Appendix C
CSN Forms

Figure C-1. Analysis Batch Checklist (page 1 of 2)

Analysis Batch Checklist

Analysis Batch #_____

Date Range_____

Set #	Intended Sample Date	Data Entered By/Date	QA Performed By/Date

Comments:

Figure C-1. Analysis Batch Checklist (page 2 of 2)

Analysis Batch Checklist

Analysis Batch #_____

Date Range_____

QA Queries performed

Query	Run By	Date	COMMENTS
Create SV flags for Sample Flow Out of Bounds			
Create TT Flags for Validity			
Create Flags for Mass over 10 days			
Create Flags for Flow CV			
Create Flags for Flow Rate			
Create Flags for Sample Pressure			
Create Flags for Trip Blanks			
Create Flags for Sample Time Too Long			
Update Comments for Flow CV Flag			
Update Comments for Sample Pressure			
Update Comments for Sample Temp.			
Update Comments for Trip Blanks			
QAQry Check End Date Before Start Date			
QAQryIntended Date not equal to start			
QAQryUCDL0FAIDMissingnoNullnoComment			
QAQryUCDL0InvalidSmplNoComments			
QAQryUCDL0NullValidNoFilterRec			
QAQryUCDL0StartEnd>24hrsnoComment			
QAQryUCDL0StartEndDateonFBnoComments			
QAQryUCDL0StartEndSamenoComments			

Data Export

Export Query	Run By	Date	Comments
FilterDataNullFlags			
FilterDataTransfer			
FilterDataValidFlags			
Teflon COC			
Nylon COC			
Quartz COC			

Shipments

Lab	# of packages	Date	Data Export Emailed/Date
UC Davis			
DRI			

Figure C-2. Measurement Request

Measurement Request

Site ID Q001

Site Name Birmingham - North Birmingham

Sample Frequency Seq 1-in-3

No FRM? Tribal Site? Primary Tribal Site? No

Measurement Request ID: MQ00111202015

MQ00111202015

Ship Date 11/16/2015

Sample Date 11/20/2015

Shipping Number

Sample Types Required for Measurement Request

SamplerTypeID	Sampler Description	Sample Request ID
01	SASS	Q0012015112001
02	URG 3000N	Q0012015112002

Figure C-3. PM2.5 CSN Custody and Field Data Form (1 of 2)

PM2.5 CSN CUSTODY AND FIELD DATA FORM

☐ White (return to lab)
☐ Yellow (site retains)
☐ Pink (lab)

Q0012015112001

A. CUSTODY RECORD (Name, Date) Bin ID: ALA02-C Set: 3Q

	Name	Date		Name	Date
1. Laboratory Out:	ABARNARD	11/16/2015	3. Site Out:		
2. Site In:			4. Laboratory In:		

B. SITE AND SAMPLER INFORMATION

1. Site AQS Code:	010730023	5. Site Name:	Birmingham - North Birmingham
2. Sampler S/N:		6. Intended date of use:	Friday, November 20, 2015
3. Sampler Type:	SASS	7. Date of Sampler Setup:	
4. Sampler POC:	5	8. Operator's Name:	

C. SAMPLER CHANNEL COMPONENTS

Channel No.	Component ID No	Component Description
1	I11775D	Met One/SASS Cover - Teflon
2	I10615U	Met One/SASS Cover - Nylon

D. START, END, AND RETRIEVAL TIMES

Channel No.	Start Date	Start Time	End Date	End Time	Retrieval Date	Retrieval Time
1	11/20/2015	12:00:00 AM	11/21/2015	12:00:00 AM		
2	11/20/2015	12:00:00 AM	11/21/2015	12:00:00 AM		

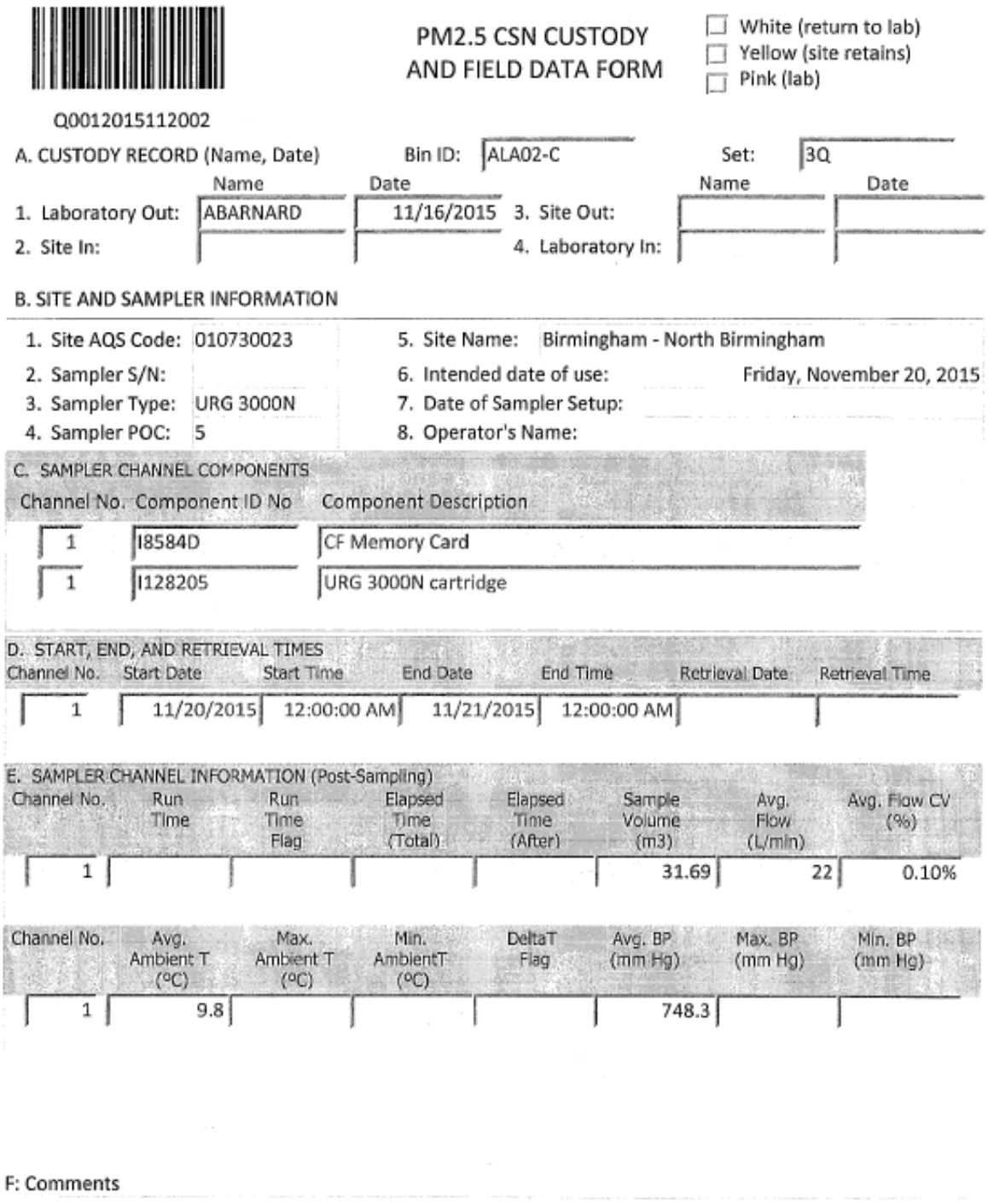
E. SAMPLER CHANNEL INFORMATION (Post-Sampling)

Channel No.	Run Time	Run Time Flag	Sample Volume (m3)	Avg. Flow (L/min)	Avg. Flow CV (%)	Avg. Ambient T (°C)	Max. Ambient T (°C)	Min. AmbientT (°C)
1			9.693	6.73	0.90%	13.1		
2			9.686	6.72	0.80%	13.1		

Channel No.	DeltaT Flag	Avg. Filter T (°C)	Max. Filter T (°C)	Min. Filter T (°C)	Avg. BP (mm Hg)	Max. BP (mm Hg)	Min. BP (mm Hg)
1					740		
2					740		

F: Comments

Figure C-3. PM2.5 CSN Custody and Field Data Form (2 of 2)



PM2.5 CSN CUSTODY AND FIELD DATA FORM

☐ White (return to lab)
☐ Yellow (site retains)
☐ Pink (lab)

Q0012015112002

A. CUSTODY RECORD (Name, Date) Bin ID: ALA02-C Set: 3Q

	Name	Date		Name	Date
1. Laboratory Out:	ABARNARD	11/16/2015	3. Site Out:		
2. Site In:			4. Laboratory In:		

B. SITE AND SAMPLER INFORMATION

1. Site AQS Code:	010730023	5. Site Name:	Birmingham - North Birmingham
2. Sampler S/N:		6. Intended date of use:	Friday, November 20, 2015
3. Sampler Type:	URG 3000N	7. Date of Sampler Setup:	
4. Sampler POC:	5	8. Operator's Name:	

C. SAMPLER CHANNEL COMPONENTS

Channel No.	Component ID No	Component Description
1	I8584D	CF Memory Card
1	I128205	URG 3000N cartridge

D. START, END, AND RETRIEVAL TIMES

Channel No.	Start Date	Start Time	End Date	End Time	Retrieval Date	Retrieval Time
1	11/20/2015	12:00:00 AM	11/21/2015	12:00:00 AM		

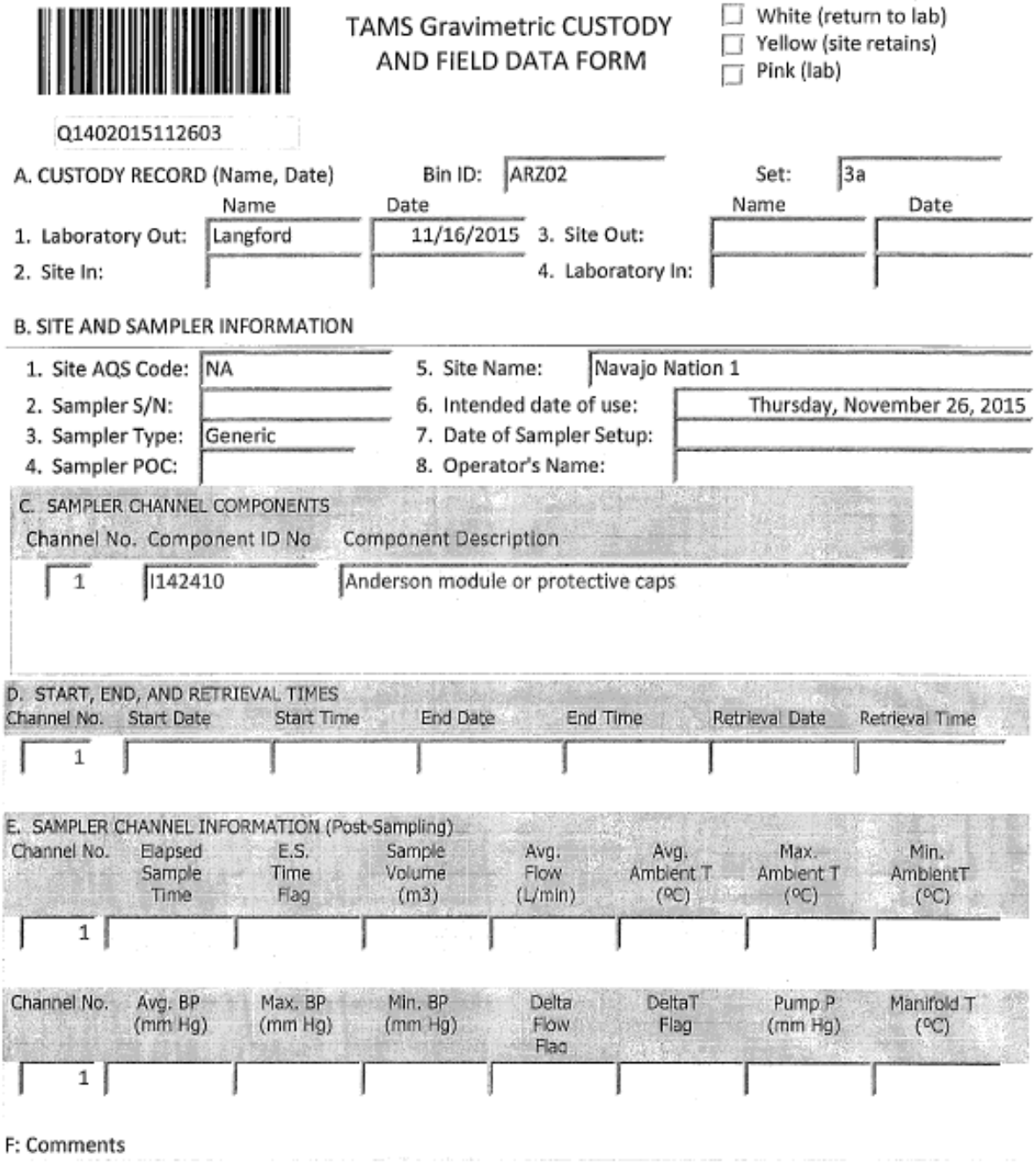
E. SAMPLER CHANNEL INFORMATION (Post-Sampling)

Channel No.	Run Time	Run Time Flag	Elapsed Time (Total)	Elapsed Time (After)	Sample Volume (m3)	Avg. Flow (L/min)	Avg. Flow CV (%)
1					31.69	22	0.10%

Channel No.	Avg. Ambient T (°C)	Max. Ambient T (°C)	Min. AmbientT (°C)	DeltaT Flag	Avg. BP (mm Hg)	Max. BP (mm Hg)	Min. BP (mm Hg)
1	9.8				748.3		

F: Comments

Figure C-4. TAMS Gravimetric Custody and Field Data Form



TAMS Gravimetric CUSTODY AND FIELD DATA FORM

☐ White (return to lab)
☐ Yellow (site retains)
☐ Pink (lab)

Q1402015112603

A. CUSTODY RECORD (Name, Date) Bin ID: ARZ02 Set: 3a

	Name	Date		Name	Date
1. Laboratory Out:	Langford	11/16/2015	3. Site Out:		
2. Site In:			4. Laboratory In:		

B. SITE AND SAMPLER INFORMATION

1. Site AQS Code:	NA	5. Site Name:	Navajo Nation 1
2. Sampler S/N:		6. Intended date of use:	Thursday, November 26, 2015
3. Sampler Type:	Generic	7. Date of Sampler Setup:	
4. Sampler POC:		8. Operator's Name:	

C. SAMPLER CHANNEL COMPONENTS

Channel No.	Component ID No	Component Description
1	I142410	Anderson module or protective caps

D. START, END, AND RETRIEVAL TIMES

Channel No.	Start Date	Start Time	End Date	End Time	Retrieval Date	Retrieval Time
1						

E. SAMPLER CHANNEL INFORMATION (Post-Sampling)

Channel No.	Elapsed Sample Time	E.S. Time Flag	Sample Volume (m3)	Avg. Flow (L/min)	Avg. Ambient T (ºC)	Max. Ambient T (ºC)	Min. AmbientT (ºC)
1							

Channel No.	Avg. BP (mm Hg)	Max. BP (mm Hg)	Min. BP (mm Hg)	Delta Flow Flag	DeltaT Flag	Pump P (mm Hg)	Manifold T (ºC)
1							

F: Comments

Figure C-5. CSN Field Sampling Null Value and Validity Coding Form

Chemical Speciation Network
Field Sampling Null Value and Validity Coding Form

☐ White (return to lab)
☐ Yellow (site retains)
☐ Pink (lab)

Chain of Custody Sampling Request ID:	Q0012015112001	Intended Use Date	11/20/2015
Sample Date (if different from Intended Use Date)			
Date Received in FISH		Received in FISH by:	

Instructions to Field Sampling Operator: For the sampling event identified by the Chain of Custody Sampling Request ID indicated above, please circle all applicable flags in the tables below. If no flags apply to this sampling event, please check the box below the tables.

Table A. Null Value Codes
* selection of any flag in this table will invalidate sample

Flag	Description
AB	TECHNICIAN UNAVAILABLE
AC	CONSTRUCTION/REPAIRS IN AREA
AD	SHELTER STORM DAMAGE
AE	SHELTER TEMPERATURE OUTSIDE LIMITS
AF	SCHEDULED BUT NOT COLLECTED
AG	SAMPLE TIME OUT OF LIMITS
AH	SAMPLE FLOW RATE OUT OF LIMITS
AI	INSUFFICIENT DATA (CAN'T CALCULATE)
AJ	FILTER DAMAGE
AK	FILTER LEAK
AL	VOIDED BY OPERATOR
AM	MISCELLANEOUS VOID
AN	MACHINE MALFUNCTION
AO	BAD WEATHER
AP	VANDALISM
AQ	COLLECTION ERROR
AR	LAB ERROR
AS	POOR QUALITY ASSURANCE RESULTS
AU	MONITORING WAIVED
AV	POWER FAILURE (POWR)
AW	WILDLIFE DAMAGE
AZ	QC AUDIT (AUDT)
BA	MAINTENANCE/ROUTINE REPAIRS
BB	UNABLE TO REACH SITE
BE	BUILDING/SITE REPAIR
BI	LOST OR DAMAGED IN TRANSIT
BJ	OPERATOR ERROR
DA	ABERRANT DATA
SA	STORM APPROACHING

Table B. Validity Flags
* samples marked with any of these flags will be analyzed and reported with flags noted

Flag	Description
2	Operational Deviation
3	Field Issue
4	Lab Issue
5	Outlier
6	QAPP Issue
IA	African Dust
IB	Asian Dust
IC	Chem. Spills and Industrial Accidents
ID	Cleanup After a Major Disaster
IE	Demolition
IF	Fire - Canadian
IG	Fire - Mexico/Central America
IH	Fireworks
II	High Pollen Count
IJ	High Winds
IK	Infrequent Large Gatherings
IL	Other
IM	Prescribed Fire
IN	Seismic Activity
IO	Stratospheric Ozone Intrusion
IP	Structural Fire
IQ	Terrorist Act
IR	Unique Traffic Disruption
IS	Volcanic Eruptions
IT	Wildfire - U.S.
T	Multiple Flags: Misc
TT	Transport Temperaure is Out of Specs.
V	Validated Value
W	Flow Rate Average Out of Spec
X	Filter Temperature Difference Out of Spec
Y	Elapsed Sample Time Out of Spec

☐ No flags assigned to this sampling event Signature _____ Date _____

Figure C-6. CSN Level 0 Validation

COC Sample Request ID Q00120151120001 Cooler Number

Temperature: 0.9

Chemical Speciation Network
Level 0 Validation

Site: Q001 **Set #:** 3Q

Sample Date: 11/20/2015

Date Received 12/1/2015

Tuesday, December 01, 2015

OBSERVATION	STATUS	FLAG ASSIGNED	COMPONENT IDs FLAGGED
1. Cooler received intact with all ice packs and bin components?	Y/N/NA		
2. Contents received at <=4 degrees C?	Y/N/NA		
3. All modules present and intact?	Y/N/NA		
4. Custody and Field Data Form received in cooler?	Y/N/NA		
A. All required data properly filled in?	Y/N/NA		
B. Signed and dated by field operator?	Y/N/NA		
5. Module numbers agree with numbers on Custody and Field Data Form?	Y/N/NA		
6. Modules appear undamaged?	Y/N/NA		
7. Module end caps in place - threaded properly (if applicable)?	Y/N/NA		
8. Visible filters inspected and appear undamaged?	Y/N/NA		
9. All filters unloaded and assembled into batches for laboratory analysis?	Y/N/NA		
10. Filter aliquot numbers entered into Laboratory Chain of Custody forms?	Y/N/NA		

Filter Flags Entered First Data Entry Complete

Filter Flags Reviewed Data Entry Review Complete

Comments

Signature Date Completed

Figure C-7. CSN Laboratory Chain of Custody

CSN Laboratory Chain of Custody Form

Ship Date and Name 3/3/2016 BARNARD

Receive Date and Name

Analysis Request ID
A0000004

Intended Sample Date 12/17/2015

Set # 5

Barcode/Filter Analysis ID	Filter Type	Analysis Requested	Invalid?
Filter Analysis ID F002085	Teflon T6647135	XRF	
Filter Analysis ID F002088	Teflon T6647107	XRF	
Filter Analysis ID F002091	Teflon T6647136	XRF	
Filter Analysis ID F002093	Teflon T6647101	XRF	
Filter Analysis ID F002096	Teflon T6647104	XRF	
Filter Analysis ID F002099	Teflon T6647108	XRF	
Filter Analysis ID F002103	Teflon T5556800	XRF	
Filter Analysis ID F002107	Teflon T6647102	XRF	
Filter Analysis ID F002111	Teflon T6647105	XRF	
Filter Analysis ID F002112	Teflon T5556844	XRF	
Filter Analysis ID F002115	Teflon T5556837	XRF	

Figure C-8. CSN Data Entry Log

CSN Data Entry Log

Set: _____ **Intended Use Date:** ___/___/___

Completion Date: ___/___/___

Signature: _____

Comments:

QC Date: ___/___/___

QC Signature: _____

Comments:

Figure C-9. Q&A of Outgoing Set Check List

Set:
Intended Use Date:
Q&A Completed By:

Q&A of Outgoing Set Check List

- ☐ **Teflon**
- ☐ # of entries match # of boxes per set type
- ☐ Correct set # for all entries
- ☐ Correct channel position
- ☐ Each entry has a component id # associated with it
- ☐ Ship out lab name spelt correctly
- ☐ Lot # is correct for all entries (compare against filter lot list on akea drive)
- ☐ Unique Teflon filter # is entered correctly
    - Should go in ascending order per ship out lab name (ex. 220454826, 220454827)
- ☐ **Nylon**
- ☐ # of entries match # of boxes per set type
- ☐ Correct set # for all entries
- ☐ Correct channel position
- ☐ Each entry has a component id # associated with it
- ☐ Ship out lab name spelt correctly
- ☐ Lot # is correct for all entries (compare against filter lot list on akea drive)
- ☐ **Memory card**
- ☐ # of entries match # of boxes per set type
- ☐ Correct set # for all entries
- ☐ Correct channel position
- ☐ Each entry has a component id # associated with it
- ☐ Ship out lab name spelt correctly
- ☐ **Quartz**
- ☐ # of entries match # of boxes per set type
- ☐ Correct set # for all entries
- ☐ Correct channel position
- ☐ Each entry has a component id # associated with it
- ☐ Ship out lab name spelt correctly
- ☐ Lot # is correct for all entries (compare against filter lot list on akea drive)

Figure C-10. Element™ Batch Narrative Sample Form

Element™ Batch Narrative Sample Form

Batch: _____ **Date:** _____

Room Temp.: _____ **Humidity:** _____

Please note the following observations for filters in this batch:

Sample Name (Filter #) Code and description (repeat this information for all samples identified with a code).

Analyst Signature: _____ **Date:** _____

Reviewer Signatures: _____ **Date:** _____

_____ **Date:** _____

_____ **Date:** _____

Figure C-11. CSN $PM_{2.5}$ PM_{10} QC Logbook

CSN $PM_{2.5}$ PM_{10} QC Logbook

MICROBALANCE #: ME5 ANALYST:_____

FILTER LOT #: _____

STANDARD CERTIFIED VALUES: STD1 _____ mg STD2 _____ mg

SN:_____ SN: _____

ANALYSIS DATE	INITIAL WORKING STD 1 (mg)	FINAL WORKING STD 1 (mg)	INITIAL WORKING STD 2 (mg)	FINAL WORKING STD 2 (mg)	COMMENTS

Lab Blanks (MB)

Filter ID	ANALYSIS DATE	Initial Weight (mg)	ANALYSIS DATE	FINAL WEIGHT (mg)

ANALYST: _____ QC SUPERVISOR: _____

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Figure C-12. CSN $PM_{2.5}$ PM_{10} Initial Weights Logbook

CSN $PM_{2.5}$ / PM_{10} Filter Initial Weights Logbook

Microbalance #: _____ Initials: _____ Lot #: _____

Date: _____ Temp (°C): _____ %RH: _____

Filter #	Initial Wt. (mg)	Replicate		Filter #	Initial Wt. (mg)	Replicate

Analyst's Signature _____

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Figure C-13. CSN Filters for Mass Chain of Custody

CSN Filters for Mass
Chain of Custody

Completed by CSN:	Initials ______________		Date __________		Completed by Lab					
FilterAnalysisID	UnikFilterIDNum	SampleRequestID	Date Rec'd	Temp rec'd oC	Weigh By Date	Date of Initial Weight	Date Rec'd in Lab	Rec'd By	LabID	Date Returned to CSN