The Arizona Border Study

An Extension of the
Arizona National Human Exposure Assessment Survey (NHEXAS)Study
Sponsored by the Environmental Health Workgroup of the Border XXI Program

Quality Systems and Implementation Plan for Human Exposure Assessment

The University of Arizona
Tucson, Arizona 85721

Cooperative Agreement CR 824719

Standard Operating Procedure   **SOP-UA-D-24.0**

Title: Cleaning: Arizona Lab Data

Source: The University of Arizona

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Exposure & Dose Research Branch

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Title: **CLEANING: ARIZONA LAB DATA**

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	Project QA Director:
	Independent Reviewer:

Distributed To:	Revision No.					
	1	2	3	4	5	6

Form TP-1

Cleaning: Arizona Lab Data

1.0 Purpose and Applicability

The purpose of this procedure is to define the particular steps involved in cleaning the electronic data generated from data entry of the Arizona Lab Data forms. It applies to electronic data corresponding to the Arizona Lab Data Forms that were scanned and verified by the Data Staff for NHEXAS Arizona, the Border Study, or other Health and the Environment projects.

2.0 Definitions

2.1 BORDER STUDY: An alias for "Total Human Exposure Arizona: A Comparison of the Border Communities and the State" conducted in Arizona by the University of Arizona/Battelle/Illinois Institute of Technology consortium.

2.2 DATA CLEANING: The process of locating and correcting data processing and field technician errors. They can be individual level errors in the electronic and physical data, or they can be system level errors in the data collection, packaging, coding, entry, and cleaning procedures themselves. This process is also referred to as "data validation."

2.3 DATA, ELECTRONIC: Data stored on some type of magnetic or optical medium (for example: floppy disk, hard disk).

2.4 DATA, ENTERED: Electronic data scanned into a data file using Teleform scanning software. Entered data are the product of "data entry."

2.5 DATA, VERIFIED: Electronic data that has cleared through the Teleform Verification process. In the Verification process Teleform reviews all of the entered data and displays any possible errors. These potential errors are reviewed by a Data Technician. Once all of the errors are fixed the data is saved to an ASCII file.

2.6 DATA CLEANING BATCH: A collection of electronic data, along with their corresponding physical forms. Data cleaning batches are formed after one or more data processing batches (see DATA PROCESSING BATCH below) are scanned. The data cleaning batches are then cleaned (see DATA CLEANING) and appended to the master database (as described in UA-D-44.X). Each data cleaning batch is assigned a numeric descriptor of the form MMDDYY, where MM is the month the batch was created, DD is the day the batch was created, and YY is the year the batch was created. If more than one batch is created on the same day, each batch after the first is assigned a descriptor of the form MMDDYY_N, where N denotes the batch as being the Nth batch created that day.

2.7 HEALTH AND ENVIRONMENT PROJECTS (or H&E): An umbrella title for all projects funded to M.D. Lebowitz and/or M.K. O'Rourke (or their designees) which examine purported or real relationships among environmental factors and any aspect of human health.

2.8 HRP SITE: The Health Related Professions building, located at 1435 North Fremont Avenue; Tucson, AZ 85719. This is an annex of the Arizona Prevention Center and the primary site of NHEXAS Arizona, the Border Study, or other Health and the Environment projects.

2.9 MASS DATA MASSAGE PROCESS (or MDM) = The data processing program used by NHEXAS Arizona, the Border Study, and other Health and Environment projects.

2.10 NHEXAS Arizona: Acronym for National Human EXposure Assessment Survey, a research project conducted in Arizona by the University of Arizona/Battelle/Illinois Institute of Technology consortium.

3.0 References

SOP UA-D-44.X (Operation Manual of the Mass Data Massage Program) (This Volume)

4.0 Discussion

A copy of the Arizona Lab Forms are given in Appendices A, B, C, D, E, F, G, H, and I. These copies have each variable labeled for easy reference. Questionnaires and Forms are reviewed for completeness and accuracy prior to being transferred to the data section of the project. These checks are designed to generate flawless forms and questionnaires prior to data entry. Once entered and verified the data is subject to logic checks through the application of Dictionaries and other projects. Dictionaries for the lab forms have not been generated Once generated these dictionaries will define the files structures for the Arizona Lab Forms databases, as well as the logic and range checks that are performed on each field. For further reference, see SOP# UA-D-4.X.

Sometimes despite all best efforts, errors are found in data. These errors must be corrected to produce a valid database. At this time, all anticipated problems have been addressed. "Cleaning" protocols are developed concurrently with data entry to address the unanticipated problems. Specific corrections will be documented as outlined in SOP # UA-D-38.X.

5.0 Responsibilities

The Project Data Coordinator is responsible for writing the data cleaning instructions for the Arizona Lab Forms when data problems are found during the data entry process.

6.0 Materials and Reagents

6.1 Local Area Network
6.2 Purple Pen
6.3 Copy of Data Dictionary for specific form.

7.0 Procedure

7.1 Steps Followed

    I. Data Technicians

        A. Entering data

    1. Scan and verify the form as described in UA-D-34.X.

B. Cleaning Data

    1. Log into UNIX environment.
    2. Type "data" to run the *MDM*.
    3. Select form type:

        a. The user will enter "2" for Lab Data
        b. The *MDM* will then prompt the user for a specific form. The user will then enter:

            i. "1" for 25mm and 37mm pre-weighing

                aa. If this option is selected, the user will be prompted to select either the header or the detail groups. The user will enter "1" for the header, and "2" for the detail group.

            ii. "2" for 25mm and 37mm post-weighing

                aa. If this option is selected, the user will be prompted to select either the header or the detail groups. The user will enter "1" for the header, and "2" for the detail group.

            iii. "3" for Sentinel filter pre-weighing

                aa. If this option is selected, the user will be prompted to select either the header or the detail groups. The user will enter "1" for the header, and "2" for the detail group.

            iv. "4" for Sentinel filter post-weighing

                aa. If this option is selected, the user will be prompted to select either the header or the detail groups. The user will enter "1" for the header, and "2" for the detail group.

            v. "5" for XRF analysis
            vi. "6" for Soil characterization
            vii. "7" Vacuum Dust characterization
            viii. "8" for 24-Hour Food Diary Check

                aa. If this option is selected, the user will be prompted to select either the header, the detail groups, the second page, or the supplement. The user will enter "1" for the header, "2" for the detail group, "3" for the second page, or "4" for the supplement.

            ix. "9" for Vacuum filter pre-weighing

                aa. If this option is selected, the user will be prompted to select

either the header or the detail groups. The user will enter "1" for the header, and "2" for the detail group.

    x.   "0" to return to the previous menu

4. The *MDM* shall prompt the user for an action. The user then selects an operation from a given list. Operations include:

    a.   Create a new batch
    b.   Clean existing batch
    c.   QA an existing batch
    d.   [Examine Descriptive Master Database]

5. If the user selects the <u>Clean existing batch</u> option:

    a.   The *MDM* will list all possible batches to clean.
    b.   If there are no batches, the program will inform the user, and prompt the user to press the <enter> key, which will return the user to the previous menu.
    c.   If there are batches to be cleaned, the user will be prompted for a specific batch.
    d.   Once a batch is selected, it is preprocessed (checking for errors) for cleaning, and the user is given information regarding the status of the preprocessing.
    e.   If no errors are found within in the data, the *MDM* will send mail to the Data Coordinator informing him of the newly cleaned batch.
    f.   If errors are found in the data, the user is informed as to the number of errors found within the batch.

        i.   For each error found in the batch, the user will be shown the key variables to locate the record containing the error, which is displayed between dashed lines.
        ii.   The user is then prompted for an action, the action being either the changing the erroneous value, the skipping of the error, a manual change to a different variable in the current record, a manual change to any variable in any record, or the user may quit.

    g.   If the user wishes to change the erroneous value:

        i.   Then "C" must be entered.
        ii.   The variable name is then displayed, and the *MDM* prompts for a new value.
        iii.   Once a new value is given, the user is given the option to accept the value given, to accept a value formatted by the *MDM*, or to abort the operation.
        iv.   If the operation is not aborted, the user is prompted for a reason for the change. Once a reason is given, the update is completed.

    h.   If the user wishes to skip the error:

        i.   He/she must enter "S".
        ii.   This will cause the *MDM* to skip the current error, but not the current

record.

i. If the user wishes to change the value of a different variable in the current record:

    i. He/she must enter "M".

    ii. The user will then be prompted for the number of changes to be made.

    iii. Once this number is entered, the *MDM* will then prompt for the variable to be changed.

    iv. Once a valid variable is specified, the user is prompted for the new value.

    v. Once a new value is given, the user is given the following options:

        aa. Accept the value given

        bb. Accept a value formatted by the *MDM*

        cc. Abort the operation.

    vi. If the operation is not aborted, the user is prompted for a reason for the change. Once a reason is given, the update is completed.

j. If the user wishes to change the value of a variable in a different record:

    i. He/she must enter "R".

    ii. The user will then be prompted for the number of changes to be made.

    iii. Once this number is entered, the *MDM* will then prompt for the key variable values of the record to be modified.

    iv. Once valid values are given, the *MDM* prompts the user for the variable to be changed.

    v. Once a valid variable is specified, the user is prompted for the new value.

    vi. Once a new value is given, the user is given the following options:

        aa. Accept the value given

        bb. Accept a value formatted by the *MDM*,

        cc. Abort the operation.

    vii. If the operation is not aborted, the user is prompted for a reason for the change.

    viii. Once a reason is given, the update is completed.

k. If the user wishes to quit, he/she must hit the "Q" key. The user is then returned to the menu defined in I.B.4.

8.0 Records

8.1 All records are automatically generated by the *MDM*.

8.2 Records of all the forms in a cleaning batch are printed out when the batch is created. This list

is then attached to the cleaning batch.

8.3   Records of the changes made to the data are located in the following directory tarred with their associated batch: /rsc53/NHEXAZdata/master/labaz/<Specific Form>.

8.4   Records of the cleaning batches which have been appended to the master data base are located in the following directory: /rsc53/NHEXAZdata/master/labaz/<Specific Form>. The list is kept in the file "read.me".

8.5   All changes to the hard copy of the form must be dated and completed in purple or red ink.

Inclusions:

    Appendix A: Food Diary Check Form (2 pages)
    Appendix B: Sentinel Filter Pre-Weighing Form (1 page)
    Appendix C: Sentinel Filter Post-Weighing Form (1 page)
    Appendix D: Teflo Filter Pre-Weighing Form (1 page)
    Appendix E: Teflo Filter Post-Weighing Form (1 page)
    Appendix F: Vacuum Filter Pre-Weighing Form (1 page)
    Appendix G: Vacuum Dust Characterization (1 page)
    Appendix H: Soil Characterization (1 page)
    Appendix I: XRF Analysis (2 pages)

Appendix A: Food Diary Check Form

24-HOUR FOOD DIARY CHECK

Form Type	Tech: _Tech-ID_ Tech. ID	Start Date: Evntdate	HHID: HHID	F.S.
1 2 7 itemnum FORM: UA-L-13.0-1.0	Init. Scale: Scale ○ AE 163 (UA ID# A195535) ○ AE 166 (UA ID# A201335) ○ #V-1200 (ID# 50090339) ○ N/A (Default code)	Sample ID#: Status sampID sampstat	HHIDFS Header: QC: ✓ [ ]	

All Weights Are Recorded in Grams (g).

	Weight (g)	Volume (ml)	Item Description	Code	In Diary	Compr.	QC
A.	Weight .	Volume	Foodesc	FCode	In diary Y N N/A ○ ○ ○	Comp ○ C ○ N	✓ [ ]
B.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
C.	.		Food data		Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
D.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
E.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
F.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
G.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
H.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
I.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
J.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
K.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
L.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
M.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]
N.	.				Y N N/A ○ ○ ○	○ C ○ N	✓ [ ]

55750

PAGE 2
24-Hr Food Diary Check

HHID: *HHID*	F.S.	Start Date: *Evntdate*	Sample ID#:	Status
HHIDFS		/ /	*SampID*	*Sampstat*

1. Liquid Sample ID#: *liq-ID*   Status *liq-stat*

2. Total Volume: ____ ml *Tot-vol*

QC: ✓ [ ]

3. Alcohol *Alcsmell*   *Alcdiary*
   A. Smell: Y N N/A (def.)   B. Diary: Y N N/A (def.)   COMMENTS: _____
              ○ ○ ○   ○ ○ ○

Comments: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Formstat

Office Use Only

Form Status:		Tech. ID	MO	DAY	YR		Tech. ID	MO	DAY	YR
○ 1.Cmp	QC:	*QCBY*	*QCDATE*	/		DE:	*DEBY*	*DEDATE*	/	
○ 2.N Cmp		Init.					Init.			
○ 3.P Cmp	QA:	*QABY*	*QADATE*	/		DP Batch:	*DPBATCH*	QXV:	L F O D 1	
○ 4.Re-col		Init.								
○ 5.Ref										
○ 7.Dest										
○ 8.N/A										
○ 9.Miss										

Chain of custody initiated (sig.): _____

Consigned to packet on [ ]:   ____/____/____   Box UA G4-2.0

52510

Appendix B: Sentinel Filter Pre-Weighing Form

■ SENTINEL FILTER *PRE-WEIGHING* BACK-UP FORM ■

Form Type: 1 2 2 *(Hemarum)*

FORM UA-L-9.0-3.0

Technician: Tech-ID *(Tech. ID / Init.)*

Equilibration Start Date: *Evntdate* / /

Equilibration Start Time: : *Evnttime*

1. Pre-Weighing Date: / *Predate* /

Post-Weighing Technician: *Posttech* *(Init. / Tech. ID)*

2. Pre-Weighing Time: : *Pretime*

All Weights Are Recorded In Grams (g)

3. Temperature: *Temp* °F

4. Relative Humidity: *Humidity* %

5. FILE NAME: _____

6. Scale: *Scale*
   - ○ AE 163 (UA ID# A195535)
   - ○ AE 166 (UA ID# A201335)
   - ○ #V-1200 (ID# 50090339)
   - ○ N/A (def.)

COMMENTS: _____
_____
_____
_____
_____
_____
_____
_____

COMMENT CODES: *Comment#2 Comment#3*
Comment#1 [ ] [ ] [ ]

	Sample ID#	Weight	Status	QC
1.	*Samples*	.		✓ [ ]
2.		.		✓ [ ]
3.		.		✓ [ ]
4.		.		✓ [ ]
5.		.		✓ [ ]
6.		.		✓ [ ]
7.		.		✓ [ ]
8.		.		✓ [ ]
9.		.		✓ [ ]
10.		.		✓ [ ]
Standard Weight	Std-ID1	. *Stdwght1*	*Stdstat#1* [ ]
	Std-ID2	. *Stdwght2*	*Stdstat#2* [ ]

Office Use Only

Formstat

Form Status:
- ○ 1.Cmp
- ○ 2.N Cmp
- ○ 3.P Cmp
- ○ 4.Re-col
- ○ 5.Ref
- ○ 7.Dest
- ○ 8.N/A
- ○ 9.Miss

QC: *QCBY* (Init.) Tech. ID *QCDATE* / MO / DAY / YR *(QCDATE)*

QA: *QABY* (Init.) *QADATE* / /

DE: *DEBY* (Init.) Tech. ID *DEDATE* / MO / DAY / YR

DP Batch: *DPBATCH*   QXV: L S P R 1 *QXV*

Chain of custody initiated (sig.): _____

Consigned to packet on: [ ] ___/___/___   Box UA G4-2.0

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Appendix C: Sentinel Filter Post-Weighing Form

■ SENTINEL FILTER *POST-WEIGHING* BACK-UP FORM ■

Itemnum

Form Type: 1 2 3

FORM UA-L-9.0-4.0

Technician: *Tech ID* (Tech. ID / Init.)

Equilibration Start Date: *Evntdate* / /

Equilibration Start Time: : *Evnttime*

1. Post-Weighing Date: *Postdate*

2. Post-Weighing Time: : *Posttime*

Post-Weighing Technician: *PostTech* (Init. / Tech. ID)

3. Temperature: *Temp*

4. Relative Humidity: *Humidity* %

5. FILE NAME: _____

6. Scale: *Scale*
   - ○ AE 163 (UA ID# A195535)
   - ○ AE 166 (UA ID# A201335)
   - ○ #V-1200 (ID# 50090339)
   - ○ N/A (def.)

COMMENTS: _____
_____
_____
_____
_____
_____
_____
_____

COMMENT CODES *Comment1 Comment2 Comment3*

All Weights Are Recorded In Grams (g)

	Sample ID#	Weight	Status	QC
1.	*Samples*			✓ [ ]
2.		.		✓ [ ]
3.		.		✓ [ ]
4.		.		✓ [ ]
5.		.		✓ [ ]
6.		.		✓ [ ]
7.		.		✓ [ ]
8.		.		✓ [ ]
9.		.		✓ [ ]
10.		.		✓ [ ]
Standard Weight	Std-ID1	Stdweight#1	Stdstat#1 [ ]
	Std-ID2	Stdweight#2	Stdstat#2 [ ]

Formstat

Office Use Only

Form Status:
- ○ 1.Cmp
- ○ 2.N Cmp
- ○ 3.P Cmp
- ○ 4.Re-col
- ○ 5.Ref
- ○ 7.Dest
- ○ 8.N/A
- ○ 9.Miss

	Tech. ID	MO	DAY	YR
QC: *QCBY* (Init.)	*QCDATE*	/	/	
QA: *QABY* (Init.)	*QADATE*	/	/	

	Tech. ID	MO	DAY	YR
DE: *DEBY* (Init.)	*DEDATE*	/	/	
DP Batch: *DPBATCH*		QXV: L S P O 1 *QXV*		

Chain of custody initiated (sig.): _____

Consigned to packet on: [ ] ___/___/___   Box UA G4-2.0

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Appendix D: Teflo Filter Pre-Weighing Form

25mm and 37mm TEFLO FILTER *PRE-WEIGHING* BACK-UP FORM

Itemnum
Form Type: 1 2 0

FORM UA-L-9.0-1.0

Technician: _Init_ Tech ID Tech. ID

Equilibration Start Date: Evntdate / /
Equilibration Start Time: Evnttime :

1. Pre-Weighing Date: Predate

Post-WeighingTechnician: Posttech Init. Tech. ID

2. Pre-Weighing Time: Pretime

All Weights Are Recorded In Grams (g)

3. Temperature: Temp °F

4. Relative Humidity: Humidity %

5. FILE NAME: _____

6. Scale: Scale
- ○ AE 163 (UA ID# A195535)
- ○ AE 166 (UA ID# A201335)
- ○ #V-1200 (ID# 50090339)
- ○ N/A (def.)

COMMENTS: _____
_____
_____
_____
_____
_____
_____
_____
_____

COMMENT CODES: Comment1 Comment2 Comment3

	Sample ID#	Weight	Status	QC
1.	Preweigh	.		[ ]
2.		.		[ ]
3.		.		[ ]
4.		.		[ ]
5.		.		[ ]
6.		.		[ ]
7.		.		[ ]
8.		.		[ ]
9.		.		[ ]
10.		.		[ ]
Standard Weight	Std-ID1	. Stdwght1	Stdstat1	
	Std-ID2	. Stdwght2	Stdstat2 [ ]	

Formstat

Office Use Only

QC: QCBY Init. Tech. ID MO QCDATE DAY / YR
QA: QABY Init. QADATE /

DE: DEBY Init. Tech. ID MO DEDATE DAY / YR
DP Batch: DPBATCH QXV: QXV L P P R 1

28614

Chain of custody initiated (sig.): _____

Consigned to packet on: [ ] ____/____/____   Box UA G4-2.0

Appendix E: Teflo Filter Post-Weighing Form

25mm and 37mm TEFLO FILTER *POST-WEIGHING* BACK-UP FORM

Form Type: [1][2][1] *Itemnum*
FORM UA-L-9.0-2.0

Technician: ____ *Tech_ID* Init. Tech. ID

Evntdate Equilibration Start Date: [ ][ ] / [ ][ ] / [ ][ ]
Evnttime Equilibration Start Time: [ ][ ] : [ ][ ]

1. Post-Weighing Date: *Postdate* [ ][ ] / [ ][ ] / [ ][ ]

Post-Weighing Technician: *Posttech* [ ][ ] Init. Tech. ID

2. Post-Weighing Time: *Posttime* [ ][ ] : [ ][ ]

All Weights Are Recorded In Grams (g)

3. Temperature: *Temp.* [ ][ ] °F

4. Relative Humidity: *Humidity* [ ][ ] %

5. FILE NAME: ____

6. Scale: *Scale*
   - ○ AE 163 (UA ID# A195535)
   - ○ AE 166 (UA ID# A201335)
   - ○ #V-1200 (ID# 50090339)
   - ○ N/A (def.)

Postweigh

	Sample ID#	Weight	Status	QC
1.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
2.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
3.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
4.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
5.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
6.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
7.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
8.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
9.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]
10.	[ ][ ][ ][ ][ ][ ][ ]	[ ][ ] . [ ][ ][ ][ ]	[ ]	[ ]

COMMENTS: ____
____
____
____
____
____
____

COMMENT CODES: *Comment2*
Comment1 [ ][ ][ ] *Comment3*

Standard Weight	*Std=ID1*	*Stdwght1* . [ ]	*Stdstat1* [ ]
	Std=ID2	*Stdwght2* . [ ]	*Stdstat2* [ ]

Office Use Only

Formstat

Form Status:
- ○ 1.Cmp
- ○ 2.N Cmp
- ○ 3.P Cmp
- ○ 4.Re-col
- ○ 5.Ref
- ○ 7.Dest
- ○ 8.N/A
- ○ 9.Miss

QC: *QCBY* ____ Init. [ ][ ] *QCDATE* / [ ][ ] / [ ][ ]

QA: *QABY* ____ Init. [ ][ ] / [ ][ ] / [ ][ ] *QADATE*

DE: *DEBY* ____ Init. [ ][ ] *DEDATE* / [ ][ ] / [ ][ ]

DP Batch: [ ][ ][ ] *DPBATCH* QXV: [L][P][P][O][1]

Chain of custody initiated (sig.): ____

Consigned to packet on: [ ] ____/____/____

Box UA G4-2.0

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Appendix F: Vacuum Filter Pre-Weighing Form

VACUUM FILTER *PRE-WEIGHING* BACK-UP FORM

Form Type: [1][2][8]
Item Num
FORM UA-L-9.0-5.0

Technician: ——— *Tech_ID*
Init.
Tech. ID

Evnt date
Equilibration Start Date: [ ][ ] / [ ][ ] / [ ][ ]
Evnt time
Equilibration Start Time: [ ][ ] : [ ][ ]

1. Pre-Weighing Date: *Pre date* [ ][ ] / [ ][ ] / [ ][ ]

Pre-Weighing Technician: ——— *Pre tech*
Init.   Tech. ID

2. Pre-Weighing Time: *Pre-time* [ ][ ] : [ ][ ]

All Weights Are Recorded In Grams (g)

3. Temperature: *Temp* [ ][ ] °F

4. Relative Humidity: *Humidity* [ ][ ] %

5. FILE NAME: _____

6. Scale: *Scale*
○ AE 163 (UA ID# A195535)
○ AE 166 (UA ID# A201335)
○ #V-1200 (ID# 50090339)
○ N/A (def.)

	Sample ID#	Filter Weight	Tie Weight	Status	QC
	Sampl-ID	*Filt-wght*	*Tie-wght*	*Status*	✓
1.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	[ ]
2.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
3.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
4.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
5.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
6.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
7.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
8.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
9.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]
10.	[ ][ ][ ][ ][ ]	[ ][ ].[ ][ ][ ]	[ ].[ ][ ][ ]	[ ]	✓ [ ]

COMMENT _____
_____
_____
_____
_____
_____
_____
_____

COMMENT CODES:
Comment1 *Comment2*
[ ][ ] [ ][ ]

Standard Weight	*St-ID1* [ ][ ][ ][ ]	*St wght1* [ ][ ].[ ][ ][ ]	*Stdstat1* ✓ [ ]
	St-ID2 [ ][ ][ ][ ]	*St wght2* [ ][ ].[ ][ ][ ]	*Stdstat2* ✓ [ ]

Office Use Only

Form Status: *Formstat*
○ 1.Cmp
○ 2.N Cmp
○ 3.P Cmp
○ 4.Re-col
○ 5.Ref
○ 7.Dest
○ 8.N/A
○ 9.Miss

QC: ——— *QCBY* Init.
Tech. ID   MO   DAY   YR
QC DATE [ ][ ] / [ ][ ] / [ ][ ]

QA: ——— *QABY* Init.
QA DATE [ ][ ] / [ ][ ] / [ ][ ]

DE: ——— *DEBY* Init.
Tech. ID   MO   DAY   YR
DE DATE [ ][ ] / [ ][ ] / [ ][ ]

DP Batch: [ ][ ] *DP BATCH*
QXV: [L][V][P][R][2] *QXV*

3324

Chain of custody initiated (sig.): _____

Consigned to packet on: [ ] ___/___/___   Box UA G4-2.0

Appendix G: Vacuum Dust Characterization

■ Itemnum VACUUM DUST CHARACTERIZATION ■

Form Type	Tech: _Tech ID_ (Tech. ID / Init.)	Start Date: ☐ ☐ / _Evntdate_	HHID: HHID	F.S.
1 2 6	Scale: ○ AE 163 (UA ID# A195535) ○ AE 166 (UA ID# A201335) ○ #V-1200 (ID# 50090339) ○ N/A (def.) _Scale_	Sample ID#: ☐ ☐ Sampl ID	HHID FS	
FORM: UA-L-12.0-1.0		Status: ☐ Sampstat	Header: QC: ✓ [ ]	

1. TOTAL SAMPLE: *All Weights Are Recorded in Grams (g).*   QC

Total wt. #4 _Totalwt 1_   ☐☐.☐☐☐ g − Filter + Tie wt. #3 ~~Filtut~~ ☐☐.Filtwt1 g − Collected wt. #5 ☐☐.Colectwt g   Screen Set: _____   [ ]

Total wt. #4 _Totalwt 2_   ☐☐.☐☐☐ g − Dirty filter + Tie wt. #6 ☐☐.Filtwt2 g − Sample wt. #7 ☐☐.Sampwt g   Archive Code: _____   [ ]

2. ALIQUOTS: *Pesticides:*

Sample ID#: Pest-ID   Status Peststat   Split wt. #8 ☐.Pestsplt g − Weighing paper wt. #10 ☐☐.Pestpapr g − Pesticide sample wt. #12 ☐☐.Pestwt g   [ ]

Metals:

Sample ID#: Met-ID   Status Metstat   Split wt. #9 Metsplit ☐.☐☐☐ g − Weighing paper wt. #11 ☐☐.Metpaper g − Metals sample wt. #13 ☐☐.Metwt g   [ ]

XRF Form header completed   Y [ ]   N [ ]   XRF Cup #: _____

3. OTHER FRACTIONS:

> 10 Screen wt. #14 _Fuzzscrn_   ☐☐.☐☐☐ g − Weighing paper wt. #15 _Fuzzpapr_ ☐☐.☐☐☐ g − > 10 Sample wt. #16 _Fuzzwt_ ☐☐.☐☐☐ g   [ ]

10-230 Screen wt. #17 _Intscrn_   ☐☐.☐☐☐ g − Weighing paper wt. #18 _Intpaper_ ☐☐.☐☐☐ g − 10-230 Sample wt. #19 ☐☐.Intwt g   Total Screened Wt. #20 _Tot-scrn_ ☐☐.~~Fuzzwt~~ g   [ ]

4. STANDARD WEIGHTS: ID# Total ID   Weights

Total Sample: ☐☐☐☐☐ Total ID   ☐☐.Total-wt g   [ ]

Aliquots: ☐☐☐☐☐ Aliq-ID   ☐☐.Aliq-wt g   [ ]

Other fractions: ☐☐☐☐☐ Other-ID   ☐☐.Other-wt g   [ ]

5. QC CHECK: (#7 _____ − #20 _____) * 100 = _____   [ ]
     Sample Wt.   Total Screened Wt.   % Dust Loss

Office Use Only   Formstat

Form Status:	Tech. ID	MO	DAY	YR		Tech. ID	MO	DAY	YR
○ 1.Cmp ○ 2.N Cmp ○ 3.P Cmp ○ 4.Re-col ○ 5.Ref ○ 7.Dest ○ 8.N/A ○ 9.Miss	QC: QCBY ☐☐ (Init.)	QCDATE ☐☐	/ ☐☐	☐☐	DE: DEBY ☐☐ (Init.)	DEDATE ☐☐	/ ☐☐	☐☐
	QA: QABY ☐☐ (Init.)	QADATE ☐☐	/ ☐☐	☐☐	DP Batch: ☐☐ DPBATCH	QXV: L D U S 1 QXV		

Chain of custody initiated (sig.): _____

Consigned to packet on: ____/____/____   Box UA G4-2.0   14199

Appendix H: Soil Characterization

SOIL CHARACTERIZATION

Itemnum   *TechID*   *Evntdate*

Form Type	Tech. ID		
1 2 5		Analysis Date: [ ] [ ] / [ ] [ ] / [ ] [ ]	HHID: *HHID* [ ] [ ] [ ] [ ] [ ] F.S. *HHIDFS*
FORM UA-L-11.0-1.0	Init.	Sample ID#: [ ] *SampID* [ ] [ ] *Sampstat* Status [ ]	· Header: QC: ✓ [ ]

1. Pesticide Split: Aliquot ID#: [ ] [ ] [ ] [ ] *Pest-id*   Status [ ] *Pestat*   [✓]

2. Drying Time   Start _____ : _____   Date: _____ / _____ / _____   [ ]
                 Finish _____ : _____   Date: _____ / _____ / _____   [ ]

3. pH and Conductivity:

A. Status: [ ] *Measstat*   D. pH: [ ] [ ] . [ ] [ ] *Ph*

B. Weight: [ ] [ ] [ ] *Phweight* g   E. Conductivity: [ ] . [ ] [ ] *Phconduc* μmohs

C. H2O Added: [ ] [ ] *H2Oadded* ml   F. Color: [ ] [ ] . [ ] [ ] . [ ] [ ] *Color*

Tech. ID
Tech ID: ___ [ ] Init.
Scale: *PH-tech*
○ AE 163 (UA ID# A195535)
○ AE 166 (UA ID# A201335)
○ #V-1200 (ID# 50090339)
○ N/A (def.) *Ph-scale*   [ ]

4. Particle Size:

Size (No.)	Weights		
	Total wt.	Pan wt.	Sample wt.
> 10	#1 [ ] [ ] . [ ] *Totwt 1* g	– #2 [ ] . [ ] *Panwt 1* g	= #3 [ ] . [ ] *Sampwt 1* g
10-230	#4 [ ] . [ ] *Totwt 2* g	– #5 [ ] . [ ] *Panwt 2* g	= #6 [ ] . [ ] *Sampwt 2* g

Tech. ID
Tech ID: ___ [ ] Init.
Scale: *B-tech*
○ AE 163 (UA ID# A195535) *B-scale*
○ AE 166 (UA ID# A201335)
○ #V-1200 (ID# 50090339)
○ N/A (def.)   [ ]

| < 230 | #7 [ ] . [ ] *Totwt 3* g | – #8 [ ] . [ ] *Panwt 3* g | = #9 [ ] . [ ] *Sampwt 3* g | [ ]
| XRF | #9 [ ] . [ ] *Tot-xrf* g | – #11 [ ] . [ ] *Pan-xrf* g | = #12 [ ] . [ ] *Samp-xrf* g | [ ]

Scale: ○ AE 163 (UA ID# A195535)   ○ AE 166 (UA ID# A201335)
        ○ #V-1200 (ID# 50090339)   ○ N/A (def.) *Xrf-scal*   Total Seived Weight [ ] [ ] [ ] . [ ] g *Seivedwt*   [ ]

5. Fine Fraction Split:
   Metals Aliquot ID#: #10 [ ] [ ] [ ] [ ] [ ] *Fine-ID*   Status [ ] *Finestat*   [ ]
   XRF Cup #: _____   XRF Form header completed Y [ ] N [ ]

6. Standard Weight:
   ID#: [ ] [ ] [ ] [ ] *Std-id 1*   Weight: [ ] [ ] [ ] . [ ] *Stdweight 1* g *2*   [ ]
   ID#: [ ] [ ] [ ] [ ] *Std-id 2*   Weight: [ ] [ ] [ ] . [ ] *Stdweight 2* g   [ ]

Office Use Only

Formstat

Form Status:		Tech. ID	MO	DAY	YR		Tech. ID	MO	DAY	YR
○ 1.Cmp ○ 2.N Cmp ○ 3.P Cmp ○ 4.Re-col ○ 5.Ref ○ 7.Dest ○ 8.N/A ○ 9.Miss	QC: *QCBY* [ ] Init.		*QCDATE* [ ] [ ] / [ ]		DE: *DEBY* [ ] Init.	*DEDATE* [ ] [ ] / [ ] [ ] / [ ]
	QA: *QABY* [ ] Init.		*QADATE* [ ] [ ] / [ ]		DP Batch: [ ] [ ] [ ] *DPBATCH*	QXV: L S O 1 1 *QXV*

Chain of custody initiated (sig.): _____

Consigned to packet on: _____ / _____ / _____   Box UA G4-2.0

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Appendix I: XRF Analysis

XRF ANALYSIS

Itemnum   *TechID*

Form Type			
1 2 4			

Tech. ID

Tech: _____
Init.

FORM:
UA-L-10.0-1.0

Analysis Date: ☐☐ / ☐☐ / ☐☐   *Evntdate*

Analysis Time: ☐☐ : ☐☐   *Evnttime*

HHID: ☐☐☐☐☐☐   F.S. ☐
HHID   *HHIDFS*

Header: QC: ✓ [ ]

1. Sample ID #: .... ☐☐☐☐☐☐☐   Status: ☐
   SampID   *Sampstatt*

2. Source Time:
   Fe-55: ☐☐☐   Sec. *Fe-time*
   Cd-109: ☐☐☐   Sec. *Cd-time*
   Am-241: ☐☐☐   Sec. *Am-time*

3. Application: ○ 1. Thin Film
                  ○ 2. Soils
   Applicat   ○ 88. N/A (def.)

4. XRF Cup #: _____

Element	READING	STANDARD DEVIATION
Pb	☐☐☐☐☐☐.☐☐ *Pb-read* ☐☐	☐☐☐☐.☐☐ *Pb-std* ☐
As	☐☐☐☐☐☐.☐☐ *As-read* ☐☐	☐☐☐☐.☐☐ *As-std* ☐
Cd	☐☐☐☐☐☐.☐☐ *Cd-read* ☐☐	☐☐☐☐.☐☐ *Cd-std* ☐
Ni	☐☐☐☐☐☐.☐☐ *Ni-read* ☐☐	☐☐☐☐.☐☐ *Ni-std* ☐
Cr	☐☐☐☐☐☐.☐☐ *Cr-read* ☐☐	☐☐☐☐.☐☐ *Cr-std* ☐
Ba	☐☐☐☐☐☐.☐☐ *Ba-read* ☐☐	☐☐☐☐.☐☐ *Ba-std* ☐
Mn	☐☐☐☐☐☐.☐☐ *Mn-read* ☐☐	☐☐☐☐.☐☐ *Mn-std* ☐
Se	☐☐☐☐☐☐.☐☐ *Se-read* ☐☐	☐☐☐☐.☐☐ *Se-std* ☐
V	☐☐☐☐☐☐.☐☐ *V-read* ☐☐	☐☐☐☐.☐☐ *V-std* ☐
Cu	☐☐☐☐☐☐.☐☐ *Cu-read* ☐☐	☐☐☐☐.☐☐ *Cu-std* ☐
Zn	☐☐☐☐☐☐.☐☐ *Zn-read* ☐☐	☐☐☐☐.☐☐ *Zn-std* ☐
K	☐☐☐☐☐☐.☐☐ *K-read* ☐☐	☐☐☐☐.☐☐ *K-std* ☐

Data Use Only:	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

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Element	READING	STANDARD DEVIATION
Ca	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Ca-read	[ ][ ][ ][ ] . [ ][ ][ ] Ca-std
Co	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Co-read	[ ][ ][ ][ ] . [ ][ ][ ] Co-std
Fe	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Fe-read	[ ][ ][ ][ ] . [ ][ ][ ] Fe-std
Mo	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Mo-read	[ ][ ][ ][ ] . [ ][ ][ ] Mo-std
Tl	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Tl-read	[ ][ ][ ][ ] . [ ][ ][ ] Tl-std
Ag	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Ag-read	[ ][ ][ ][ ] . [ ][ ][ ] Ag-std
Sr	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Sr-read	[ ][ ][ ][ ] . [ ][ ][ ] Sr-std
U	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] U-read	[ ][ ][ ][ ] . [ ][ ][ ] U-std
Th	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Th-read	[ ][ ][ ][ ] . [ ][ ][ ] Th-std
Sn	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Sn-read	[ ][ ][ ][ ] . [ ][ ][ ] Sn-std
W	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] W-read	[ ][ ][ ][ ] . [ ][ ][ ] W-std
Ti	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Ti-read	[ ][ ][ ][ ] . [ ][ ][ ] Ti-std
Rb	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Rb-read	[ ][ ][ ][ ] . [ ][ ][ ] Rb-std
Ir	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Ir-read	[ ][ ][ ][ ] . [ ][ ][ ] Ir-std
Hg	[ ][ ][ ][ ][ ][ ][ ] . [ ][ ][ ][ ] Hg-read	[ ][ ][ ][ ] . [ ][ ][ ] Hg-std

Office Use Only

Formstat

Form Status:
○ 1.Cmp
○ 2.N Cmp
○ 3.P Cmp
○ 4.Re-col
○ 5.Ref
○ 7.Dest
○ 8.N/A
○ 9.Miss

QC: QCBY [ ][ ] Init.
QA: QABY [ ][ ] Init.

Tech. ID   MO   DAY   YR
QCDATE [ ][ ] / [ ][ ]
QADATE [ ][ ] / [ ][ ]

DE: DEBY [ ][ ] Init.
DP Batch: [ ][ ] DPBATCH

Tech. ID   MO   DAY   YR
DEDATE [ ][ ] / [ ][ ]

QXV: L X R F QXV

Chain of custody initiated (sig.): _____
Consigned to packet on: [ ] ___/___/___

Box UA G4-2.0

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Data Use Only:	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○