



Local Agency Corrective Action Process: South Coast AQMD

California PQAO Training, Davis, CA
June 4-6, 2019

Kevin Durkee
Quality Assurance Manager
South Coast Air Quality Management District
kdurkee@aqmd.gov; 909-396-3168

Corrective Action Request (CAR)

- Similar to CARB AQDA & BAAQMD ODAMN
- **Document** QA or Safety Findings
- **Communicate** Findings to impacted personnel
- Initiate **Discussion** to determine resolution & a reasonable deadline
- **Track** Resolution Progress
- Document Final **Resolution**
& Steps to **Prevent or Minimize Recurrence**

CARs Address...

- **Audit Findings**
 - Internal (QA Branch) or External (CARB, U.S. EPA, contractor) Assessments
- **Observed Issues** with
 - Impact to **safety** or **data quality** or completeness
 - Siting criteria, sampling, lab, or data handling procedure...
 - Longstanding, **unresolved work orders** for repairs
- QA Branch response to a **Quality Assurance Alert (QAA)** submitted by monitoring or lab staff...

Quality Assurance Alert (QAA)

- Similar to CARB CAN & BAAQMD Corrective Action Report
- **Document** QA or safety concerns found by staff
- **Communicate** findings, concerns or observations to QA Branch
- **3 Levels** of QA Branch Involvement
 1. Information Only
 2. Work in Progress
 3. QA Branch Action Requested
 - QA likely to issue CAR

QAA Use Examples

- **Provide Information or Work in Progress Status Update**
 - Changes in methodology or procedures
 - Consumable supply availability concern
 - Changes in hardware or instrumentation
 - Planned construction that could impact station measurements/operations
 - Safety enhancements
 - Unexpected readings, possible local source

QAA Use Examples (cont.)

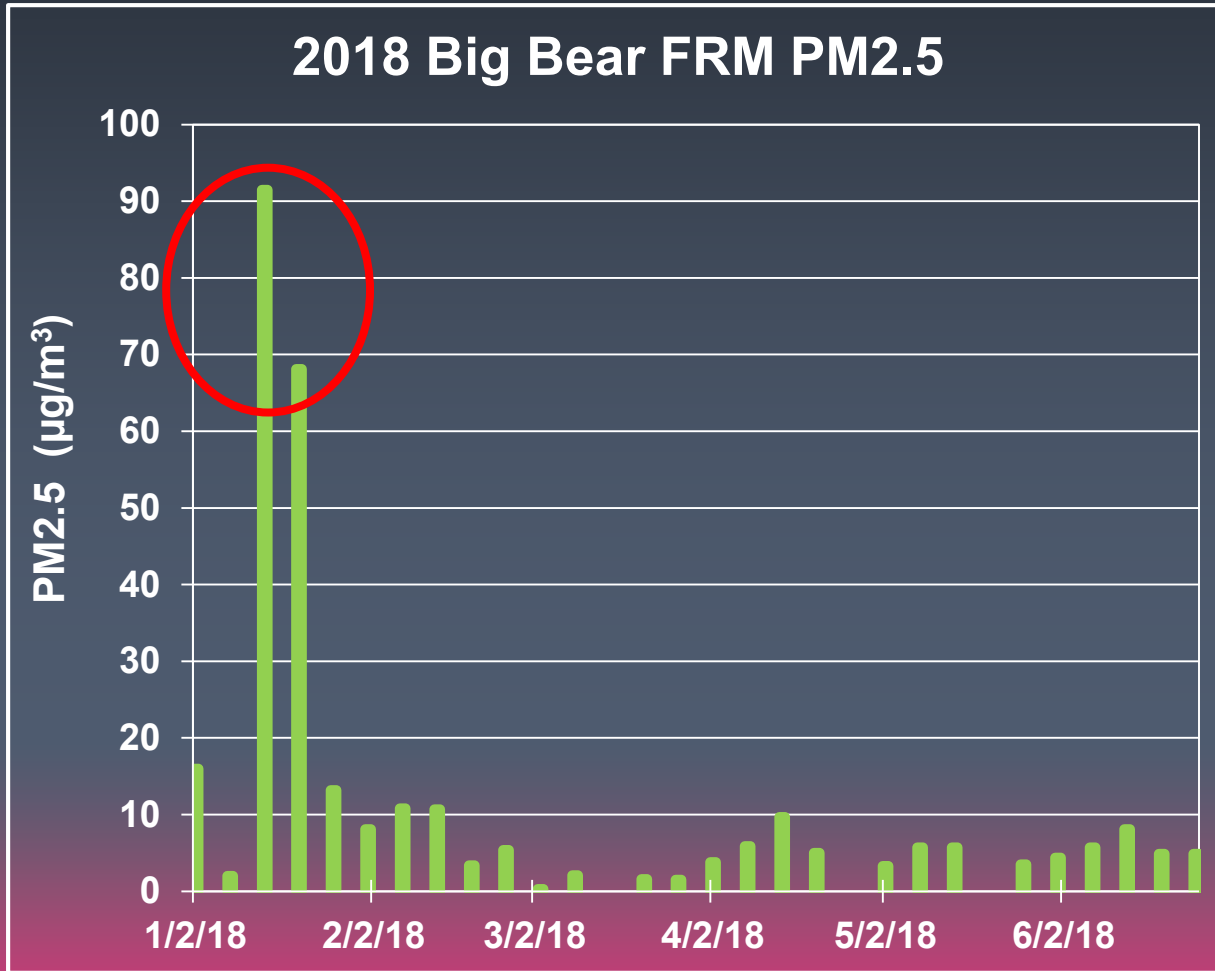
- **Request Assistance for QA concerns**
 - Improper filter handling
 - Sampler operation or maintenance issue found
 - Mainly for repeated or systematic problems that may affect data quality or completeness
- **Notify of potential Safety Issues**
 - SCAQMD QA Manager is the Monitoring & Analysis Division Safety Coordinator



Corrective Action Notes

- CARs & QAAs are typically submitted after prior communication between affected group, supervisor, & QA Branch staff
- CARs & QAAs are not used for routine adjustments or troubleshooting
 - These are typically addressed by timely routine maintenance, calibration, repair, or data validation...
- References:
 - South Coast AQMD Operation Assistance Guide (OAG) #QA0001
 - describes CAR process & form
 - South Coast AQMD Operation Assistance Guide (OAG) #QA0002
 - describes the QAA process & form

Corrective Action Process Example



- Big Bear PM2.5 – January 2018
- 24-hour PM2.5: 91 & 68 µg/m³
 - Highest since sampling began in 2000
- Occurred on winter weekends
 - Wood smoke?
- BGBR 1-in-6 day sampling ...
- 2nd high concentration would define the South Coast Air Basin Design Value

A Qualitative Look At the Filter...



Big Bear PM2.5
= 91 $\mu\text{g}/\text{m}^3$

Typical Basin
high PM2.5 filter
(e.g., Mira Loma)



So What Happened?

- Partisol 2000i pump stuck – maybe cold, snow & ice?
- Partisol interval data file indicated:
 - Highest filter ran more than 8 days
 - 2nd highest ran for more than 4 days
 - Issue was masked by a corrupt interval file on the network drive



**DATA
INVALIDATED**

South Coast AQMD Quality Assurance Alert

- Operations Senior Staff submitted QAA to QA Branch
 - Summarized the issue & Recommended resolution
- QA Branch Response
 - Issue Corrective Action Request ...

From: Albert Dietrich	Title: Senior AQIS	Date: February 7, 2019
Extension: 2137		
Location: Big Bear (BGBR)	QAA #: 20190207	
Instrument, Hardware, or Process: PM 2.5	S/N as Appropriate: 20377	
Brief summary of issue (Please describe fully and include impact):		
** PM 2.5 Samples at BGBR on 01/14/2018 and 01/20/2018 had high PM readings. Upon inspection of the original Partisol 2000i interval data files the following was determined: The sample scheduled for the 14th started on the 11th and ran through the 19th which was for an excess of 8 days. The sample for the 20th turned on again on the 21st and ran for a total of 4 1/2 days. Both runs had a machine status code of 2000000 which indicates a "High Wait Flow" error which caused the pump to be stuck in the powered on state. Due to file corruption of the interval files on the network drive this was not originally detected. Both samples need to be invalidated.		
Further comments including recommendations for the minimization of impacts:		
1. Invalidate both sample dates in AQS due to Machine Malfunction. 2. Modify current SOP for the Partisol and conduct training with the following: a. Correct handling of electronic data files. b. Implement Senior review of instances where an Error or Status Flag occurs using the interval data. c. Download and store the U "User" file data from all Partisols and store with other raw files on network drive.		
<input checked="" type="radio"/> For information only <input type="radio"/> Work in progress <input type="radio"/> Quality Assurance Branch requested/required involvement		
		Anticipated completion date: <u>ASAP</u>
		Anticipated action date: <u>ASAP</u>

Save, and return this form to: QA Branch

Please copy this document electronically to the appropriate supervisor and manager.

Quality Assurance Branch Action

QA Reviewer: Raul Dominguez	Title: Sr. AQ Chemist	Extension: 2225
Review date: 2/7/2019	Associated CAR #: CAR20190002	
<input type="radio"/> Confirmed as for information only <input type="radio"/> Work in progress status confirmed <input checked="" type="radio"/> Quality Assurance Branch action needed		
COMMENTS:		
CAR20190002 issued to revise SOP00151 Partisol FRM PM2.5 Samplers Model 2000i version 1.1 to contain the following: a. Correct handling of electronic data files. b. Implement Senior review of instances where an Error or Status Flag occurs using the interval data. c. Download and store the U "User" file data from all Partisols and store with other raw data files on the network drive. d. QA to verify that data points impacted are invalidated and flagger appropriately and discuss with appropriate staff laboratory data review procedures with respect to identifying and acting upon potential aberrant measurements.		
QA Manager: _____	Date: _____	11

South Coast AQMD Corrective Action Request

- CAR issued by the SCAQMD QA Branch
 - Document the issue
 - Recommended corrective actions

- Corrective action taken by Operations & QA Branch review

AQMD CORRECTIVE ACTION REQUEST

To: <u>Albert Dietrich</u>	Date: <u>2/8/2019</u>	Assessor: <u>R. dominguez</u>
Location: <u>General/SOP</u>	Assessment Date: <u>2/7/2019</u>	CAR #: <u>20190002</u>
Expected Deadline: <u>3/29/2019</u>	Instrument: <u>Partisol Model 2000i</u>	S/N: <u>N/A</u>
FINDINGS: From QAA20190207: PM 2.5 Samples at BGBR on 01/14/208 and 01/20/2018 had aberantly high PM values. Upon inspection of the Partisol 2000i interval data files it was found the sampler ran for in excess of 8 days for the run on the 14th and approximately 4 1/2 days for the run on the 20th Both runs had a machine status code of 2000000 which indicates a "High Wait Flow" error which caused the pump to remain in the powered on state. Due to file corruption of interval files on the network drive this was not originally detected. Both samples were invalidated.		
RECOMMENDATIONS: Revise SOP00151 version 1.1 to contain the following: a. Correct handling of electronic data files. b. Implement Senior review of instances where an Error or Status Flag occurs using the interval data. c. Download and store the U "User" file data from all Partisols and store with other raw files on network drive.		

Please indicate the corrective action taken below, save, and return this form to:
Quality Assurance Senior AQ Chemist or Instrument Specialist
and also copy this CAR electronically to your supervisor and manager

CORRECTIVE ACTION TAKEN INCLUDING REOCCURRANCE PREVENTION/MINIMIZATION:	
Conducted and documented training on revised SOP00151 ver 1.2 as described above. Covered the editing of data files and the implementation of Senior Staff in a review or correction capacity. Set forth the requirement for the downloading and storage of the User Data files. Attached are the training records.	
By: <u>Albert Dietrich</u>	Date: <u>2/13/2019</u>
REVIEWER/QA MANAGER COMMENTS	
Training completed on 2/13/19. SOP00151 pending (RD 2/24/19)	
QA Reviewer (Title): _____	Date: _____
QA Manager: _____	Date: _____

Corrective Action Resolution & Prevention of Recurrence

- Modified Partisol 2000i SOP & Conducted Field Staff Training, including:
 - Correct handling and storage of electronic data files
 - Implement Senior staff review of instances where error or status flags occur using the interval data
- Working on awareness and data validation with staff
 - Dig deeper when data values or filter appearance is not typical (both field and lab staff)

