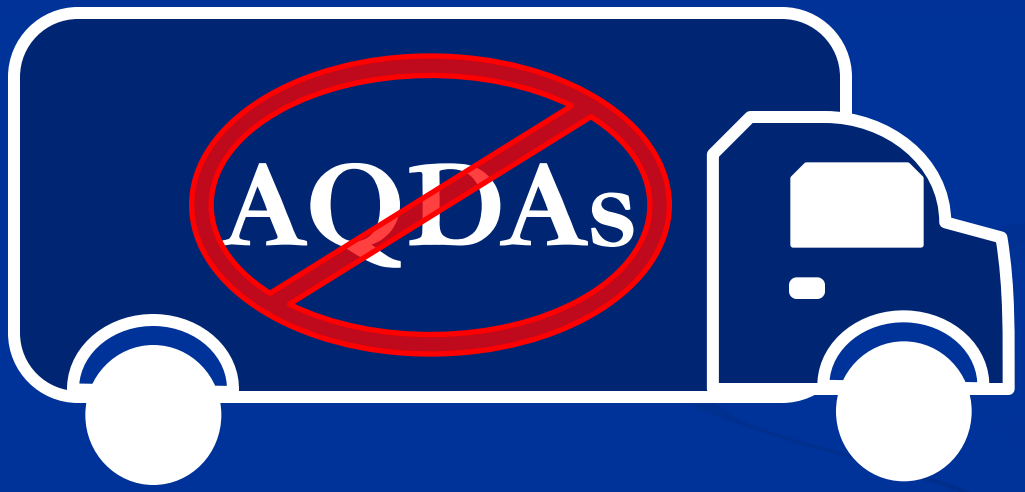
Air Quality Data Action (AQDA) Request

"Like a Good Neighbor QA is There"

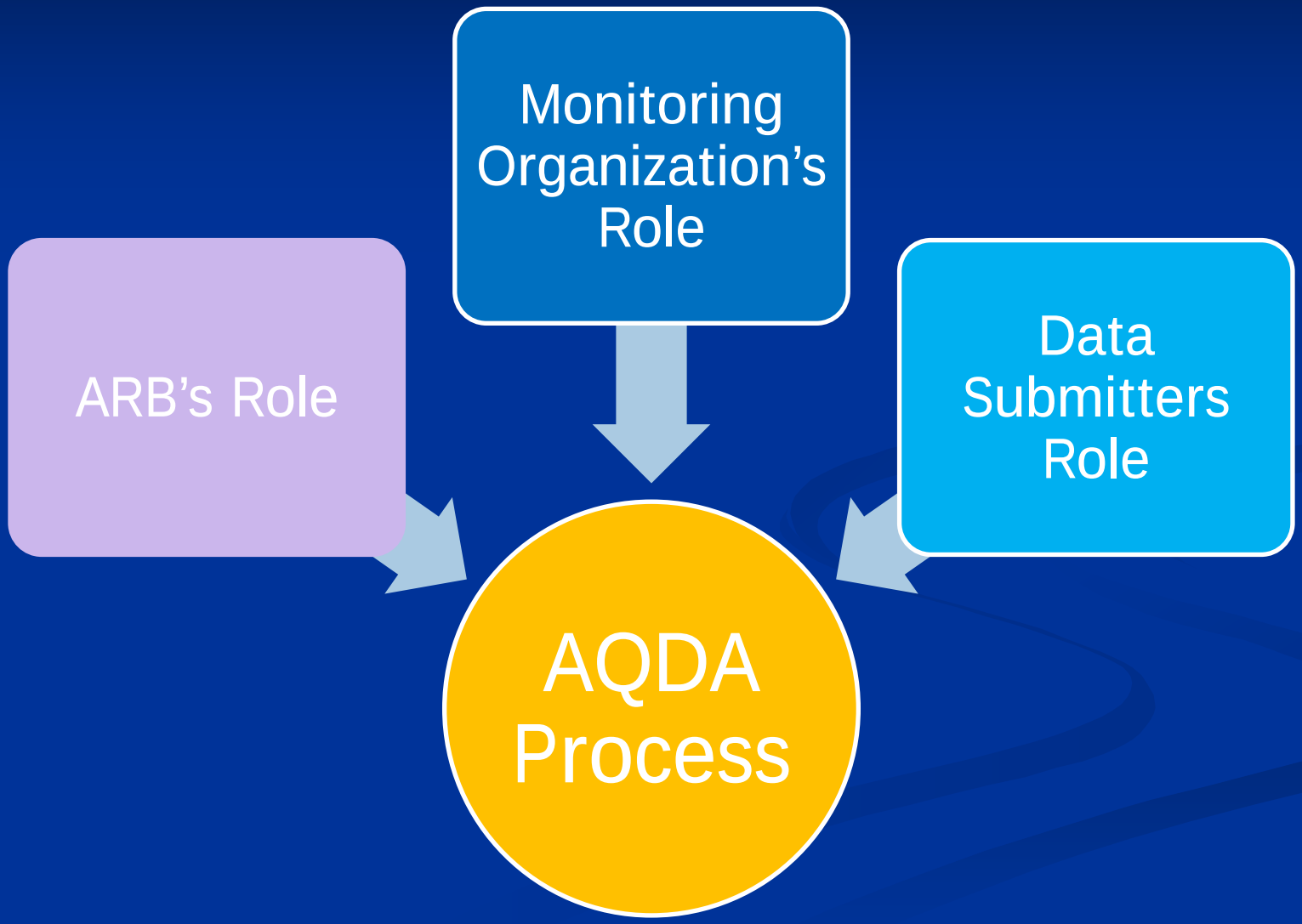
Laura Niles, Air Pollution Specialist
Quality Assurance Section
California Air Resources Board

January 2015

Where Are We On the Info Graphic?



Objectives


Monitoring Organization's Role
ARB's Role
Data Submitters Role
AQDA Process

What is an AQDA?
Just a Piece of the Puzzle

But the Big Picture Comes Next

The PQAO QA Cycle

Planning
- QMP's
- QAPP's

Implementation
- SOP's
- Quality Control Checks

Assessments
- Performance Audits
- Technical Systems Audit

Corrective Action
- AQDA's
- CAN's

California Air Resources Board

Performance Audit Validation Template

Instrument/Criteria	Control Limit	Warning
Gaseous Analyzers (Criteria and Non-Criteria, except Ozone)	±15%	±10%
Ozone Analyzers	±10%	±7%
PM10 (Dichot, Continuous) PM10 (Filter Based Low Volume, Pb Low Volume)*	±10%	±7%
PM10 (Filter Based High Volume)	±7% of Transfer Standard ±10% from Design flow rate	±5%
PM10-2.5 (Filter Based Low Volume, PMcoarse) PM10 (Filter Based Low Volume, Pb Low Volume)*	±4% of Transfer Standard ±5% from Design flow rate	none
PM2.5 (Filter Based, Continuous)	±4% of Transfer Standard ±5% from Design flow rate	none
TSP (Pb High Volume)	±7% of Transfer Standard	±5%
Xontech 920/924 Toxic and Carbonyl samplers	±10%	±7%

* Criteria based on data usage

Criteria for Meteorological (MET) Sensors

Instrument/Criteria	Control Limit
Ambient Temperature	±0.5° Celsius
Barometric Pressure	±2.25mm of Mercury (mmHg)
Wind Direction	≤ 5° combined accuracy and orientation error
Wind Direction (starting threshold)	≤ 0.5m/s
Wind Speed	±0.25m/s between 0.5 and 5m/s, and < 5% difference above 5m/s (not to exceed 2.5m/s difference)
Wind Speed (starting threshold)	≤ 0.5m/s

Ozone Validation Template

1) Requirement (O_3)	2) Frequency	3) Acceptance Criteria	Information /Action
CRITICAL CRITERIA-OZONE			
One Point QC Check Single analyzer	***1/ 2 weeks***	≤ ±7% (percent difference)	1 and 2) 40 CFR Part 58 App A Sec 3.2 3) Recommendation based on DQO in 40 CFR Part 58 App A Sec 2.3.1.2. QC Check Conc range 0.01 - 0.10 ppm, relative to routine concentrations
Zero/span check	1/ 2 weeks	Zero drift ≤ ± 1.5 ppb Span drift ≤ ± 7 %	1 and 2) QA Handbook Volume 2 Section 12.3 3) Recommendation and related to DQO
OPERATIONAL CRITERIA -OZONE			
Shelter Temperature Range	Daily (hourly values)	20 to 30° C. (Hourly avg) or per manufacturers specifications if designated to a wider temperature range	1, 2 and 3) QA Handbook Volume 2 Section 7.2.2 Generally the 20-30 ° C range will apply but the most restrictive operable range of the instruments in the shelter may also be used as guidance. FRM/FEM list found on AMTIC provides temp. range for given instrument. FRM/FEM monitor testing is required at 20-30 ° C range per 40 CFR Part 53.32
Shelter Temperature Control	Daily (hourly values)	≤ ± 2° C SD over 24 hours	1, 2 and 3) QA Handbook Volume 2 Section 7.2.2
Shelter Temperature Device Check	1/6 mo	± 2° C of standard	1, 2 and 3) QA Handbook Volume 2 Section 7.2.2
Annual Performance Evaluation Single analyzer	***Every site 1/year within period of monitor operation, 25 % of sites quarterly***	Percent difference of audit levels 3-10 ≤ ±15% Audit levels 1&2 ± 1.5 ppb difference or **± 15%**	1 and 2) 40 CFR Part 58 App A sec 3.2.2 3) Recommendation- 3-audit concentrations not including zero. AMTIC guidance 2/17/2011 http://www.epa.gov/ttn/amtic/cpreldoc.html
Federal Audits (NPAP)	1/year at selected sites 20% of sites audited	Audit levels 1&2 ± 1.5 ppb difference all other levels ± 10%	1) 40 CFR Part 58 App A sec 2.4 2) NPAP adequacy requirements on AMTIC 3) NPAP QAPP/SOP
Verification/Calibration	Upon receipt/adjustment/repair/ installation/moving and repair and recalibration of standard of higher level 1/6 months if manual zero/span performed biweekly 1/year if continuous zero/span performed daily	All points within ± 2 % of calibration range of best-fit straight line Linearity error <5%	1) 40 CFR Part 50 App D 2) Recommendation 3) Recommendation- Linearity error 40 CFR Part 50 App D Multi-point calibration (0 and 4 upscale points) 40 CFR Part 50 App D sec 5.2.3
Zero Air/Zero Air Check	1/year	Concentrations below LDL	1) 40 CFR Part 50 App D Section 4.1 2 and 3) Recommendation
Ozone Level 2 Standard			
Certification/recertification to Standard Reference Photometer (Level 1)	1/year	single point difference ≤ ± 3%	1) 40 CFR Part 50 App D Section 5.4 2 and 3) Transfer Standard Guidance EPA-454/B-10-001 Level 2 standard (formerly called primary standard)

EPA United States Environmental Protection Agency

Quality Assurance Handbook for Air Pollution Measurement Systems

Volume II

Ambient Air Quality Monitoring Program

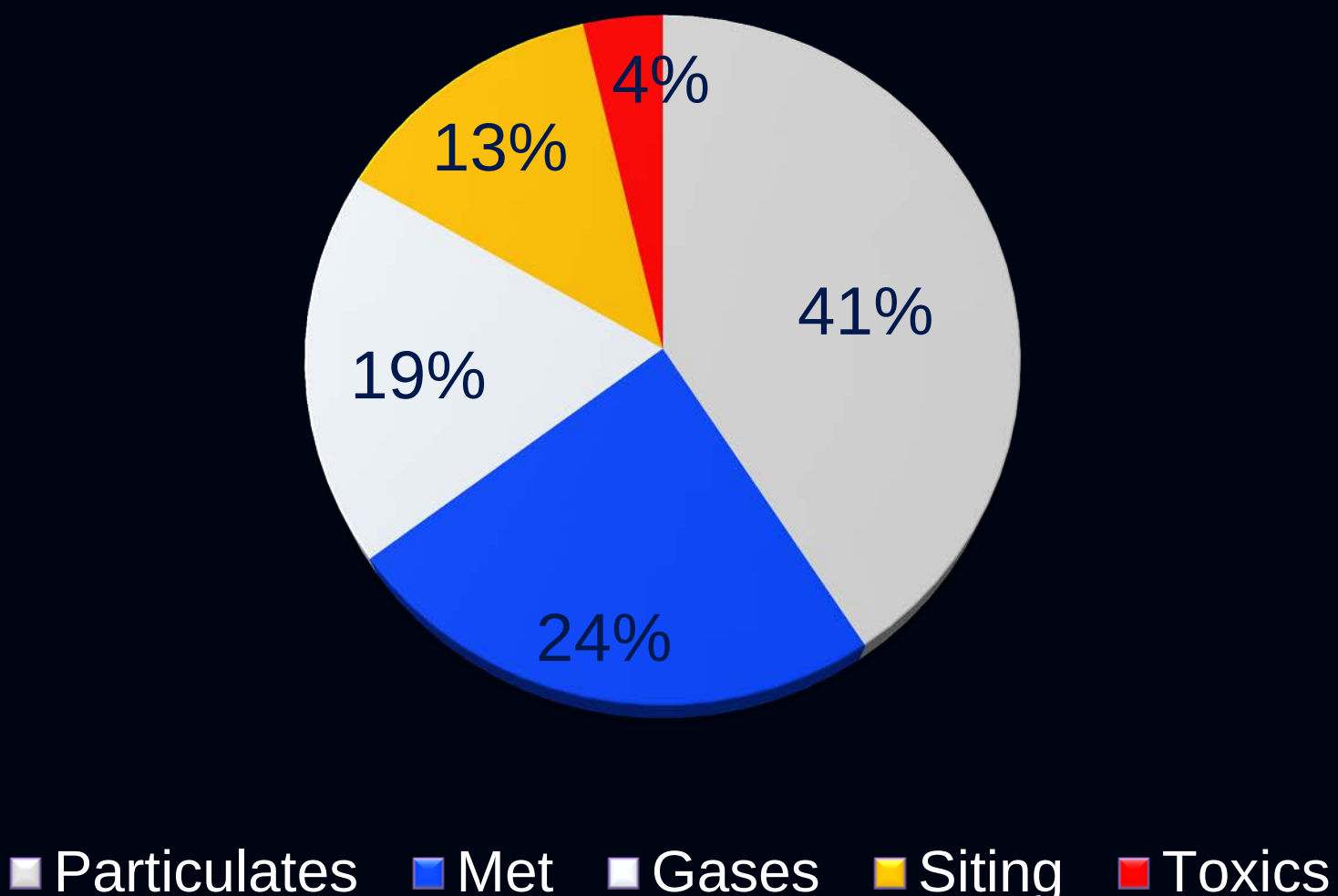
Appendix D

Measurement Quality Objectives and Validation Templates

Table of Contents
(click on link to go to individual tables)

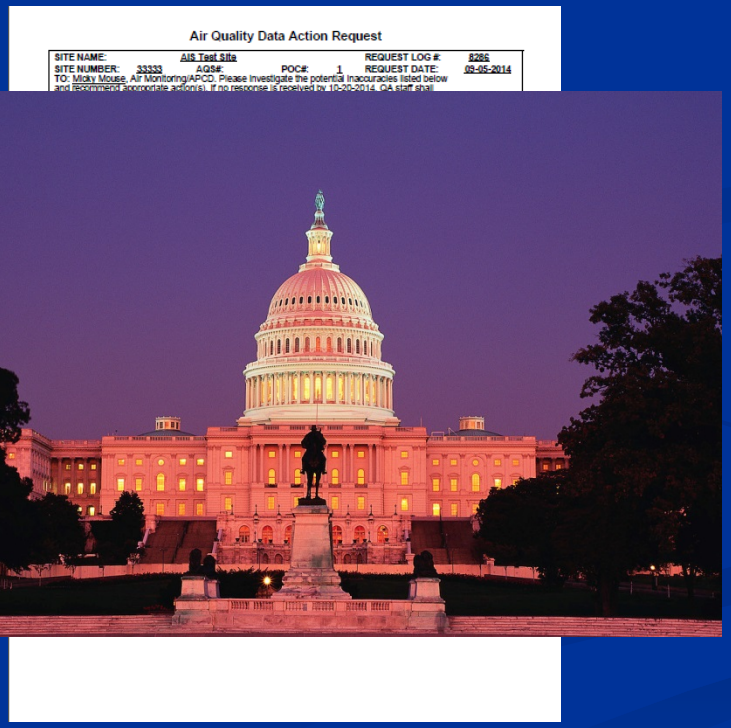
NOTE: There is a potential that information on the validation templates have been changed. They are posted here for reference purposes. However the user is directed to the AMTIC website.

AQDA's Issued 2013



EVIDENCE

Smaller Picture
The AQDA Is a Form
We're Government



ARB Quality Assurance Role

SITE NAME: Foothills Air Monitoring Site REQUEST LOG# : 8286

SITE NUMBER: 33333 AQS#: 1234 POC#: 1 REQUEST DATE : 12/5/2014

TO: Peter Parker, Air Monitoring APCD. Please investigate potential inaccuracies listed below and recommend appropriate action(s). If no response is received by 1/20/15, QA staff shall review and recommend appropriate action(s), which may/may not affect the data involved.
TO: Steve Ball, Air Quality Data Review. Please withhold the following air quality data from processing until potential data inaccuracies are resolved.
FROM: Clark Kent, Quality Assurance Section

POLLUTANT	EST. TIME PERIOD			REASON FOR ACTION
	From:			An audit conducted on 11/25/14
O3	6	10	2014	for the stations ozone analyzer
QUALIFIER CODE	Month	Day	Year	ID# 20141234 failed at -15%
	To:			at all audit points.
	1	20	2015	This exceeds the performance
1	Month	Day	Year	audit criteria of +/-10%. The last calibration was on 6/10/2014. Refer to 40 CFR Part 58 Appendix A 3.2.2.1

Monitoring Org. Role

RECOMMENDED DATA ACTION		TIME PERIOD (INCLUSIVE)					‡CORRECTION FACTOR
RELEASE:		BEGIN:		00	00	0000	
CORRECT‡:		END:		00	00	0000	*NULL CODE
INVALIDATE*:			Hour	Month	Day	Year	
FLAG DATA*:							

Justification/Corrective Action Taken

Keep This in Mind

- Fill out bottom portion of AQDA
- Provide any EVIDENCE to support your data findings
  - Log book Information
  - Data Analysis
  - Quality Control Information
  - Data Comparisons to Other Nearby Sites
  - Trend Analysis

ARB's QA's AQDA Role

- Verify findings
- Begin mutual resolution to failure
- Support data outcome

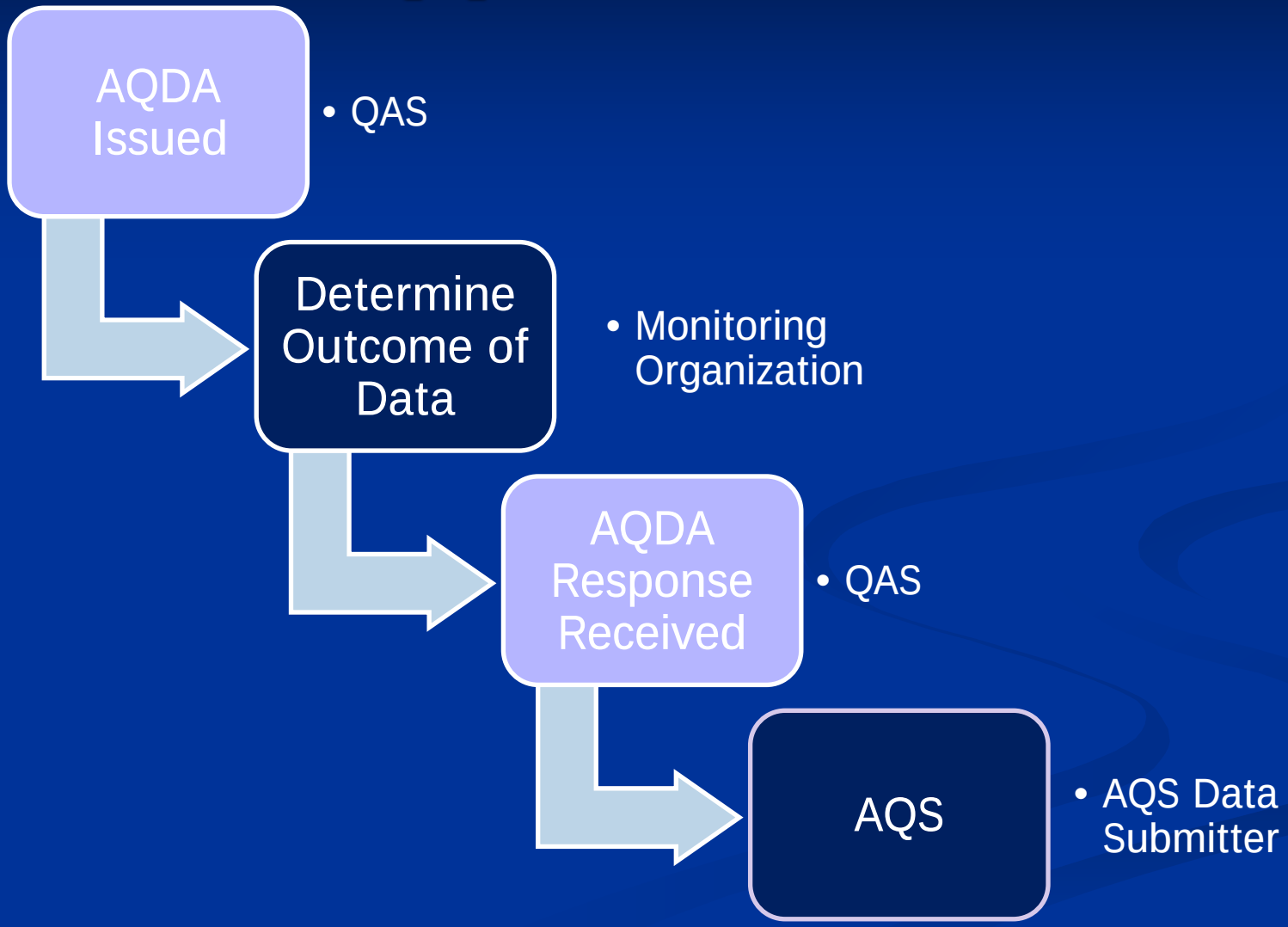
What is the end result of an AQDA?

Release data findings; indicate no compromise in data

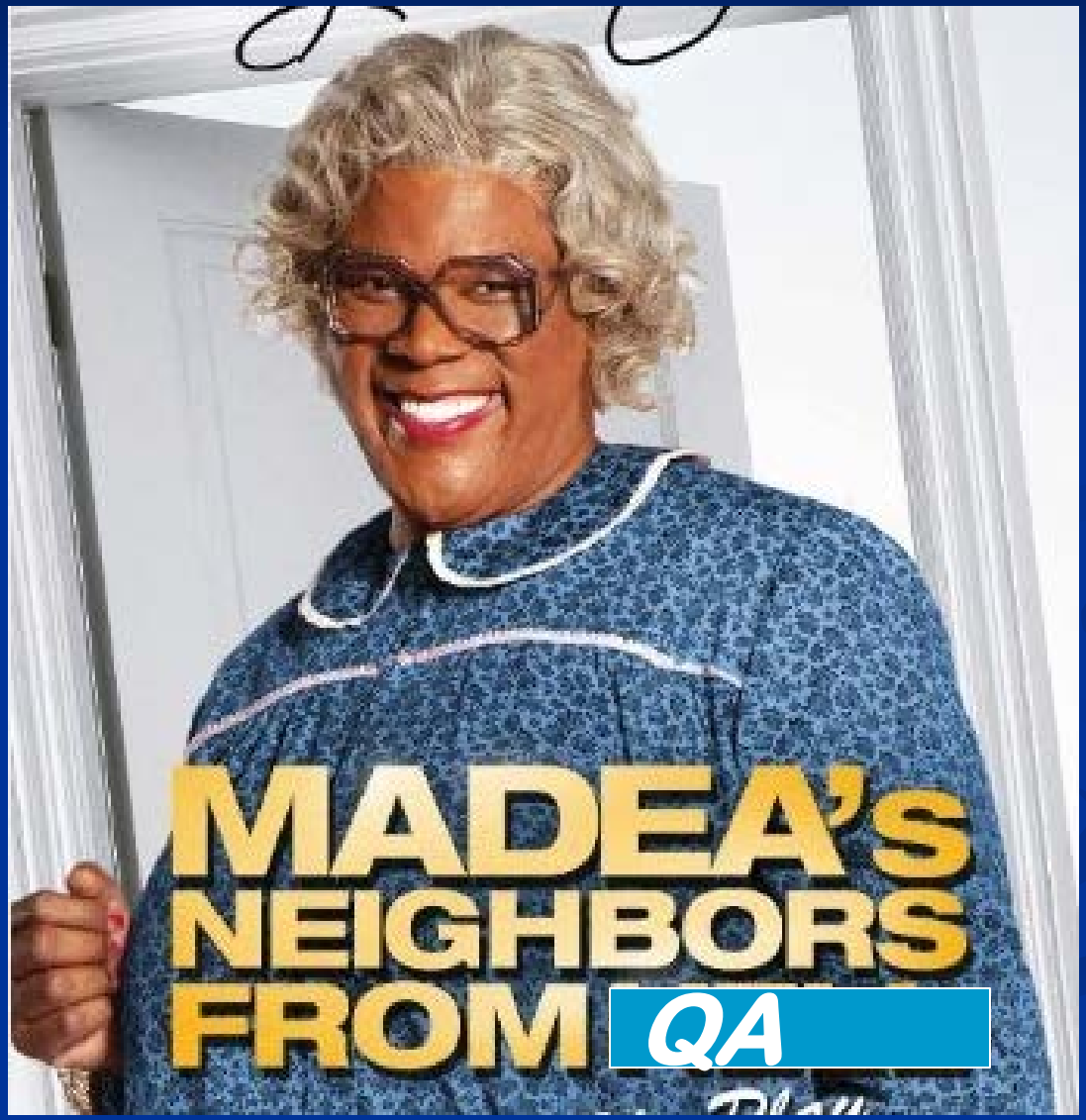
Release data; apply QA qualifier

Invalidate data; apply a Null Code

What Happens to the DATA?



Questions



Exercise

Ground Rules/Assumptions for Exercise

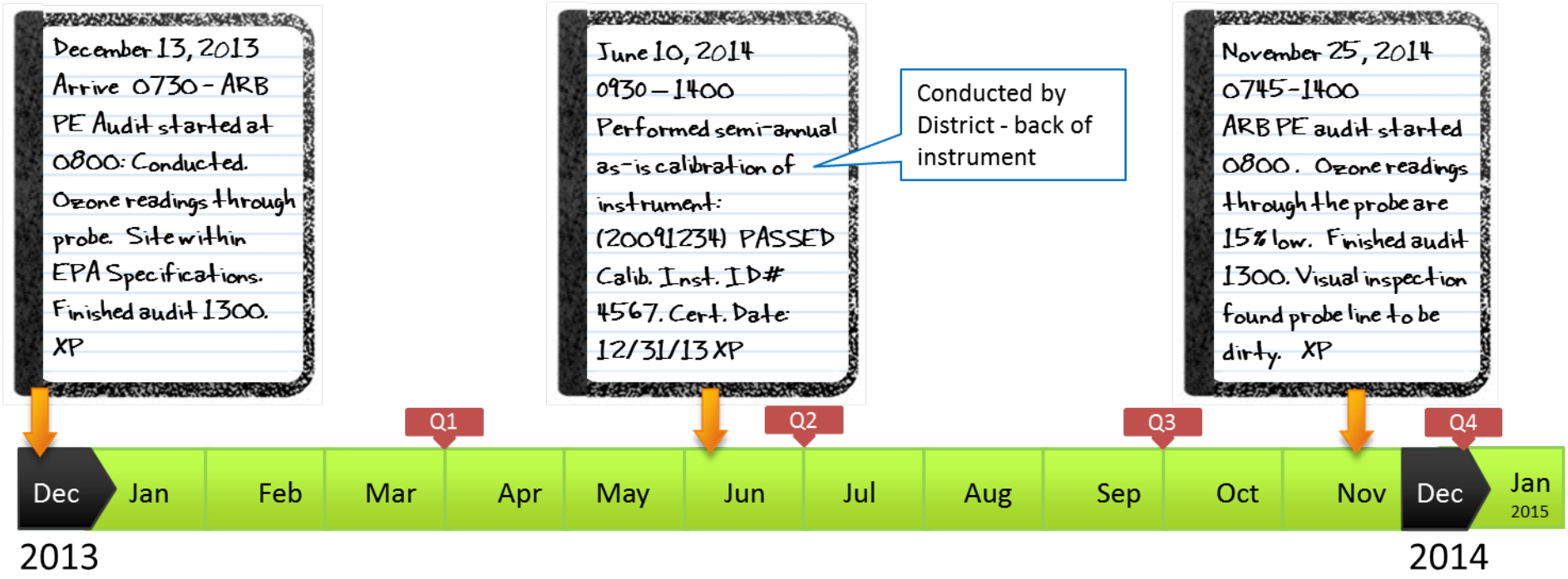
- Ozone Only Site w/Bi-Weekly, 1-point cal check
- Located in foothills of California
- No NOx sites nearby
- Do NOT confer with other groups results
- Data Provided is 24 Hour Max.

Group Exercise

- An audit has been completed
- You've been issued an AQDA
- Your group has been given an AQDA, and Logbook Information Timeline
- As a group, fill out "JUSTIFICATION" and let us know what you want to do with the data.
- Have group report back to justify their conclusion

INSIDE The FOLDER

Logbook Timeline



Cal checks/1pt. precision check-- performed bi-weekly by District

O3 [ppm] Daily Max 8 Hr | Foothills Site | 2014 |

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.041	0.039	0.043	0.040	0.066	0.071	0.066	0.054	0.035	0.036	0.042	0.037
2	0.041	0.037	0.043	0.036	0.069	0.064	0.082	0.070	0.023	0.042	0.046	0.042
3	0.035	0.038	0.037	0.043	0.075	0.076	0.083	0.066	0.044	0.035	0.030	0.036
4	0.036	0.037	0.039	0.034	0.064	0.058	0.066	0.062	0.047	0.040	0.032	0.038
5	0.036	0.033	0.043	0.037	0.055	0.060	0.059	0.064	0.041	0.050	0.039	0.034
6	0.028	0.036	0.041	0.041	0.038	0.080	0.062	0.065	0.047	0.051	0.045	0.037
7	0.032	0.039	0.038	0.041	0.040	0.063	0.067	0.046	0.060	0.055	0.045	0.034
8	0.027	0.039	0.040	0.048	0.048	0.059	0.074	0.054	0.053	0.050	0.045	0.038
9	0.031	0.039	0.043	0.045	0.055	0.052	0.064	0.056	0.062	0.041	0.043	0.039
10	0.032	0.042	0.043	0.043	0.070	0.047	0.062	0.061	0.056	0.040	0.052	0.040
11	0.034	0.043	0.053	0.043	0.065	0.059	0.062	0.066	0.047	0.046	0.048	0.040
12	0.037	0.051	0.058	0.056	0.063	0.056	0.067	0.056	0.058	0.051	0.040	0.041
13	0.040	0.050	0.055	0.049	0.062	0.063	0.066	0.078	0.069	0.041	0.041	0.040
14	0.041	0.047	0.061	0.049	0.062	0.064	0.069	0.074	0.061	0.041	0.043	0.040
15	0.039	0.042	0.054	0.037	0.059	0.056	0.055	0.061	0.045	0.042	0.035	0.040
16	0.044	0.043	0.053	0.047	0.047	0.040	0.056	0.054	0.051	0.051	0.041	0.038
17	0.043	0.042	0.046	0.047	0.053	0.043	0.072	0.062	0.046	0.050	0.039	0.039
18	0.041	0.042	0.043	0.055	0.057	0.044	0.069	0.079	0.050	0.059	0.039	0.036
19	0.040	0.036	0.044	0.052	0.054	0.047	0.079	0.062	0.066	0.061	0.032	0.040
20	0.038	0.037	0.040	0.053	0.071	0.052	0.083	0.081	0.056	0.054	0.025	0.040
21	0.038	0.041	0.041	0.054	0.058	0.051	0.065	0.058	0.030	0.061	0.038	0.033
22	0.042	0.042	0.050	0.052	0.053	0.034	0.071	0.051	0.041	0.055	0.036	0.040
23	0.042	0.044	0.061	0.065	0.055	0.026	0.062	0.058	0.046	0.055	0.033	0.037
24	0.030	0.045	0.053	0.059	0.057	0.024	0.074	0.041	0.040	0.051	0.035	0.038
25	0.022	0.051	0.053	0.055	0.058	0.030	0.069	0.033	0.031	0.052	0.034	0.040
26	0.034	0.050	0.046	0.063	0.039	0.055	0.060	0.042	0.028	0.054	0.031	0.040
27	0.032	0.048	0.045	0.064	0.032	0.055	0.059	0.066	0.032	0.050	0.034	0.040
28	0.033	0.050	0.039	0.059	0.047	0.051	0.059	0.048	0.050	0.027	0.037	0.040
29	0.031		0.047	0.049	0.052	0.057	0.073	0.047	0.035	0.025	0.034	0.046
30	0.034		0.044	0.057	0.061	0.056	0.084	0.061	0.032	0.028	0.032	0.040
31	0.035		0.043		0.060		0.056	0.050		0.034		0.041
Min	0.022	0.033	0.037	0.034	0.032	0.024	0.055	0.033	0.023	0.025	0.025	0.033
Max	0.044	0.051	0.061	0.065	0.075	0.080	0.084	0.081	0.069	0.061	0.052	0.046
Avg	0.036	0.042	0.046	0.049	0.056	0.053	0.068	0.059	0.046	0.046	0.038	0.039
Rec.#	31	28	31	30	31	30	31	31	30	31	30	31
STD	0.005	0.005	0.007	0.009	0.010	0.013	0.008	0.011	0.012	0.010	0.006	0.003

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

Manager: Ranjit Bhullar

Phone: (916) 322-0223

AIRS Number: 06107

ARB Number:

Site Name:
Foothills

Audit Date:
2014-11-25

Auditors:
Laura Niles
Don Fitzell

Station Operator:
Xena Princess

Report Contents:
Executive Summaries

Qualifier Codes

Sorted On: Qualifier Type, Qualifier Code

Last Updated on 10/27/2014 at 1:10:17

Download Delimited Version of the Code Table

Return to TTN Code Pages

< Qualifier Code >	< Qualifier Desc >	< Qualifier Type Desc >	< Qualifier Type >	< Old Code >
IA	African Dust	Informational Only	INFORM	None
IB	Asian Dust	Informational Only	INFORM	None
IC	Chem. Spills & Indust Accidents	Informational Only	INFORM	None
ID	Cleanup After a Major Disaster	Informational Only	INFORM	None
IE	Demolition	Informational Only	INFORM	None
IF	Fire - Canadian	Informational Only	INFORM	None
IG	Fire - Mexico/Central America	Informational Only	INFORM	None
IH	Fireworks	Informational Only	INFORM	None
II	High Pollen Count	Informational Only	INFORM	None
IJ	High Winds	Informational Only	INFORM	None
IK	Infrequent Large Gatherings	Informational Only	INFORM	None
IL	Other	Informational Only	INFORM	None
IM	Prescribed Fire	Informational Only	INFORM	None
IN	Seismic Activity	Informational Only	INFORM	None
IO	Stratospheric Ozone Intrusion	Informational Only	INFORM	None
IP	Structural Fire	Informational Only	INFORM	None
IQ	Terrorist Act	Informational Only	INFORM	None
IR	Unique Traffic Disruption	Informational Only	INFORM	None
IS	Volcanic Eruptions	Informational Only	INFORM	None
IT	Wildfire-U. S.	Informational Only	INFORM	None
J	Construction	Informational Only	INFORM	None
AA	Sample Pressure out of Limits	Null Data Qualifier	NULL	9967
AB	Technician Unavaliable	Null Data Qualifier	NULL	9968
AC	Construction/Repairs in Area	Null Data Qualifier	NULL	9969
AD	Shelter Storm Damage	Null Data Qualifier	NULL	9970

SITE NAME:	Foothills Air Monitoring Site	REQUEST LOG# : 8286
SITE NUMBER: 33333	AQS#: 1234 POC#: 1	REQUEST DATE : 12/5/2014

TO: Peter Parker, Air Monitoring APCD. Please investigate potential inaccuracies listed below and recommend appropriate action(s). If no response is received by 1/20/15, QA staff shall review and recommend appropriate action(s), which may/may not affect the data involved.
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POLLUTANT	EST. TIME PERIOD			REASON FOR ACTION
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O3	6	10	2014	
QUALIFIER CODE	Month	Day	Year	
	To:			
	1	20	2015	
1	Month	Day	Year	

Log Book # _____ Group # _____

AQDA Exercise

RECOMMENDED DATA ACTION		TIME PERIOD (INCLUSIVE)					CORRECTION FACTOR
RELEASE		BEGIN:					
CORRECT		END:					NULL CODE
INVALIDATE			Hour	Month	Day	Year	
FLAG DATA							

JUSTIFICATION/CORRECTIVE ACTION TAKEN

Stapled to inside of packet

- Exercise instructions
- Ground Rules