

AREAL/RTP-SOP-QAD-553

STANDARD OPERATING PROCEDURE FOR PERFORMING THE ROUTINE
ACTIVITIES OF THE AREAL COORDINATOR OF THE
NATIONAL PERFORMANCE AUDIT PROGRAM

by

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Quality Assurance and Technical Support Division

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DISCLAIMER

This Standard Operating Procedure has been prepared for use within the Quality Assurance Support Branch, Quality Assurance and Technical Support Division of the Atmospheric Research and Exposure Assessment Laboratory of EPA at Research Triangle Park, North Carolina, and may not be applicable to the activities of other organizations.

APPROVALS:

W.J. Mitchell, Chief, QASB

Date

R.C. Evans, Director, QATSD

Date

EFFECTIVE DATE: April 1991

1. SCOPE AND APPLICATION

This document describes the routine activities of the QASB/AREAL Coordinator of the National Performance Audit Program (NPAP). The NPAP provides EPA a means to assess the proficiency of agencies that are operating monitors in the State and Local Air Monitoring System (SLAMS) network with one aspect of the minimum quality control (QC) program required under Section 2.0 of 40 CFR Part 58, Appendix A. The following criteria air pollutants are audited under NPAP: high-volume/PM-10 (SSI) (flow only), sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead (analysis only), and dichotomous (PM-10). Also audited under NPAP is sulfate/nitrate on filter strips.

2. SUMMARY OF ACTIVITIES

2.1 Overview of the Activities of the NPAP Coordinator

The NPAP Coordinator is responsible for the administration of the NPAP. This includes contacting participants, scheduling audits, registering participants, following up on poor performers, authorizing reaudits and changes to the information in the data base, keeping the EPA Regional Offices informed, and performing systems and performance audits on the on-site contractor. The duties and decisions of the NPAP Coordinator are considered to be within the scope of policy-making and, therefore, are within the sole purview of EPA.

2.2 Functions of the On-Site Contractor

The on-site contractor is responsible for audit material preparation, shipment to participants, data entry, distribution of data results to the audit participants, analysis, procurement, calibration, and repair and maintenance of audit equipment.

2.3 Participants

All agencies that operate SLAMS samplers or Prevention of Significant Deterioration (PSD) samplers are required by 40 CFR Part 58 to participate in the appropriate NPAP audits.

3. DESCRIPTION OF AUDITS

3.1 High-Volume/PM-10 (SSI) Flow Audit

The reference flow (ReF) device used for the high volume flow audit consists of a modified orifice, a wind deflector, a manometer, and five resistance plates.

The ReF for the PM-10 (SSI) flow audit is similar except a filter is used as the only resistance. The procedures for calibrating the ReF device and conducting the audit are found in AREAL/RTP-SOP-QAD-508.

3.2 Sulfur Dioxide/Nitrogen Dioxide/Carbon Monoxide Audits

One audit device, one zero air system, and one or two cylinders of gas are used for all three audits. (See AREAL/RTP-SOP-QAD-520, SO₂ Audit Device Calibration; AREAL/RTP-SOP-QAD-547, Conducting Performance Audits for Carbon Monoxide; and AREAL/RTP-SOP-QAD-542, NO₂ Audit Device Quality Assurance Operation Checks.)

3.3 Ozone Audit

The audit device is self-contained with its own zero air and ozone generation system. (See AREAL/RTP-SOP-QAD-544, Conducting an Ozone National Performance Audit.)

3.4 Lead Audit

The samples are 1.9 cm wide and 20 cm long glass fiber filter strips that have been spiked with an aqueous solution of lead nitrate and oven-dried. Two filter strips comprise a sample. (See AREAL/RTP-SOP-QAD-510, Conducting the Lead NPAP Audit.)

3.5 Dichotomous (PM-10)

The audit device consists of a laminar flow element (LFE), an inclined manometer, an altimeter, and a small dial thermometer. It measures fine flow (15.00 lpm) and total flow (16.7 lpm). (See AREAL/RTP-SOP-QAD-543, Quality Assurance Checks of Dichotomous (PM-10) Audit Devices.)

3.6 Sulfate/Nitrate Audits

The samples are 1.9 cm wide and 20 cm long glass fiber filter strips that have been spiked with aqueous solutions of sodium sulfate and potassium nitrate and oven-dried. Three filter strips comprise a set. (See AREAL/RTP-SOP-QAD-521, Conducting the Sulfate/Nitrate NPAP Audit.)

4. PARTICIPATION OF SLAMS AND PSD SITES

4.1 Registration of Participants From Prior Years

No later than October 1 of each year, a covering letter and registration form with instructions are sent to potential participants for the upcoming year.

If applicable, a memo concerning SLAMS site selection is included (see Section 4.3). The mailing list of potential participants is derived from the current year's participants and other requests. The on-site contractor supplies the NPAP Coordinator with three sets of mailing labels. One label is attached to the letter, one label is attached to the SLAMS site memo, and the third label is attached to the mailing envelope. A postage paid envelope with the NPAP Coordinator's address is included in the package sent to participants.

where X = one digit code for type of agency

- 1 = Federal Agency
- 2 = Regional Office
- 3 = State Agency
- 4 = City/County Agency
- 5 = Private Company
- 7 = Foreign

XX =Two digit state code that is located in the FIPS (Federal Information Processing Standards) directory

XXX =Three digit agency number code. This is determined by checking the master list of agencies and selecting the next available number. The new number and agency name and address will be written in the master listing.

(Note: Foreign agencies are not allowed to participate in the following audits: dichotomous (PM-10), carbon monoxide, sulfur dioxide, nitrogen dioxide, and ozone.)

After an ID number has been assigned, registration proceeds as described in Section 4.1.

4.3 SLAMS Site Selection

Contact OAQPS by April 1 and request that the SLAMS site prioritization list be provided by July 1 for the upcoming year. Prepare a memo for each affected NPAP participant, list the AIRS site codes for each parameter, affix a label to the memo that states "NOTE: These are special audits to be done in addition to your regular NPAP audits," and enclose with the registration package for the upcoming year (see Section 4.1). Maintain a file of the memos in numerical order according to the laboratory identification number. If a participant notifies the NPAP Coordinator that a site has been closed, draw a line through the AIRS number and note the reason on the memo. When audit results for the new year are received, cross reference the AIRS site codes and check off the sites listed on the memo that were audited.

By March 1, a list will be sent to OAQPS and the Regional Offices of the SLAMS agencies that did not audit the special sites.

4.4 Preparation of Audit Materials

4.4.1 Lead Audit - No later than May 1 of each year, the on-site contractor is notified by a memo of the concentration and number of filters needed for the next year's lead audit (see Attachment 5a). The concentrations¹ range from 100-300 and from 600-1000 µg of lead per strip. The number of filters spiked is based on the present year's participation plus extra filters for EPA acceptance testing. Twenty sets of filter strips for each quarter are due by September 1 from the on-site contractor for acceptance testing by EPA and an off-site contractor (Section 6.1.4 describes acceptance/rejection of the filters). Based on the acceptance testing, the NPAP Coordinator sends the on-site contractor a memo confirming the EPA determined values to be used in the lead audit (see Attachment 5b).

4.4.2 Sulfate/Nitrate Audits - No later than May 1 of each year, the on-site contractor is notified by a memo of the concentration and number of filters needed for the sulfate/nitrate audits (see Attachment 6a). The concentrations fall within the following ranges:

	<u>Sulfate</u> (µg/strip)	<u>Nitrate</u> (µg/strip)
Level 1:	400-800	200-300
Level 2:	1200-1600	600-800
Level 3:	2500-2800	1000-1200

These concentrations are based on observed 24-hour samples in the United States for a variety of sampling flow rates (5-60 lpm). The number of filters spiked is based on the present year's participation plus extra filters for EPA acceptance testing. Twenty sets of filter strips for each audit (February and August) are due by September 1 from the on-site contractor for acceptance testing by EPA and an off-site contractor (Section 6.1.4 describes acceptance/rejection of the filters). Based on the acceptance testing, the NPAP Coordinator sends the on-site contractor a memo confirming the EPA determined values to be used in the sulfate/nitrate audits (see Attachment 6b).

4.4.3 Sulfur Dioxide/Nitrogen Dioxide/Carbon Monoxide and Ozone Audits - Based on requirements in the Federal Register,¹ the on-site contractor selects an audit device gas cylinder combination that yields the following:

	<u>Audit Level</u>	<u>Concentration Range, ppm</u>
Sulfur Dioxide,	1	0.03-0.08
Ozone, and	2	0.15-0.20
Nitrogen Dioxide	3	0.35-0.45
Carbon Monoxide	1	3-8
	2	15-20
	3	35-45

Section 6.1.1 describes the procedure to follow for acceptance/rejection of the audit equipment.

4.5 Audit Schedules

4.5.1 Carbon Monoxide/Sulfur Dioxide/Nitrogen Dioxide Audits - These audits are offered each quarter. Participants may select one quarter. If more than one audit is requested, the participant must do the audits in the same quarter.

4.5.2 Ozone Audit - This audit is offered all four quarters and participants select one quarter to perform the audit.

4.5.3 High Volume/PM-10 (SSI) and Dichotomous (PM-10) Audits - Both of these audits are offered quarterly. Participants may select two non-consecutive quarters.

4.5.4 Lead Audit - This audit is offered each quarter and participants may select all four quarters.

4.5.5 Sulfate/Nitrate Audit - These two audits are offered in the first quarter (February) and in the third quarter (August). Participants may select both quarters.

4.6 Non-Participation by Scheduled Participants

At the end of each quarter, a letter is sent to the Regional QA Coordinators listing SLAMS and PSD sites for the previous quarter that received audit equipment and/or filters, but did not return data results and did not notify EPA as to why they could not participate. Attachment 7 is a sample letter that is sent to the Regional QA Coordinators.

5. DATA PROCESSING AND DISTRIBUTION

5.1 Data Receipt

NPAP participants mail the audit results directly to EPA's on-site contractor for data entry and retention of the audit data sheets.

5.2 Data Entry

The on-site contractor shall enter the audit data results exactly as received according to the instructions in AREAL/RTP-SOP-QAD-546, Computer Data Entry, Report Printing and Maintenance for the NPAP.

5.3 Incorrectly Completed Data Sheets

Data sheets that are completed incorrectly and cannot be entered into the NPAP data base system are given to the NPAP Coordinator. (Examples of incorrect data sheets are: using wrong units of measurement; failing to complete the forms; using resistance plates with flow controlled PM-10 samplers.) The Coordinator returns the data sheet(s) to the participant with a letter of explanation (see Attachment 8 for a sample letter). If possible, the participant corrects the data sheet(s) and returns to the on-site contractor for entry into the NPAP system.

5.4 Late Data

5.4.1 High Volume/PM-10 (SSI) and Dichotomous (PM-10) Audits - The closing date for first quarter audits is March 31; for second quarter audits, June 30; for third quarter audits, September 30; and for fourth quarter audits, December 31 of each year. Audits that are performed and/or data sheets received after the closing date will be entered separately and flagged. The flagged data will be clearly marked by the on-site contractor to reflect it is data received after the audit closed and/or the audit itself was performed after the closing date and is, therefore, not considered part of the NPAP. The NPAP Coordinator receives all 3 copies of the flagged data results and distributes as follows: 1 copy to participant with a covering letter (see Attachment 9), 1 copy to the Regional QA Coordinator with a copy of letter, and 1 copy to the Coordinator's files.

5.4.2 Lead and Sulfate/Nitrate Audits - These audits have specific closing dates that are stated in the covering letter the on-site contractor sends with the audit samples. Data received and/or audits performed after the closing dates are late and shall be handled as described in Section 5.4.1.

5.4.3 Final Closing Date - The current year's audits close on December 31. Any data received and/or audits performed after that date are late data and shall be handled as described in Section 5.4.1.

5.5 Data Distribution

The on-site contractor mails the data results to the audit participant and gives the NPAP Coordinator two copies. One copy is mailed to the Regional QA Coordinator and one copy is maintained by the NPAP Coordinator.

5.6 Unacceptable Results

Audit data results that exceed the EPA determined limits (see below) are considered unacceptable and follow-up measures are instituted.

Audit	EPA Determined Limits
High Volume/PM-10 (SSI)	% difference > ±15% for 1 or more flows
Dichotomous (PM-10)	% difference > ±15% for 1 or more flows
Sulfate/Nitrate	% difference > ±15% for 1 or more levels
Lead	% difference > ±15% for 1 or more levels
Carbon Monoxide	Mean absolute % difference > 15%
Sulfur Dioxide	Mean absolute % difference > 15%
Nitrogen Dioxide	Mean absolute % difference > 15%
Ozone	Mean absolute % difference > 15%

All unacceptable results are entered into a "poor performers" logbook. The logbook is divided into sections--one section for each NPAP audit. The logbook is set up in the following manner.

		(Year)		
		(Name of Audit)		
Lab ID	Date	Data	Date	
No.	Contacted	Results	Response	
		High/Low	Received	Comments

A letter and Audit Survey Form (Attachment 10) are sent to each poor performer. The letter requests that the NPAP participant identify the cause of the exceedance, complete the Audit Survey Form, and return the form to the NPAP Coordinator. One copy of the letter is sent to the Regional QA Coordinator and one copy, along with a copy of the poor data results, is maintained in a "pending" poor performers file by the NPAP Coordinator. When the participant's response is received, a notation is made in the logbook of the date received and the participant's comments. The participant's file is removed from the poor performers file, the Audit Survey Form is attached, and all information is refiled in numerical order in a "completed" poor performers file. (Note: If an agency phones in its response in lieu of returning the Audit Survey Form, the NPAP Coordinator shall write the comments on the "pending" file copy of the letter sent to the agency, reference the phone call, enter the information into

the logbook, and file the annotated "pending" file copy of the letter in numerical order in the "completed" poor performers file.)

Each quarter a covering memo and poor performers table are sent to the Regional QA Coordinators (Attachment 11). The table lists the agencies and responses received, if any. As soon as an agency's comments are sent to the Regional Office, the entry in the logbook is checked off using red ink. Continue to list agencies on the table until they respond to the survey form or until the end of the first quarter of the upcoming year.

5.7 Corrections to Data

5.7.1 Faulty EPA Audit Equipment - When complaints are received from audit participants that they believe the EPA equipment was the cause of poor data results, the on-site contractor is informed of the problem and asked to examine the audit device. If the examination reveals a problem with EPA's equipment, the Coordinator notifies the participant that another audit device will be sent. The on-site contractor is instructed to remove the original data from the NPAP data base and to enter the new data when received. Three copies of the data results are printed, given to the Coordinator who marks the data "corrected" in the upper right-hand corner, and distributes the corrected results to the audit participant, the Regional QA Coordinator, and the NPAP files.

5.7.2 Data Entry Error - When complaints are received concerning data entry, the Coordinator informs the on-site contractor. The original data sheets are examined and, after verifying that a data entry error has occurred, the on-site contractor is instructed to correct the entry in the NPAP data base and to print three copies. For handling and distribution of the copies, see Section 5.7.1.

5.7.3 Audit Participant Error - Corrections made due to participant error (i.e., transposed numbers) are made by the NPAP Coordinator using a "dummy" computer program. (See AREAL/RTP-SOP-QAD-546 for instructions.) The NPAP data base is not changed. The correction is considered a "repeated" audit and is clearly stated on the data results form sent to the participant (see Attachment 12). The Regional QA Coordinator does not receive a copy and a copy is not placed in the NPAP files.

6.0 QUALITY CONTROL

6.1 Performance Audits

6.1.1 Sulfur Dioxide/Nitrogen Dioxide/Carbon Monoxide and Ozone. Four to six audit devices will be selected each quarter (one device every two weeks) to verify the on-site contractor's determined values. The NPAP Coordinator will select the audit devices by requesting that the on-site contractor pull the next device that is ready for shipment to the field. The quality assurance audits will be conducted by the AREAL Standards Laboratory. The audit will consist of

running one zero point and three upscale points following the procedures in AREAL/RTP-SOP-QAD-004, Audit Systems Verification Center Operational Procedures.

The results of the quality assurance audits will be forwarded in writing within 5 working days to the NPAP Coordinator for comparison of the on-site contractor's determined values and the EPA determined values. The report to the NPAP Coordinator will also contain an assessment of the condition of the equipment (i.e., external appearance). The audit device will be considered acceptable if an agreement of ± 5 percent (based on the slope of a linear regression determination) is achieved between the on-site contractor's determined values and the EPA determined values. If the results are unacceptable, the NPAP Coordinator will ask the AREAL Standards Laboratory to run the audit a second time to eliminate the possibility of human error.

The NPAP Coordinator will forward the results of the comparison and the audit device to the on-site contractor for review. The on-site contractor will determine the cause of failures, if any, and report to the NPAP Coordinator in writing within 5 working days the cause and corrective action taken. If the on-site contractor is unable to identify the cause of failure, a meeting will be held between the NPAP Coordinator, the on-site contractor, and the AREAL Standards Laboratory to identify an agreed upon, scientifically sound, probable error source. Minutes of this meeting will be kept and a typed, signed copy will be kept on file by the NPAP Coordinator and the on-site contractor.

6.1.2 High Volume/PM-10 (SSI). Six ReF devices will be selected each quarter following the procedure described in Section 6.1.1. The quality assurance audits will be conducted by the AREAL Standards Laboratory. The audit will consist of verifying the on-site contractor's calibration of the ReF device by using an NIST-certified rootsmeter and following the procedures in AREAL/RTP-SOP-QAD-508.

The results of the audit will be given in writing within 5 working days to the NPAP Coordinator for comparison of the on-site contractor's determined values and the EPA determined values. The ReF is considered acceptable if the air flow measurement generated by the on-site contractor is within ± 5 percent of the air flow measurement generated by EPA. If the results are unacceptable, the NPAP Coordinator will ask the AREAL Standards Laboratory to run the audit a second time to eliminate the possibility of human error. See Section 6.1.1 for reporting procedures and corrective action.

6.1.3 Dichotomous (PM-10). A system consisting of an inclined manometer, an altimeter, a small dial thermometer, and the laminar flow element (LFE) will be selected each quarter as described in Section 6.1.1. The audit will be conducted by the AREAL Standards Laboratory using the LFE provided as part of the on-site

contractor's system and compared to a system consisting of an electronic manometer, barometer and thermometer provided by the AREAL Standards Laboratory. The flows through the common LFE will be determined by utilizing the on-site contractor's system and the AREAL Standards Laboratory's flow audit system. The on-site contractor's system is considered acceptable if the two air flow measurements determined by their system and the AREAL Standards Laboratory system agree within ± 5 percent. If the results are unacceptable, the NPAP Coordinator will ask the AREAL Standards Laboratory to run the audit a second time to eliminate the possibility of human error. See Section 6.1.1 for reporting procedures and corrective action.

6.1.4 Lead and Sulfate/Nitrate Filter Strips - Twenty sets of filters shall be randomly selected from the filters prepared for each audit for each parameter (i.e., a total of 80 sets of lead filters and 40 sets of sulfate/nitrate filters). The Coordinator gives half of the filters for each parameter to the AREAL Standards Laboratory and the other half to an off-site contractor for acceptance testing.

Filters shall be considered acceptable if within ± 5 percent relative standard deviation from the average of the determined values. Any filters not meeting this criteria shall be rejected and the on-site contractor will be instructed to remake the rejected level. The re-made filters will be sent out for acceptance testing as described above.

6.2 Systems Audit

Each calendar quarter, the NPAP Coordinator and a member of the AREAL Standards Laboratory will perform a systems audit to ensure that the on-site contractor is adhering to the SOPs that cover conducting audits, entering data, distributing data, and maintaining files. However, during the quarter that the independent audit of the total NPAP program is done (see Section 6.3), the NPAP Coordinator will not do a separate systems audit on the on-site contractor. The systems audit will follow a set format based on the information contained in the on-site contractor's SOPs.

Attachment 13 describes the format. The NPAP Coordinator will coordinate the systems audit with the on-site contractor's manager. The results of the systems audit will be forwarded in writing within 5 working days to the on-site contractor's manager for review. The on-site contractor will determine the cause of deficiencies, if any, and report to the NPAP Coordinator within 5 working days the cause and corrective action taken.

6.3 Audit of NPAP

The NPAP Coordinator will arrange for an independent yearly systems and performance audit of the total NPAP program by the AREAL Quality Assurance Manager.

7. REFERENCES

¹Federal Register, 40 CFR Part 58, Appendix A, revised July 1, 1987.

8. ATTACHMENTS

1. Registration letter with instructions and registration form
2. SLAMS site selection memo
3. Schedule confirmation and covering letter
4. NPAP Change Request Form
- 5a. Memo for on-site contractor to make lead filter strips
- 5b. Memo to on-site contractor confirming EPA determined limits for lead
- 6a. Memo for on-site contractor to make sulfate/nitrate filter strips
- 6b. Memo to on-site contractor confirming EPA determined limits for sulfate/nitrate
7. Memo to Regional QA Coordinators concerning non-participation of agencies in scheduled audits
8. Example letter for returning data sheets that cannot be entered in NPAP data base
9. Letter sent with late data results
10. Letter sent to poor performers and Audit Survey Form
11. Memo sent to Regional QA Coordinators and poor performers table
12. Repeated audit results form
13. National Performance Audit Program Systems Audit Checklist

NOTE: While this document is meant to serve as a guideline for the activities of the NPAP Coordinator, dates are open to negotiation with the on-site contractor when extenuating circumstances exist.

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Attachment: 1

Revision: 1

Date: September 1993

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Attachment 1

Registration letter with instructions
and registration form

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Attachment: 2

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Attachment 2

SLAMS site selection memo

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Attachment: 3

Revision: 0

Date: March 1991

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Attachment 3

Schedule confirmation and covering letter

DATE: 11/15/92

SUBJ: 1993 National Performance Audit Program (NPAP)

FROM: Elizabeth T. Hunike
NPAP Coordinator

TO: Audit Participant

Enclosed is a confirmation of the audit schedule you requested for 1993. The confirmation lists the following information for each audit:

1. Name of audit
2. Quarter requested
3. Number of sites, if applicable
4. Agency contact name and address
5. Shipping address, if different from contact

IF ANY CORRECTIONS OR CHANGES NEED TO BE MADE, PLEASE NOTIFY ME NO LATER THAN 12/1/92.

If you have any questions, please call me at 919/541-3737.

Enclosure

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Attachment 4

NPAP Change Request Form

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Attachment 5a

Memo for on-site contractor
to make lead filter strips

Attachment 5b

Memo to on-site contractor confirming
EPA determined limits for lead

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Attachment 6a

Memo for on-site contractor to
make sulfate-nitrate filter strips

Attachment 6b

Memo to on-site contractor confirming EPA
determined limits for sulfate/nitrate

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Attachment: 7

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Attachment 7

Memo to Regional QA Coordinators
concerning non-participation of
agencies in scheduled audits

MEMORANDUM

SUBJ: National Performance Audit Program (NPAP)

FROM: Elizabeth T. Hunike
RMEB/QAD/AREAL (MD-77B)

TO: Norm Beloin
Region 1

Listed below are state/local agencies and PSD sites in your region that received audit equipment and/or filters during the first quarter of 1993. These agencies did not return their data to EPA nor did they notify EPA that they would not be able to participate.

<u>Agency</u>	<u>Audit(s)</u>
2XXXXX (name of agency)	SSI/Hi-Vol
3XXXXX (name of agency)	SSI/Hi-Vol
3XXXXX (name of agency)	Lead

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Attachment 8

Example letter for returning data sheets that
cannot be entered in NPAP data base

February 21, 1993

Mr. John Doe
Environmental Affairs
10 Main Street
Any Town, GA 30332

Dear Mr. Doe:

Re: SSI/Hi-Vol Audit--1st Quarter 1993

As stated in our instructions, samplers that are equipped with flow controllers (method codes 001 and 002) do not use the resistance plates. These samplers use a clean filter as the only resistance in the system. Because the correct procedure was not followed, EPA will be unable to accept your results for the above audit at sites abc and xyz.

If you have any questions, please call me at 919/541-3737.
Sincerely yours,

Elizabeth T. Hunike
NPAP Coordinator
Quality Assurance Support Branch
Quality Assurance and Technical
Support Division (MD-77B)

Enclosure: Data Sheets

cc: Herb Barden
Region 4

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Attachment 9

Letter sent with late data results

Dear

Re: (Name of audit and qtr)

Enclosed are your data results for the above audit. Because (the audit was performed after the closing date/the data sheets were not received until after the closing date), these results are late data and, therefore, are not part of the NPAP.

Sincerely yours,

Elizabeth T. Hunike
NPAP Coordinator
Quality Assurance Support Branch
Quality Assurance and Technical
Support Division (MD-77B)

Enclosure

cc: (QA Coordinator)
Region

AREAL/RTP-SOP-QAD-553

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Attachment 10

Letter sent to poor performers and
Audit Survey Form

SSI/Hi-Vol, Dichot, Lead
Sulfate/Nitrate

Dear

Your agency's audit results for the _____ quarter 1993
Audit exceeded $\pm 15\%$ for one or more concentrations. When results are outside $\pm 15\%$
for this audit, we strongly recommend that the causes for the large exceedance be
identified so corrective action can be taken by the participant. Please complete
the enclosed Audit Survey sheet and return to me as soon as possible.

If you have any questions, please call me at 919/541-3737.

Sincerely yours,

Elizabeth T. Hunike
NPAP Coordinator
Quality Assurance Support Branch
Quality Assurance and Technical
Support Division (MD-77B)

Enclosure

cc: (QA Coordinator)
Region

SO₂, NO-NO₂, O₃, CO

Dear

Your agency's audit results for the _____ quarter 1993
Audit exceeded 15% for the mean absolute percent difference. When results are
outside 15% for this audit, we strongly recommend that the causes for the large
exceedance be identified so corrective action can be taken by the participant.
Please complete the enclosed Audit Survey sheet and return to me as soon as possible.

If you have any questions, please call me at 919/541-3737.

Sincerely yours,

Elizabeth T. Hunike
NPAP Coordinator
Quality Assurance Support Branch
Quality Assurance and Technical
Support Division (MD-77B)

Enclosure

cc: (QA Coordinator)
Region

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Attachment 11

Memo sent to Regional QA Coordinators
and poor performers table

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Attachment 12

Repeated audit results form

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Attachment 13

NPAP Systems Audit Checklist

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