

สรุปมติที่ประชุมคณะกรรมการพิจารณารับรองห้องปฏิบัติการทดสอบสาขาสิ่งแวดล้อมที่สำคัญ

1) มติการประชุมครั้งที่ 13-4/2549 วันที่ 31 ตุลาคม 2549

เห็นชอบให้การรับรองความสามารถห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม สำหรับรายการทดสอบ น้ำและน้ำทิ้ง เป็นตามมาตรฐาน Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF 21st edition, 2005 ได้ ในกรณีที่มีข้อปัญหา ดังนี้

ข้อกำหนดตามมาตรฐาน	ข้อปัญหา	มติคณะกรรมการ
1. รายการทดสอบ COD และ TDS วิธีทดสอบระบุให้ใช้เครื่องแก้ว วัดปริมาตรตัวอย่างเป็น Class A and wide-bore pipette	1. ห้องปฏิบัติการที่ไม่ใช่ wide-bore pipette สามารถขอรับการรับรอง เป็น Standard method ได้หรือไม่ หากอ้างอิงรายการเครื่องแก้วตาม รายการทดสอบ SS	1-2. รายการทดสอบ COD และ TDS หากไม่ใช่ wide-bore pipette ห้องปฏิบัติการสามารถขอรับการรับรองเป็น Standard method ได้เฉพาะกรณีที่ใช้ Graduated Cylinder Class A ขนาดไม่เกิน 100 ml ที่ผ่านการสอบเทียบตาม กระบวนการเรียบร้อยแล้ว เท่านั้น
2. รายการทดสอบ SS วิธีทดสอบ ระบุให้สามารถใช้ได้ทั้ง wide-bore pipette, Graduated Cylinder และ Low-form beaker	2. wide-bore pipette มีค่า Tolerance ใกล้เคียงกับ Graduated Cylinder ขนาดเดียวกัน จะสามารถใช้แทน กันได้หรือไม่	
3. รายการทดสอบ TDS ตามวิธี ทดสอบ Part 2540 C ระบุให้ Dried at 180 °C and may be used for drying at other temperature	3. ห้องปฏิบัติการที่ทดสอบ TDS โดยมีการ Dried at 103-105 °C สามารถขอรับการรับรองเป็น Standard method ได้หรือไม่	3. รายการทดสอบ TDS ตาม Standard method ให้ระบุใน ใบรับรองให้ชัดเจนด้วยว่าใช้อุณหภูมิใดในการ Dried โดยสามารถใช้ได้ทั้ง 180 °C หรือ 103-105 °C

2) มติการประชุมครั้งที่ 17-2/2550 วันที่ 19 กุมภาพันธ์ 2550

เห็นชอบให้การรับรองความสามารถห้องปฏิบัติการทดสอบด้านสิ่งแวดล้อม ในการทดสอบรายการของแข็ง ต่างๆ ตาม Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF 21st edition, 2005 เช่น SS, TDS ดังนี้

- ให้การรับรองเป็นวิธีมาตรฐาน (Standard method) เมื่อใช้อุณหภูมิในการอบแห้งเป็น $104 \pm 1 \text{ }^{\circ}\text{C}$
- ให้การรับรองเป็น In-house method ใช้เมื่ออุณหภูมิในการอบแห้งเป็น $104 \pm 2 \text{ }^{\circ}\text{C}$ เท่านั้น

หาก error ของอุณหภูมิต่างจากนี้ไม่พิจารณาให้การรับรอง

3)

มติการประชุมครั้งที่ 22-

7/2550 วันที่ 28 พฤษภาคม 2550

- เห็นชอบแนวทางการให้การรับรองห้องปฏิบัติการทดสอบฝุ่นในบรรยากาศโดยการรวมเรื่องการสุ่มตัวอย่าง (Sampling) ด้วยได้
หากห้องปฏิบัติการประสงค์ได้รับการรับรองให้ใช้ออกสารอ้างอิงและตรวจประเมินตาม US.EPA part 58 Appendixes B เรื่องข้อกำหนดการประกันคุณภาพ ที่มีการอ้างอิงถึงในวิธีการตรวจวัดปริมาณฝุ่นในบรรยากาศ : US.EPA Code of Federal Regulations, 40 CFR – Chapter I Part 50, Appendix B and J Revised as of July 1, 2001 (High - Volume method) รายละเอียดเอกสาร 40 CFR Appendix B to Part 58 ดังเอกสารแนบ
- เพื่อความเป็นไปได้ในทางปฏิบัติ และข้อเท็จจริงทางกฎหมายข้อบังคับที่มีความเข้มงวดแตกต่างกันระหว่างประเทศไทยกับประเทศสหรัฐอเมริกา ที่นำเอกสารข้อบังคับมาใช้เป็นเอกสารอ้างอิง รวมทั้งเพื่อเป็นการส่งเสริมให้ห้องปฏิบัติการภายในประเทศมีการขอรับการรับรองรวมถึงเรื่องการสุ่มตัวอย่างได้ด้วย และเป็นมาตรฐานเดียวกัน ในขั้นต้น อนุกรรมการมีมติให้แต่ละห้องปฏิบัติการกำหนดความถี่ในการทำ Control check ตามความเหมาะสมกับสถานะของห้องปฏิบัติการนั้นๆ โดยให้จัดทำข้อมูลการตรวจสอบ Precision สำหรับเครื่องมือทุกเครื่องที่อยู่ในขอบข่าย (one sampling site, 24 hrs. monitoring) และหลังจากนั้นต้องจัดทำแผนประจำปีสำหรับการตรวจสอบ Duplicate เครื่องมือทุกเดือนและส่งให้ผู้ประเมินตรวจสอบ โดยเครื่องมือทุกเครื่องต้องจับคู่กันทำ Duplicate ครบถ้วนภายในรอบการสอบเทียบเครื่องมือนั้นๆ

TITLE 40 - PROTECTION OF ENVIRONMENT (December 2005)

CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C - AIR PROGRAMS

PART 58 - AMBIENT AIR QUALITY SURVEILLANCE

subpart g - FEDERAL MONITORING

Appendix B to Part 58 - Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring

1. General Information This appendix specifies the minimum quality assurance requirements for the control and assessment of the quality of the PSD ambient air monitoring data submitted to EPA by an organization operating a network of PSD stations. Such organizations are encouraged to develop and maintain quality assurance programs more extensive than the required minimum.

Quality assurance of air monitoring systems includes two distinct and important interrelated functions. One function is the control of the measurement process through the implementation of policies, procedures, and corrective actions. The other function is the assessment of the quality of the monitoring data (the product of the measurement process).

In general, the greater the effort and effectiveness of the control of a given monitoring system, the better will be the resulting quality of the monitoring data. The results of data quality assessments indicate whether the control efforts need to be increased.

Documentation of the quality assessments of the monitoring data is important to data users, who can then consider the impact of the data quality in specific applications (see Reference 1). Accordingly, assessments of PSD monitoring data quality are required to be made and reported periodically by the monitoring organization.

To provide national uniformity in the assessment and reporting of data quality among all PSD networks, specific assessment and reporting procedures are prescribed in detail in sections 3, 4, 5, and 6 of this appendix.

In contrast, the control function encompasses a variety of policies, procedures, specifications, standards, and corrective measures which affect the quality of the resulting data. The selection and extent of the quality control activities as well as additional quality assessment activities used by a monitoring organization depend on a number of local factors such as the field and laboratory conditions, the objectives of the monitoring, the level of the data quality needed, the expertise of assigned personnel, the cost of control procedures, pollutant concentration levels, etc. Therefore, the quality assurance requirements, in section 2 of this appendix, are

specified in general terms to allow each organization to develop a quality control system that is most efficient and effective for its own circumstances.

For purposes of this appendix, organization is defined as a source owner/operator, a government agency, or their contractor that operates an ambient air pollution monitoring network for PSD purposes.

2. Quality Assurance Requirements 2.1 Each organization must develop and implement a quality assurance program consisting of policies, procedures, specifications, standards and documentation necessary to: (1) Provide data of adequate quality to meet monitoring objectives and quality assurance requirements of the permit-granting authority, and (2) Minimize loss of air quality data due to malfunctions or out-of-control conditions.

This quality assurance program must be described in detail, suitably documented, and approved by the permit-granting authority. The Quality Assurance Program will be reviewed during the system audits described in section 2.4.

2.2 Primary guidance for developing the Quality Assurance Program is contained in References 2 and 3, which also contain many suggested procedures, checks, and control specifications. Section 2.0.9 of Reference 3 describes specific guidance for the development of a Quality Assurance Program for automated analyzers. Many specific quality control checks and specifications for manual methods are included in the respective reference methods described in part 50 of this chapter or in the respective equivalent method descriptions available from EPA (see Reference 4). Similarly, quality control procedures related to specifically designated reference and equivalent analyzers are contained in their respective operation and instruction manuals. This guidance, and any other pertinent information from appropriate sources, should be used by the organization in developing its quality assurance program.

As a minimum, each quality assurance program must include operational procedures for each of the following activities: (1) Selection of methods, analyzers, or samplers; (2) Training; (3) Installation of equipment; (4) Selection and control of calibration standards; (5) Calibration; (6) Zero/span checks and adjustments of automated analyzers; (7) Control checks and their frequency; (8) Control limits for zero, span and other control checks, and respective corrective actions when such limits are surpassed; (9) Calibration and zero/span checks for multiple range analyzers (see section 2.6 of appendix C of this part); (10) Preventive and remedial maintenance; (11) Recording and validating data; (12) Date quality assessment (precision and accuracy); (13) Documentation of quality control information.

2.3 Pollutant Standards.

2.3.1 Gaseous standards (permeation tubes, permeation devices or cylinders of compressed gas) used to obtain test concentrations for CO, SO₂, and NO₂ must be traceable to either a National Institute of Standards and Technology (NIST) gaseous Standard Reference Material (SRM) or an NIST/EPA-approved commercially available

Certified Reference Material (CRM). CRM's are described in Reference 5, and a list of CRM sources is available from Quality Assurance Division (MD77), Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. A recommended protocol for certifying gaseous standards against an SRM or CRM is given in section 2.0.7 of Reference 3. Direct use of a CRM as a working standard is acceptable, but direct use of an NIST SRM as a working standard is discouraged because of the limited supply and expense of SRM's.

2.3.2 Test concentrations for ozone must be obtained in accordance with the UV photometric calibration procedure specified in appendix D of part 50 of this chapter, or by means of a certified ozone transfer standard.

Consult References 6 and 7 for guidance on primary and transfer standards for ozone.

2.3.3. Flow measurement must be made by a flow measuring instrument that is traceable to an authoritative volume or other standard. Guidance for certifying various types of flowmeters is provided in Reference 3.

2.4 Performance and System Audit Programs. The organization operating a PSD monitoring network must participate in EPA's national performance audit program. The permit granting authority, or EPA, may conduct system audits of the ambient air monitoring programs of organizations operating PSD networks. See section 1.4.16 of reference 2 and section 2.0.11 of reference 3 for additional information about these programs.

Organizations should contact either the appropriate EPA Regional Quality Control Coordinator or the Quality Assurance Branch, AREAL/RTP, at the address given in reference 3 for instructions for participation.

3. Data Quality Assessment Requirements All ambient monitoring methods or analyzers used in PSD monitoring shall be tested periodically, as described in this section 3, to quantitatively assess the quality of the data being routinely collected.

The results of these tests shall be reported as specified in section 6.

Concentration standards used for the tests must be as specified in section 2.3. Additional information and guidance in the technical aspects of conducting these tests may be found in Reference 3 or in the operation or instruction manual associated with the analyzer or sampler.

Concentration measurements reported from analyzers or analytical systems must be derived by means of the same calibration curve and data processing system used to obtain the routine air monitoring data. Table B1 provides a summary of the minimum data quality assessment requirements, which are described in more detail in the following sections.

3.1 Precision of Automated Methods. A one-point precision check must be carried out at least once every two weeks on each automated analyzer used to measure SO₂, NO₂, O₂, and CO. The precision check is made by challenging the analyzer with a precision check gas of known concentration (effective concentration for open path analyzers) between 0.08 and 0.10 ppm for SO₂, NO₂, and O₃ analyzers, and between 8 and 10 ppm for CO analyzers. The standards from which precision check test concentrations are obtained must meet the specifications of section 2.3.

Except for certain CO analyzers described below, point analyzers must operate in their normal sampling mode during the precision check, and the test atmosphere must pass through all filters, scrubbers, conditioners and other components used during normal ambient sampling and as much of the ambient air inlet system as is practicable. If permitted by the associated operation or instruction manual, a CO point analyzer may be temporarily modified during the precision check to reduce vent or purge flows, or the test atmosphere may enter the analyzer at a point other than the normal sample inlet, provided that the analyzer's response is not likely to be altered by these deviations from the normal operational mode.

Open path analyzers are tested by inserting a test cell containing a precision check gas concentration into the optical measurement beam of the instrument. If possible, the normally used transmitter, receiver, and, as appropriate, reflecting devices should be used during the test, and the normal monitoring configuration of the instrument should be altered as little as possible to accommodate the test cell for the test.

However, if permitted by the associated operation or instruction manual, an alternate local light source or an alternate optical path that does not include the normal atmospheric monitoring path may be used. The actual concentration of the precision check gas in the test cell must be selected to produce an effective concentration in the range specified above. Generally, the precision test concentration measurement will be the sum of the atmospheric pollutant concentration and the precision test concentration. If so, the result must be corrected to remove the atmospheric concentration contribution. The corrected concentration is obtained by subtracting the average of the atmospheric concentrations measured by the open path instrument under test immediately before and immediately after the precision check test from the precision test concentration measurement. If the difference between these before and after measurements is greater than 20 percent of the effective concentration of the test gas, discard the test result and repeat the test. If possible, open path analyzers should be tested during periods when the atmospheric pollutant concentrations are relatively low and steady.

If a precision check is made in conjunction with a zero or span adjustment, it must be made prior to such zero or span adjustment. The difference between the actual concentration (effective concentration for open path analyzers) of the precision check gas and the corresponding concentration measurement (corrected concentration, if applicable, for open path analyzers) indicated by the analyzer is used to assess the precision of the monitoring data as described in section 4.1.

Report data only from automated analyzers that are approved for use in the PSD network.

3.2 Accuracy of Automated Methods. Each sampling quarter, audit each analyzer that monitors for SO₂, NO₂, O₃, or CO at least once. The audit is made by challenging the analyzer with at least one audit gas of known concentration (effective concentration for open path analyzers) from each of the following ranges that fall within the measurement range of the analyzer being audited: -----

-----		Concentration range, ppm		Audit level -	
-----		CO	SO ₂ , O ₃ , NO ₂ ,	-----	
1.....	0.03-0.08	0.03-0.08	3-8		
2.....	0.15-0.20	0.15-0.20	15-20	3.....	0.36-
0.45	0.35-0.45	35-45	4.....	0.80-0.90 80-90 -----

----- NO₂ audit gas for
chemiluminescence-type NO₂ analyzers must also contain at least 0.08 ppm NO.

Note: NO concentrations substantially higher than 0.08 ppm, as may occur when using some gas phase titration (GPT) techniques, may lead to audit errors in chemiluminescence analyzers due to inevitable minor NO-NO_x channel imbalance. Such errors may be atypical of routine monitoring errors to the extent that such NO concentrations exceed typical ambient NO concentrations. These errors may be minimized by modifying the GPT technique to lower the NO concentrations remaining in the NO₂ audit gas to levels closer to typical ambient NO concentrations at the site.

The standards from which audit gas test concentrations are obtained must meet the specifications of section 2.3. Working and transfer standards and equipment used for auditing must be different from the standards and equipment used for calibration and spanning. The auditing standards and calibration standards may be referenced to the same NIST, SRM, CRM, or primary UV photometer. The auditor must not be the operator/analyst who conducts the routine monitoring, calibration and analysis.

For point analyzers, the audit shall be carried out by allowing the analyzer to analyze the audit test atmosphere in the same manner as described for precision checks in section 3.1. The exception given in section 3.1 for certain CO analyzers does not apply for audits.

Open path analyzers are audited by inserting a test cell containing an audit gas concentration into the optical measurement beam of the instrument. If possible, the normally used transmitter, receiver, and, as appropriate, reflecting devices should be used during the audit, and the normal monitoring configuration of the instrument should be modified as little as possible to accommodate the test cell for the audit.

However, if permitted by the associated operation or instruction manual, an alternate local light source or an alternate optical path that does not include the normal atmospheric monitoring path may be used. The actual concentrations of the audit gas in the test cell must be selected to produce effective concentrations in the range specified in this section 3.2. Generally, each audit concentration measurement

result will be the sum of the atmospheric pollutant concentration and the audit test concentration. If so, the result must be corrected to remove the atmospheric concentration contribution. The corrected concentration is obtained by subtracting the average of the atmospheric concentrations measured by the open path instrument under test immediately before and immediately after the audit test (or preferably before and after each audit concentration level) from the audit concentration measurement. If the difference between these before and after measurements is greater than 20 percent of the effective concentration of the test gas standards, discard the test result for that concentration level and repeat the test for that level. If possible, open path analyzers should be audited during periods when the atmospheric pollutant concentrations are relatively low and steady. Also, the monitoring path length must be reverified to within 3 percent to validate the audit, since the monitoring path length is critical to the determination of the effective concentration.

The differences between the actual concentrations (effective concentrations for open path analyzers) of the audit test gas and the corresponding concentration measurements (corrected concentrations, if applicable, for open path analyzers) indicated by the analyzer are used to assess the accuracy of the monitoring data as described in section 4.2. Report data only from automated analyzers that are approved for use in the PSD network.

3.3 Precision of Manual Methods.

3.3.1 TSP and PM₁₀ Methods. For a given organization's monitoring network, one sampling site must have collocated samplers. A site with the highest expected 24-hour pollutant concentration must be selected.

The two samplers must be within 4 meters of each other but at least 2 meters apart to preclude airflow interference. Calibration, sampling and analysis must be the same for both collocated samplers as well as for all other samplers in the network. The collocated samplers must be operated as a minimum every third day when continuous sampling is used.

When a less frequent sample schedule is used, the collocated samplers must be operated at least once each week. For each pair of collocated samplers, designate one sampler as the sampler which will be used to report air quality for the site and designate the other as the duplicate sampler. The differences in measured concentration (g/m^3) between the two collocated samplers are used to calculate precision as described in section 5.1.

3.3.2 Pb Method. The operation of collocated samplers at one sampling site must be used to assess the precision of the reference or an equivalent Pb method. The procedure to be followed for Pb methods is the same as described in 3.3.1 for the TSP method. If approved by the permit granting authority, the collocated TSP samplers may serve as the collocated lead samplers.

3.4 Accuracy of Manual Methods.

3.4.1 TSP and PM10 Methods. Each sampling quarter, audit the flow rate of each sampler at least once. Audit the flow at the normal flow rate, using a certified flow transfer standard (see reference 2). The flow transfer standard used for the audit must not be the same one used to calibrate the flow of the sampler being audited, although both transfer standards may be referenced to the same primary flow or volume standard.

The difference between the audit flow measurement and the flow indicated by the sampler's flow indicator is used to calculate accuracy, as described in paragraph 5.2.

Great care must be used in auditing high-volume samplers having flow regulators because the introduction of resistance plates in the audit device can cause abnormal flow patterns at the point of flow sensing.

For this reason, the orifice of the flow audit device should be used with a normal glass fiber filter in place and without resistance plates in auditing flow regulated high-volume samplers, or other steps should be taken to assure that flow patterns are not perturbed at the point of flow sensing.

3.4.2 Pb Method. For the reference method (appendix G of part 50 of this chapter) during each sampling quarter audit the flow rate of each high-volume Pb sampler at least once. The procedure to be followed for lead methods is the same as described in section 3.4.1 for the TSP method.

For each sampling quarter, audit the Pb analysis using glass fiber filter strips containing a known quantity of lead. Audit samples are prepared by depositing a Pb solution on 1.9 cm by 20.3 cm (3/4 inch by 8 inch) unexposed glass fiber filter strips and allowing to dry thoroughly. The audit samples must be prepared using reagents different from those used to calibrate the Pb analytical equipment being audited.

Prepare audit samples in the following concentration ranges: -----
----- Equivalent ambient Ranges Pb concentration Pb
concentration g/strip \1\ g/m³\ -----
----- 1..... 100 to 300..... 0.5 to 1.5.

2..... 600 to 1,000..... 3.0 to 5.0.

----- \1\ Equivalent ambient
Pb concentration in g/m³\ is based on sampling at 1.7 m³/min for 24 hours on
20.3 cm x 25.4 cm (8 inch x 10 inch) glass fiber filter.

Audit samples must be extracted using the same extraction procedure used for exposed filters.

Analyze at least one audit sample in each of the two ranges each day that samples are analyzed. The difference between the audit concentration (in $\mu\text{g Pb/strip}$) and the analyst's measured concentration (in $\mu\text{g Pb/strip}$) is used to calculate accuracy

as described in section 5.4.

The accuracy of an equivalent method is assessed in the same manner as the reference method. The flow auditing device and Pb analysis audit samples must be compatible with the specific requirements of the equivalent method.

4. Calculations for Automated Methods 4.1 Single Analyzer Precision. Each organization, at the end of each sampling quarter, shall calculate and report a precision probability interval for each analyzer. Directions for calculations are given below and directions for reporting are given in section 6. If monitoring data are invalidated during the period represented by a given precision check, the results of that precision check shall be excluded from the calculations. Calculate the percentage difference (d_i) for each precision check using equation 1. (image) where: Y_i = analyzer's indicated concentration from the i -th precision check X_i = known concentration of the test gas used for the i -th precision check.

For each instrument, calculate the quarterly average (d_j), equation 2, and the standard deviation (S_j), equation 3. (image) (image) where n is the number of precision checks on the instrument made during their sampling quarter. For example, n should be 6 or 7 if span checks are made biweekly during a quarter.

Calculate the 95 percent probability limits for precision using equation 4 and 5.

Upper 95 Percent Probability Limit = $d_j + 1.96 S_j$ (4) Lower 95 Percent Probability Limit = $d_j - 1.96 S_j$ (5) 4.2 Single Analyzer Accuracy. Each organization, at the end of each sampling quarter, shall calculate and report the percentage difference for each audit concentration for each analyzer audited during the quarter. Directions for calculations are given below (directions for reporting are given in section 6).

Calculate and report the percentage difference (d_i) for each audit concentration using equation 1 where Y_i is the analyzer's indicated concentration from the i -th audit check and X_i is the known concentration of the audit gas used for the i -th audit check.

5. Calculations for Manual Methods 5.1 Single Instrument Precision for TSP, Pb and PM10. Estimates of precision for ambient air quality particulate measurements are calculated from results obtained from collocated samplers as described in section 3.3. At the end of each sampling quarter, calculate and report a precision probability interval, using weekly result from the collocated samplers. Directions for calculations are given below, and directions for reporting are given in section 6.

For the paired measurements obtained as described in sections 3.3.1 and 3.3.2, calculate the percent difference (d_i) using equation 1a, where Y_i is the concentration of pollutant measured by the duplicate sampler, and X_i is the concentration measured by the sampler reporting air quality for the site. Calculate the quarterly average percent difference (d_j), equation 2; standard deviation (S_j), equation 3; and upper and lower 95 percent probability limits for precision, equations 6 and 7. (image) (1a) Upper 95 percent probability limit = $d_j + 1.96 S_j / 2$ (6) Lower 95 percent

probability limit = $d_j 1.96 S_j / 2$ (7) 5.2 Single Instrument Accuracy for TSP and PM10. Each organization, at the end of each sampling quarter, shall calculate and report the percentage difference for each high-volume or PM10 sampler audited during the quarter. Directions for calculation are given below and directions for reporting are given in section 6.

For the flow rate audit described in section 3.4, let X_i represent the known flow rate and Y_i represent the indicated flow rate. Calculate the percentage difference (d_i) using equation 1.

5.3 Single Instrument Accuracy for Pb. Each organization, at the end of each sampling quarter, shall calculate and report the percentage difference for each high-volume lead sampler audited during the quarter.

Directions for calculation are given in 5.2 and directions for reporting are given in section 6.

5.4 Single-Analysis-Day Accuracy for Pb. Each organization, at the end of each sampling quarter, shall calculate and report the percentage difference for each Pb analysis audit during the quarter. Directions for calculations are given below and directions for reporting are given in section 6.

For each analysis audit for Pb described in section 3.4.2, let X_i represent the known value of the audit sample and Y_i the indicated value of Pb. Calculate the percentage difference (d_i) for each audit at each concentration level using equation 1.

6. Organization Reporting Requirements.

At the end of each sampling quarter, the organization must report the following data assessment information: (1) For automated analyzers precision probability limits from section 4.1 and percentage differences from section 4.2, and (2) For manual methods precision probability limits from section 5.1 and percentage differences from sections 5.2 and 5.3. The precision and accuracy information for the entire sampling quarter must be submitted with the air monitoring data. All data used to calculate reported estimates of precision and accuracy including span checks, collocated sampler and audit results must be made available to the permit granting authority upon request.

Table B-1_Minimum PSD Data Assessment Requirements -----

----- Parameters Method
Assessment method Coverage Frequency reported -----

----- Precision: Automated
Methods for SO₂, Response check at Each analyzer..... Once per 2 weeks.. Actual
NO₂, O₃, and CO. concentration concentration 2 between .08 & & measured .10
ppm (8 & concentration.3 10 ppm for CO) 2.

TSP, PM10, Lead..... Collocated Highest Once per week or Two concentration
samplers. concentration every 3rd day for measurements.

site in continuous monitoring sampling.

network.

Accuracy: Automated Methods for SO₂, Response check at: Each analyzer..... Once per sampling Actual NO₂, O₃, and CO. .03-.08 ppm; 1,2 quarter. concentration² .15-.20 ppm; 1,2 & measured .35-.45 ppm; 1,2 (indicated) .80-.90 ppm; 1,2 concentration³ (if applicable). for each level.

TSP, PM₁₀..... Sampler flow check Each sampler..... Once per sampling Actual flow rate quarter. and flow rate indicated by the sampler.

Lead..... 1. Sample flow 1. Each sampler... 1. Once/quarter... 1. Same as for rate check.. 2. Analytical 2. Each quarter Pb TSP.

2. Check system. samples are 2. Actual analytical system analyzed. concentration with Pb audit & measured strips. concentration of audit samples (g Pb/ strip).

----- \1\ Concentration shown times 100 for CO.

\2\ Effective concentration for open path analyzers.

\3\ Corrected concentration, if applicable, for open path analyzers.

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