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Environmental Programs Directorate Standard Operating Procedure

for **AIRNET—MANAGEMENT OF FIELD DATA**

APPROVAL SIGNATURES:

Subject Matter Expert:	Organization	Signature	Date
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1.0 PURPOSE AND SCOPE

This standard operating procedure (SOP) states the responsibilities and describes the electronically recording and storage of field data on palmtop computers and the transfer of the data into the AIRNET database for the Los Alamos National Laboratory (LANL) Waste and Environmental Services Division (WES).

All WES participants shall implement this procedure when electronically recording field data, storing data, and transferring data to the AIRNET database.

2.0 BACKGROUND AND PRECAUTIONS

2.1 Background

Field data are recorded on Palm[®]-based computers. The destinations for the data collected are: 1) Chain-of-Custody forms and 2) the WES databases that contain AIRNET field sampling data.

Field sample and corresponding field data collection are done in loops: Area G, Town, Valley, Upper, White Rock, and Quality Control loops. The data on the Palm[®] computers are grouped to correspond to these loops. For a sample printout to show the data currently being collected, see Attachment 1.

2.2 Precautions

None

3.0 EQUIPMENT AND TOOLS

None

4.0 STEP-BY-STEP PROCESS DESCRIPTION

4.1 Field Data Collection

Worker	1.	Before departing for the field, ensure the Palm [®] computer being used is charged and that previously collected data has been downloaded.
	2.	Ensure that the date and time displayed on the Palm [®] computer are correct.
	3.	Record field data collected according to SOP-5143 and SOP-5144 for a station in the appropriate field on the Palm [®] computer.
	4.	Check data entered for proper entry and then store the data on the Palm [®] computer.
	5.	After each day of field collection is complete, use the Microsoft Access [®] software to download data from the Palm [®] to the desktop computer.
	6.	Upload data files to Palm [®] : <ul style="list-style-type: none"> Immediately after completing the step above, use the Microsoft Access[®] software to upload data from the desktop computer to the Palm[®] computer. You will have the opportunity to edit the information that is uploaded.

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4.2 Validating and Verifying the Field Data

Purpose of data evaluation:

All data will be evaluated (see WES SOP 5140) for one of three outcomes: accept, qualify, or reject. For qualified and rejected data, an explanation must be included for the appropriate record in the database. Data entry through the Palm[®] computers and data entered by hand from field notes are verified for accuracy in the steps below.

Worker	<ol style="list-style-type: none"> 1. Move data to main database: After the sample collection period is over and all field data have been entered into the “collected data” table on the desktop computer, use the database software’s menu buttons to move the data to the AIRNET database table for verification and validation.
	<ol style="list-style-type: none"> 2. Check site IDs and print data: <ul style="list-style-type: none"> • Using menu options in the AIRNET database, ensure that the master site IDs have been entered into the database.
	<ol style="list-style-type: none"> 3. Make a query: <ul style="list-style-type: none"> • Print out of the field data to be checked
	<ol style="list-style-type: none"> 4. Perform validation and verification inspection <ul style="list-style-type: none"> • Use the form in Attachment 1 as a checklist to review each field record on the query printout (see 3, above). Look at the acceptable ranges and the comments and use best professional judgment to identify any records that should be qualified or rejected. Provide an explanation for each qualified or rejected record in the database. Some examples of qualification and rejection are given below. <ul style="list-style-type: none"> — If a pump and the timer failed, reject the timer data, filter sample, and silica gel sample. — For a pump failure with timer reading within the range, qualify the filter and silica gel data. — For torn filters and those pulled away from the edge of the support, reject the filter. — For timer failures where the timer reading is estimated, qualify the timer reading. — When breaker is found off and timer recorded run time appropriately, qualify the filter and silica gel samples. If the timer is not functioning, reject the timer data, filter sample, and silica gel sample. — If the station was inoperative at change-out time due to pump or power failure, do not use zero as the final flow rate. Assume final flow was the same as the beginning flow and qualify these data. • The above examples provide a limited number of example conditions. Inevitably, other data situations will occur. Use the above examples and best professional judgment to qualify or reject other samples and data.

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5. Stations with data loggers /telemetry:
 - If there is a question whether a station with a data logger / telemetry ran, check the 110-V indicator in the saved data logger files (see WES SOP-5152).
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6. Hand-calculate flows:
 - If there are flows that were changed manually by more than 10% during this sampling period, hand-calculate flows using the equations below:
 - Nominal air volume = timer reading
 * (start flow rate + stop flow rate)/2 * unit conversion

OR

 - Nominal filter air volume = 336 (hr)
 * [4.0 + 4.0]/2 (ft³/min) * 60 (min/hr) * 0.028317 (m³/ft³) = 2283 m³
 - Nominal silica-gel air volume = 336 (hr)
 * [200+200]/2 (cm³/min) * 60 (min/hr) * 1/1,000,000 (m³/cm³) = 4.03 m³
 - Make a note in the comment field that the volumes were hand-calculated.
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7. Perform additional checks:
 - Using menu options in the AIRNET database; perform the checks to compare the distillation volumes against the silica gel weight difference, perform other range checks, and calculate the sample flows.
 - Review the results of these queries and make appropriate qualifications or rejections of the data.
 - When done with the checklist, sign it and place it in the field data validation/verification notebook.

4.3 Records Management

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| Worker | 1. Maintains and submits records and/or documents generated to the Records Processing Facility according to EP-DIR-SOP-4004, Records Transmittal and Retrieval Process; AIRNET Project Leader; or directly to the AIRNET files. |
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5.0 DEFINITIONS

N/A

6.0 PROCESS FLOW CHART

N/A

7.0 ATTACHMENTS

Attachment 1 AIRNET Field Data Validation and Verification Inspection (1 page)

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8.0 REVISION HISTORY

Revision No. <i>[Enter current revision number, beginning with Rev.0]</i>	Effective Date <i>[DCC inserts effective date for revision]</i>	Description of Changes <i>[List specific changes made since the previous revision]</i>
0	4/16/96	New document.
1	9/10/98	Time deadline for records submission added to "Records" chapter, added numerous detailed steps for transferring data into the database; added chapter and attachment on validation of data.
2	11/4/99	Changes to some steps, update of attachment.
3	7/26/00	Changed the method for calculating end flow and clarified some steps for uploading data.
4	11/1/00	Clarified a few steps for uploading data; added steps to record field comments before uploading.
5	6/13/01	Added steps to create the future Lotus spreadsheet templates to load onto the palmtops.
6	11/01/01	Revised to reflect use of Palm data collection computers.
7	12/10/02	Quick-change revision to add item to list for V&V inspections.
0	7/07/09	New document number and reformatted for WES Division. Formerly RRES-MAQ-216.

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ATTACHMENT 1

SOP-5149-1

AIRNET Field Data Validation and Verification Inspection

Records Use only



AIRNET Sample Group #: _____

Data Element Inspected	Complete in Access Field Sampling database	Agreement between Field Data record and database entry	Within expected range <i>or qualified</i>	Expected range
Chain-of-Custody Form done for all filters	NA	NA	Y - N	6 sampling loops
Chain-of-Custody Form done for all silica gels	NA	NA	Y - N	6 sampling loops
FIELD DATA READY FOR V&V Table				
AIRNET Sample ID number	Y - N - NA	Y - N - NA	Y - N - NA	YYmmdd.m
Location # = AIRNET ID after decimal point?	Y - N - NA	Y - N - NA	Y - N - NA	01 - 99
Timer reading	Y - N - NA	Y - N - NA	Y - N - NA	100 - 500*
Filter Start Flow	Y - N - NA	Y - N - NA	Y - N - NA	3.6 - 4.4
Filter Stop Flow	Y - N - NA	Y - N - NA	Y - N - NA	1.0 - 6.0*
Gel Start Flow	Y - N - NA	Y - N - NA	Y - N - NA	180 - 220
Gel Stop Flow	Y - N - NA	Y - N - NA	Y - N - NA	20 - 250
Comment	Y - N - NA	Y - N - NA	NA	---
Gel Initial Weight	Y - N - NA	Y - N - NA	Y - N - NA	600 - 800
Gel Final Weight	Y - N - NA	Y - N - NA	Y - N - NA	600 - 800
Master Site Numbers	Y - N	NA	Y - N - NA	100 - 350
Data Qualifiers in use	Y - N	NA	NA	Blank (for A), Q, or R
Hand calculated volumes?	Y - N - NA			
Filter and m ³ corrected, calculated, and entered for bi-weekly volumes	Y - N - NA	NA	NA	
Dates and Times	Y - N - NA	Y - N - NA	NA	
Field logbook entries in database?	Y - N - NA	Y - N - NA	NA	
FIELD DATA TRACKING Table				
Sample Group Number	Y - N			
Verified by:				
Signature	Name (print)	Date		