/15 13:00 Estimated?
 Parameter(s) affected: TEOM PM10 Expected Completion Date: 9/21/15
*Up to 45 days from Initiation Date
 Supervisor: [Signature] Date: 9/23/15

Section II: (to be completed by responsible section or organization)

Corrective Action Taken (continue on an attachment if needed):

Action taken by: _____ Date: _____

Resolution (continue on an attachment if needed): *Include changes to prevent recurrence, and any effect on data.
Data will be invalidated prior to submittal to CARB for upload into AQS.

Resolved by: _____ Date: _____

Forward to: Michael Miguel, PQAO Point of Contact; PO BOX 2815, Sacramento, California 95812; michael.miguel@arb.ca.gov

For questions regarding the CAN process, contact PQAO@arb.ca.gov

CAN # assigned: _____

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Check to see if a **Corrective Action Notification (CAN)** was submitted to CARB:

CAN coincides with logbook.

California Environmental Protection Agency
 **Air Resources Board**
 Corrective Action Notification

This form is used to document issues that may impact or potentially impact data quality, completeness, storage, or reporting.

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Section II: (to be completed by responsible section or organization)

Corrective Action Taken (continue on an attachment if needed):

Action taken by: _____ Date: _____

Resolution (continue on an attachment if needed): *Include changes to prevent recurrence, and any effect on data.
Data will be invalidated prior to submittal to CARB for upload into AQS.

Resolved by: _____ Date: _____

Forward to: Michael Miguel, PQAO Point of Contact; PO BOX 2815, Sacramento, California 95812; michael.miguel@arb.ca.gov

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CAN # assigned: _____

Recommendation #5

Summary of 'N' flags for all pollutants:

Parameter				AQS Recommended	Cert. Agency Recommended	Reason for AQS Recommendation
PQAO	Code	AQS Site-ID	POC	Flag	Flag	
0145	81102	06-067-4001	3	N		Annual Summary completeness < 70%.

Check to see if a **Corrective Action Notification (CAN)** was submitted to CARB:

CAN coincides with logbook.

Solution: Conclude that the data from the monitor invalidated due to data logger malfunction from 7/9/15 to 9/21/15

California Environmental Protection Agency
 **Air Resources Board**
 Corrective Action Notification

This form is used to document issues that may impact or potentially impact data quality, completeness, storage, or reporting.

Section I: (to be completed by Initiator)

Initiator: S. D'Andrea Date: 9/23/15
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 Parameter(s) affected: TEOM PM10 Expected Completion Date: 9/21/15
*Up to 45 days from Initiation Date
 Supervisor: [Signature] Date: 9/23/15

Section II: (to be completed by responsible section or organization)

Corrective Action Taken (continue on an attachment if needed):

Action taken by: _____ Date: _____

Resolution (continue on an attachment if needed): *Include changes to prevent recurrence, and any effect on data.
Data will be invalidated prior to submittal to CARB for upload into AQS.

Resolved by: _____ Date: _____

Forward to: Michael Miguel, PQAO Point of Contact; PO BOX 2815, Sacramento, California 95812; michael.miguel@arb.ca.gov

For questions regarding the CAN process, contact PQAO@arb.ca.gov

CAN # assigned: _____

Common Issues/Best Practice

- 90% of data certification issues are tied to completeness
 - Mismatched POCs cause completeness issues
 - Improper start/end dates will cause AQS to tag the monitor as having “incomplete” data
 - Incomplete Flow Rate Verifications (FRV)
 - New requirement is that all FRV must be in AQS
 - Expired standards used for calibration
-
- ☑ Get the data into AQS on time!
 - by April 15th to ARB or May 1st to EPA
 - ☑ Letters need to clearly state which data should be and should not be certified, with reasons!
 - ☑ **Check AMP256 reports throughout the year**

Thank You!

Any Questions or Comments?

Janice Lam Snyder

Sacramento Metropolitan AQMD

(916) 874 – 4835

jlam@airquality.org

SACRAMENTO METROPOLITAN



AIR QUALITY
MANAGEMENT DISTRICT