EPA National Lead Laboratory Accreditation Program
Laboratory Quality System Requirements (LQSR) Revision 3.0 (July 5, 2007)
Working Document

NOTES:

1. This working document is intended as a checklist for the assessor when conducting Testing Laboratory Accreditation Assessments according to the EPA Laboratory Quality System Requirements (LQSR) Revision 3.0 (July 5, 2007). This document addresses all parts of ISO /IEC 17025:2005 (as applicable to testing activities) and is supplemented or amended to reflect the specifics of the EPA LQSR 3.0. Such supplements or amendments are designated with gray highlighting ("gray box") and have the LQSR reference in the left column. ISO/IEC 17025:2005 items pertinent to calibration laboratories, except for those relevant to testing laboratories performing their own calibrations, have been deleted from the original checklist.

2. Please note in the Comments column any deficiencies in the laboratory's management system identified during the assessment (see item #3). These observations may be useful when preparing the assessment report and indicate to the reviewer that a thorough assessment was conducted. It is also imperative to note evidence of compliance, making reference to procedures/work instructions, dates, and other specific observations.

3. Do not recommend specific solutions to deficiencies, as this would constitute a conflict of interest.

4. Assess the system only to the relevant standard and to the requested scope of accreditation. Do not be concerned with system requirements stemming from:
   - Company- or facility-imposed policies
   - Subcontractors
   - Other sources

5. If additional questions arise during the assessment, indicate them (and the appropriate responses) either in the blank working document pages at the end of this document or in the empty rows included in some of the sections.

6. **Please read the questions carefully, as the "preferred" answer in some cases may be "no" or "not applicable."**

7. **If, at any time, the assessment team requires assistance in the interpretation of the requirements of Laboratory Quality System Requirements (LQSR) Revision 3.0 (July 5, 2007), contact the PJLA office immediately.**

Assessment Number: _____ Date(s): _____

Client: _____

Address: _____

_____

Contact/Management Rep.: _____

Lead Assessor: _____

Assessment Team: _____

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
MANAGEMENT REQUIREMENTS				
4.1 Organization				
4.1.1	Is the laboratory or the organization of which it is part an entity that can be held legally responsible?			
4.1.2	Does the laboratory uphold its responsibility to carry out its testing and calibration activities in such a way as to meet the requirements of this standard? Does the laboratory carry out its testing and calibration activities in such a way as to meet the requirements of the customer, the regulatory authorities or organizations providing recognition?			
4.1.3	Does the management system cover work carried out in the laboratory's permanent facilities, at sites away from its permanent facilities, or in associated temporary or mobile facilities?			
4.1.4	If the laboratory is part of an organization performing activities other than testing, are the responsibilities of key personnel in the organization that have an involvement or influence on the testing activities defined in order to identify potential conflicts of interest?			
4.1.5	Does the laboratory (a-j): a) have managerial and technical personnel with the authority and resources needed to: - perform their duties? - identify departures from the management system or from the procedures for performing tests and/or calibrations? - initiate actions to prevent or minimize such departures? - implement, maintain and improve the management system irrespective of other responsibilities?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.1.5 LQSR 4.1	b) have arrangements to ensure that its management & personnel are free from any undue internal and external commercial, financial and other pressures that may adversely affect the quality of their work or other conflicts of interest??			
4.1.5	c) have policies and procedures to ensure the protection of its customers' confidential information and proprietary rights, including procedures for protecting the electronic storage and transmission of results?			
4.1.5	d) have policies and procedures to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgment or operational integrity?			
4.1.5	e) define the organization and management structure of the laboratory, its place in any parent organization, and the relationships between quality management, technical operations and support services?			
LQSR 4.1 4.2.3	f) have an organization chart (or other means) that identifies key personnel, responsibilities, authorities, and interrelationships of staff?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.1.5	g) provide adequate supervision of testing and calibration staff, including trainees, by persons familiar with methods and procedures, the purpose of each test and/or calibration and the assessment of the results?			

LQSR
 	
4.1.1.1
4.1.1.2
	h) have technical management ("Technical Manager(s)" or however named) with overall responsibility for the technical operations and the provision of resources needed to ensure the required quality of laboratory operations
	
	Is the technical manager (or managers, however named):
	• qualified by the appropriate education, training, and experience (or a combination thereof) in the laboratory's measurement technologies to:
	  • design and implement the management system
	  • identify departures for the quality management system or its procedures and initiate action to prevent or minimize them
	• responsible for all technical operations
	• available to address technical issues or laboratory staff and customers
	• able to assess and document the competence of personnel (see 5.2.1)
	• able to ensure adequate supervision of all laboratory technical personnel (4.1.1.2).			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.1.5 LQSR 4.1.2.1 4.1.2.2	i) appoint a member of staff as quality manager (however named)? Does this quality manager have: • defined responsibility and authority for ensuring that the management system is implemented and followed at all times? • direct access to the highest level of management at which decisions are made on laboratory policy or resources? Is the quality manager (however named): • qualified by the appropriate education, training, and experience (or a combination) to identify the departures from the quality management system or its procedures and initiate action to prevent or minimize them? • knowledgeable in the quality management system and the technical and management system procedures? • responsible and authorized to implement and oversee the quality management system, implement new quality assurance and control practices, plan/perform periodic audits of the quality management system, perform periodic review of test reports prior to issue and ensure the laboratory quality management system deficiencies (however named) are documented and that corrective actions are implemented?			
4.1.5	j) appoint deputies for key managerial personnel?			
4.1.5	k) ensure that personnel are aware of the relevance and importance of their activities and how they contribute to overall management system goals?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
LQSR 4.1	l) identify a responsible laboratory official (or officials) authorized to release test reports on behalf of the laboratory. **Note: In a laboratory with only one person, that person will be responsible for the release of the report. That person may serve as the technical manager or the quality manager but not both. In the case of a laboratory with only one person, one of these positions shall be contracted out. See LQSR sections 4.14, 5.4.6 and 5.10.3.**			
4.1.6	Does top management ensure that communication processes are established and that communication regarding the effectiveness of the management system takes place?			
4.2 Management system				
4.2.1	Appropriate to the scope of its activities, has the laboratory: - established - implemented - maintained a management system? Are the policies, systems, programs, procedures and instructions of this system documented to the extent necessary to assure the quality of the test and/or calibration results? Is the system documentation communicated to, understood by, available to, and implemented by the appropriate personnel?			
4.2.2 LQSR 4.2	Are the lab's management system policies and objectives defined in a Quality Management Systems Manual (QMSM, a.k.a."quality manual"- however named)?			
4.2.2	Are the objectives established and reviewed during management review?			
4.2.2	Are the overall objectives documented in a quality policy statement?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
LQSR 4.2.2	Has the quality policy statement been issued under the authority of top management (i.e., the CEO, President, Executive Director, etc.)			
4.2.2	Does the quality policy statement include at least the following (a-e): a) the laboratory management's commitment to good professional practice and to the quality of its testing in servicing its customers?			
4.2.2	b) the management's statement of the laboratory's standard of service?			
4.2.2	c) the purpose of the management system related to quality?			
4.2.2	d) a requirement that all personnel concerned with testing and calibration activities within the lab familiarize themselves with the quality documentation and implement the policies and procedures in their work?			
LQSR 4.2.a, 4.2.2.e	e) the laboratory management's commitment to compliance with this standard (i.e. the LQSR) and to continually improve the effectiveness of the management system?			
4.2.2	NOTE: The quality policy statement should be concise and may include the requirement that tests shall always be carried out in accordance with stated methods and customers' requirements.			
4.2.3	Has top management provided evidence of commitment to the development and implementation of the management system and to continually improving its effectiveness?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.2.4	Has top management communicated to the organization the importance of meeting customer, statutory and regulatory requirements?			
4.2.5	Does the quality manual include or make reference to supporting and technical procedures and does it outline the structure of the documentation used in the management system?			
4.2.6	Does the quality manual define the roles and responsibilities of the technical and quality managers, including the roles which ensure compliance with the LQSR?			
4.2.7	Has Top Management ensured that the integrity of the management system is maintained when changes are planned and implemented?			
4.3 Document Control				
4.3.1 LQSR 4.2.1.a	Has the laboratory established ***and maintained*** procedures to control all documents that form part of its management system (internally generated or from external sources) such as regulations, standards, other normative documents, test and calibration methods, as well as drawings, software, specifications, instructions and manuals?			
4.3.2.1	Are all documents issued to laboratory personnel as part of the management system reviewed and approved for used by authorized personnel prior to issue?			
4.3.2.1	Is there a master list (or equivalent procedure) identifying the current revision status and distribution of documents in the management system? Is this master list readily available to preclude the used of invalid and/or obsolete documents?			

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4.3.2.2	Does the adopted procedure ensure that (a-d): a) authorized editions of appropriate documents are available at all locations where operations essential to the effective functioning of the laboratory are performed?			
4.3.2.2 LQSR 4.2.1.d, 4.2.3, 4.3.4	b) documents are periodically reviewed ***at least annually*** and where necessary, revised to ensure continuing suitability and compliance with applicable requirements?			
4.3.2.2	c) invalid or obsolete documents are promptly removed from all points of issue or use, or otherwise assured against unintended use?			
4.3.2.2	d) obsolete documents retained for either legal or knowledge preservation purposes are suitably marked?			
4.3.2.3	Are management system documents generated by the laboratory uniquely identified? Does this identification include the date of issue and/or revision identification, page numbering, the total number of pages or a mark to signify the end of the document, and the issuing authority(ies)?			
LQSR 4.2.5.b	Do the quality manual and the related quality documents include or address at least the following: title page, table of contents, management requirements and all the elements of the LQSR 4.1-5.10?			
4.3.3.1	Are changes to documents reviewed and approved by the same function that performed the original review unless specifically designated otherwise? Do designated personnel have access to pertinent background upon which to base their review and approval?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.3.3.2	Where practicable, is the altered or new text identified in the document or the appropriate attachments?			
4.3.3.3	If the laboratory's document control system allows for the amendment of documents by hand pending the re-issue of the documents, are the procedures and authorities defined? Are amendments clearly: - marked? - initialed? - dated?			
4.3.3.3	Is a revised document formally re-issued as soon as practicable?			
4.3.3.4	Are procedures established to describe how changes in documents maintained in computerized systems are made and controlled?			
4.4 Review of Requests, Tenders and Contracts				
4.4.1	Has the laboratory established procedures for the review of requests, tenders and contracts? Are these procedures maintained?			
4.4.1	Do the policies and procedures for these reviews leading to a contract for testing ensure that (a-c): a) the requirements, including the methods to be used, are adequately defined, documented and understood?			
4.4.1	b) the laboratory has the capability and resources to meet the requirements?			
4.4.1	c) the appropriate test method is selected and capable of meeting the customers' requirements?			
4.4.1	Are any differences between the request or tender and the contract resolved before any work commences? Is each contract acceptable to both the laboratory and the customer?			

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4.4.2	Are records of reviews, including any significant changes, maintained? Are records maintained of pertinent discussions with a customer relating to the customer's requirements or the results of the work during the period of contract execution? NOTE: For review of routine and other simple tasks, the date and identification (e.g. initials) of person responsible for carrying out the work are adequate. For repetitive routine tasks, the review need only be made at the initial inquiry stage or on granting of the contract for ongoing routine work, provided that the customer's requirements remain unchanged. For new or complex tasks, a more comprehensive record should be maintained.			
4.4.3	Does the review also cover any work that is subcontracted by the laboratory?			
4.4.4	Is the customer informed of any deviation from the contract?			
4.4.5	If a contract needs to be amended after work has commenced, is the same contract review process repeated? Are any amendments communicated to all affected personnel?			
4.5 Subcontracting of Tests				
4.5.1 LQSR 4.5	When a laboratory subcontracts work for lead testing included in laboratory's NLLAP scope, whether because of unforeseen reasons (workload, need for further expertise or temporary incapacity) or on a continuing basis (permanent subcontracting, agency or franchising arrangements), is the subcontractor accredited by an NLLAP recognized accreditation body for the method(s) in question?			

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4.5.2 LQSR 4.5	Does the laboratory advise the customer of the arrangement in writing? Does the laboratory gain the approval of the customer, preferably in writing?			
4.5.3	Does the laboratory show responsibility to the customer for the subcontractor's work, except in the case where the customer or a regulatory authority specifies which subcontractor is to be used?			
4.5.4	Does the laboratory maintain a register of all subcontractors that it uses for tests? Does the laboratory maintain a record of evidence of compliance with this standard for the work in question?			
4.6 Purchasing Services and Supplies				
4.6.1	Does the laboratory have a policy and procedure(s) for the selection and purchasing of services and supplies it uses that affect the quality of the tests and/or calibrations? Do procedures exist for the purchase, reception and storage of reagents and laboratory consumable materials relevant for the tests and calibrations?			
4.6.2	Does the laboratory ensure that purchased supplies, reagents and consumable materials affecting the quality of tests and/or calibrations are not used until they have been inspected or otherwise verified as complying with standard specifications or requirements defined in the methods for the tests and/or calibrations concerned?			
LQSR 4.6.1.2	Are reagents and standards inspected, dated and initialed or otherwise evaluated to verify compliance to purchasing documented specifications?			

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LQSR 4.6.1.2	Are expiration dates assigned to each reagent and standard (by the supplier or by the laboratory)? Are reagents and standards ***not*** used beyond assigned expiration dates or ***not*** used if damaged or contaminated or suspected to be damaged or contaminated?			
4.6.2	Are the services and supplies used compliant with specified requirements? Are records maintained of action taken to check compliance?			
4.6.3	Do purchasing documents for items affecting the quality of laboratory output contain data describing the services and supplies ordered? Are these purchasing documents reviewed and approved for technical content prior to release?			
LQSR 4.6.1	Are requirements for reagents and standards specified in the quality manual and/or technical procedures?			
LQSR 4.6.1.1	Are reagents used at least American Chemical Society (ACS) reagent grade or the quality specified by the analytical method?			
4.6.4	Does the laboratory evaluate suppliers of critical consumables, supplies and services that affect the quality of testing and calibration?			
4.6.4	Are records maintained of these evaluations? Do they list those approved?			
4.7 Service to the Customer				
4.7.1	Does the laboratory afford customers or their representatives cooperation to clarify the customer's request and in monitoring the laboratory's performance in relation to			

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	the work performed, provided that the laboratory ensures confidentiality to other customers? NOTES: Such cooperation may include a) providing reasonable access for the witnessing of tests and b) preparation, packaging and dispatch of test items needed by the customer for verification purposes. Communication with the customer, especially in large assignments, should be maintained throughout the work. The lab should inform the customer of any delays or major deviations.			
4.7.2	Does the laboratory seek both positive and negative feedback and is the feedback used to improve the management system test activities and customer service?			
4.8 Complaints				
	Does the laboratory have a policy and procedure for the resolution of complaints received from customers or other parties? Are records maintained of all complaints and of the investigations and corrective actions taken?			
LQSR 4.8	Does the policy include a notice to the effect "Any complaint about the quality of the reported results may be referred to the accrediting body if such complaints cannot be resolved directly with the customer"?			
4.9 Control of Nonconforming Testing				
4.9.1	Does the laboratory have a policy and procedures that are implemented when any aspect of its testing work, or the results of this work, do not conform to its own procedures or the agreed requirements of the customer?			
4.9.1	Do the policy and procedures ensure that (a-e): a) the responsibilities and authorities for			

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	the management of nonconforming work are designated and actions (including halting of work and withholding of test reports and certificates, as necessary) are defined and taken when nonconforming work is identified?			
4.9.1 LQSR 4.10	b) an evaluation of the significance of the nonconforming work is made? Is no data reported until the cause of the problem is determined and corrected, or the laboratory demonstrates the root cause of the nonconformance was a "random event"?			
4.9.1	c) correction is taken immediately, together with any decision about the acceptability of the nonconforming work?			
4.9.1 LQSR 4.11.1	d) where necessary, the customer is notified and work is recalled? Is the customer informed of the corrective action? Are reports corrected/amended?			
4.9.1	e) the responsibility for authorizing the resumption of work is defined?			
4.9.2	Where the evaluation indicates that the nonconforming work could recur or that there is doubt about the compliance of the laboratory's operations with its own policies and procedures are the corrective action procedures promptly followed?			
4.10 Improvement				
	Has the laboratory improved the effectiveness of its management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.11 Corrective Action				
4.11.1	Has the laboratory established a policy and procedure for implementing corrective action when nonconforming work or departures from the policies and procedures in the management system or technical operations have been identified? Has the laboratory designated appropriate authorities for implementing corrective action in the above situations?			
4.11.2	Does the procedure for corrective action start with an investigation to determine the root cause(s) of the problem?			
4.11.3	Where corrective action is needed, does the laboratory identify potential corrective actions? Does the laboratory select and implement the action(s) most likely to eliminate the problem and to prevent recurrence?			
4.11.3	Are corrective actions to a degree appropriate to the magnitude and risk of the problem?			
4.11.3	Does the laboratory document and implement any required changes resulting form corrective action investigations?			
4.11.4	Does the laboratory monitor the results to ensure that the corrective actions taken have been effective?			
4.11.5 LQSR 4.8	When complaints, nonconformities or any other circumstances raise doubts with regards to the laboratory's compliance with its own policies and procedures, the LQSR, the quality management system or the quality of the laboratory's analyses, are the areas of the activities promptly audited in accordance with 4.14?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.12 Preventive Action				
4.12.1	Are needed improvements and potential sources of nonconformities, either technical or concerning the management system, identified?			
4.12.2	If preventive action is required, are action plans: - developed - implemented - and monitored to reduce the likelihood of the occurrence of such nonconformities and to take advantage of the opportunities for improvement?			
4.12.2	Do procedures for preventive actions include the initiation of such actions and application of controls to ensure that they are effective?			
4.13 Control of Records				
4.13.1.1	Has the laboratory established procedures for: - identification - collection - indexing - access - filing - storage - maintenance - disposal of all quality and technical records? Does the laboratory maintain these procedures?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
LQSR 4.13.1	Do records of all procedures to which a sample is subjected (sampling, preparation, and testing) include (but not limited to): • sample identification, receipt, acceptance or rejection and log-in • sample storage and tracking including shipping receipts, where applicable • sample preparation, instrument printouts, and calculations, where applicable • sample analysis logs • standard and reagent origin, receipt, preparation and use • equipment and instrument operating conditions • calibration criteria, frequency and acceptance criteria • data and statistical calculations, review, confirmation, interpretation, assessment, and reporting conditions • method performance criteria • quality control protocols and assessment • storage and retention • sample disposal procedures and schedule?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
LQSR 4.13.2	Are the following laboratory quality management system and test records retained: • all original raw data (hard copy or electronic) for sampling and testing to include: calibrations, samples, quality control measurements, work sheets and data output/instrument response readout records • a written description or reference to the specific method used including the specific steps in the calculations used to derive the reportable analytical values • copies of the final reports • archived standard operating procedures • correspondence relating to laboratory work activities • performance evaluation results and raw data • data review and cross checking			
LQSR 5.10.2	Along with the final report, does the laboratory maintain a sample case file or an equivalent which contains the information required in the LQSR for a minimum of five years?			
LQSR 4.13.b.	Do the records include a history of the locations of mobile laboratory and FSMO operations, including a specific description of where sample and testing work activity was performed?			
4.13.1.1	Do the quality records include reports from internal audits and management reviews as well as records of corrective and preventive actions?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.13.1.2 LQSR 4.13. f. LQSR 4.13. c. LQSR 4.13.b.	Are all records legible? Are all handwritten records and corrections made using permanent ink? Are all records retained in such a way that they are readily retrievable in facilities that provide a suitable environment to prevent damage or deterioration and to prevent loss? Is access to archived records controlled with an access log or equivalent? Are the retention times established? ***Are all laboratory records associated with work activities retained for a minimum of five (5) years***			
4.13.1.3	Are all records held secure and in confidence?			
LQSR 4.13.3	Do records stored or generated by computer have hard copy or write protected back up copies?			
4.13.1.4	Does the laboratory have procedures to protect and back up records stored electronically and to prevent unauthorized access to or amendment of these records?			
4.13.2.1	Does the laboratory retain records of original observations, derived data and sufficient information to establish an audit trail, calibration records, staff records and a copy of each test report or certificate issued, for a defined period? NOTE: In certain fields it may be impossible or impractical to retain records of all original observations.			

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4.13.2.1 LQSR 4.13	Do the records for each test contain sufficient information to facilitate, if possible, identification of factors affecting the uncertainty and to enable the test or calibration to be repeated under conditions as close as possible to the original or otherwise verified? Does the record keeping system allow the historical retrieval of all laboratory activities that were used to produce the particular test report?			
4.13.2.1 LQSR 4.13.e.	Do the records include the identity of personnel responsible for the • sampling (if known)? • performance of each test and/or calibration including sample preparation? • checking of results?			
4.13.2.2	Are observations, data and calculations recorded at the time they are made? Are they identifiable to the specific task?			
4.13.2.3	When mistakes occur in records, is each mistake crossed out, not erased, made illegible or deleted, and the correct value entered alongside? Are all such alterations to records signed or initialed by the person making the correction? In the case of electronic records, are equivalent measures taken to avoid loss or change of original data?			
LQSR 4.13.d.	In the event of going out of business does the laboratory have a plan to ensure its records are maintained or transferred according customer instructions or applicable regulations?			

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4.14 Internal Audits				
4.14.1 LQSR 4.14	Does the laboratory periodically, in accordance with a predetermined schedule and procedure, conduct internal audits of its activities to verify that its operations continue to comply with the requirements of the management system and this standard? Is the cycle for internal auditing to be completed at least annually?			
4.14.1	Does the internal audit program address all elements of the management system, including the testing and/or calibration activities?			
4.14.1	Is it the responsibility of the quality manager to plan and organize audits as required by the schedule and requested by management? Are such audits performed by trained personnel who are, wherever resources permit, independent of the activity to be audited?			
LQSR 4.14	In a one person operation are the audits conducted by the person or a contractor? If done by the individual, does the person follow recognized guidance (ISO 19011, ASTM, ANSI, etc)? If conducted by a contractor, is the contractor competent?			
4.14.2	When audit findings cast doubt on the effectiveness of the operations or on the correctness or validity of the laboratory's test or calibration results, does the laboratory take timely corrective action? Does the laboratory notify customers in writing if investigations show that the laboratory results may have been affected?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
4.14.3	Are the following recorded: - area of activity audited? - audit findings? - corrective actions that arise?			
4.14.4	Do follow-up audit activities verify and record the implementation and effectiveness of the corrective action taken?			
4.15 Management Reviews				
4.15.1 LQSR 4.15	In accordance with a predetermined schedule and procedure, does the laboratory's top management periodically conduct a review of the laboratory's management system and testing and/or calibration activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements? Are management reviews conducted at least once per year?			
4.15.1	Does the review take account of: - the suitability of policies and procedures? - reports from managerial and supervisory personnel? - the outcome of recent internal audits? - corrective and preventive actions? - assessments by external bodies? - the results of inter-laboratory comparisons or proficiency tests? - changes in the volume and type of work? - customer feedback? - complaints? - recommendations for improvement? - other relevant factors, such as quality control activities, resources and staff training?			
4.15.2	Are findings from management reviews and ensuing actions recorded? Does management ensure that those actions are carried out within an appropriate and agreed timescale?			

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TECHNICAL REQUIREMENTS				
5.1 General				
5.1.1	Many factors determine the correctness and reliability of the tests and/or calibrations performed by a laboratory. These factors include: - human factors - accommodation and environmental conditions - test and calibration methods and method validation - equipment - measurement traceability - sampling - handling of test and items			
5.1.2	The extent to which the factors contribute to the total uncertainty of measurement differs considerably between (types of) tests. Does the laboratory take account of these factors in developing: - test and calibration methods and procedures? - training and qualification of personnel? - selection and calibration of the equipment it uses?			
5.2 Personnel (Not required for surveillance unless critical changes have occurred)				
5.2.1	Does the laboratory management ensure the competence of all who: - operate specific equipment? - perform tests and/or calibrations? - evaluate results? - sign test reports and certificates?			
5.2.1	NOTE: The personnel responsible for the opinions and interpretation in test reports should, in addition to the appropriate qualifications, training, experience and satisfactory knowledge of the testing, also have relevant knowledge of the technology used for the manufacturing of the items, materials, products, etc. tested, or the way			

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	they are used or intended to be used, and of the defects or degradations which may occur during or in service; knowledge of the general requirements expressed in the legislation and standards; understanding of the significance of deviations found with regard to the normal use of the items concerned.			
5.2.1	When using staff undergoing training, is appropriate supervision provided?			
5.2.1	Are those personnel performing specific tasks qualified on the basis of appropriate education, training, experience and/or demonstrated skills, as required?			
5.2.2	Does the laboratory management formulate the goals with respect to the education, training and skills of the laboratory personnel?			
5.2.2	Does the laboratory have a policy and procedures for identifying training needs and providing training of personnel?			
5.2.2.	Is the training program relevant to the laboratory's present and anticipated tasks?			
5.2.2	Is the effectiveness of the training actions taken evaluated?			
LQSR 5.2.1.1	Do training records include: a description of program contents, duration of training, trainer qualifications, and objective evidence of analyst/technician has successfully demonstrated competence in selecting and/or collecting samples or prepared or tested known reference samples of the matrices of concern? Have analysts and/or technicians completed a minimum of four (4) independent test runs of sample preparation (if applicable) and/or instrument analysis for each matrix? Does each independent run consist of at least five (5) samples of known lead content, one of which is a certified			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	reference material or proficiency testing material – separated by sufficient time to evaluate the performance of any previous independent run(s)? For sample preparation training, do the recoveries of the associated reference materials or proficiency samples meet the requirements of Table 3 (see Appendix B of this checklist)? For instrumental analysis training, do the recoveries of the associated reference materials or proficiency samples for each run meet the requirements of Table 3 or 4, as appropriate (see Appendix B of this checklist)? NOTE: For some analytical testing technologies it may not be possible to separate the sample preparation techniques from instrumental analyses. In such cases, the training requirements shall be based on the minimum requirements stated for both analysts and technicians. Are the reference materials/proficiency test samples used similar to matrices the analyst/technician will encounter in routine lead sample analysis and cover the sample mass/concentration range for which the analytical SOP has been validated? Have analyst/technicians periodically demonstrated their ability to proficiently test samples for lead at least every six (6) months?			
LQSR 5.2.1.2.1	Are all mobile laboratory and FSMO personnel designating sampling areas for lead based risk assessment in target housing and/or child occupied facilities certified by the EPA or an authorized state or tribal program pursuant to Sec. 402 of the Toxic Substance Control Act (TSCA)?			
LQSR	Are all mobile and FSMO technicians			

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ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.2.1.2.2	evaluated by a qualified supervisor for their first two NLLAP related job sites?			
5.2.3	Does the laboratory use personnel who are employed by, or under contract to, the laboratory? Does the laboratory ensure that contract technical and support personnel are supervised and competent and that they work in accordance with the laboratory's management system?			
5.2.4 LQSR 4.1	Does the laboratory maintain current job descriptions for all positions including mobile laboratories and FSMOs? NOTE: Job descriptions, as a minimum, should define: • responsibilities for performing tests/calibrations • responsibilities for planning and evaluation of results of tests/calibrations • responsibilities for reporting interpretations • responsibilities for method modifications and development and validation of new methods • expertise/experience required • qualifications/training programs • -managerial duties			
5.2.5	Does the management authorize specific personnel to: - perform particular types of sampling, test and/or calibration? - to issue test reports and certificates? - to give opinions and interpretations? - to operate particular types of equipment?			
5.2.5	Does the laboratory maintain records of the relevant authorization(s), competence, educational and professional qualifications, training, skills and experience of all technical personnel, including contracted personnel? Is this information readily available? Does it include the date the authorization and/or competence was confirmed?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.3 Accommodation and Environmental Conditions				
5.3.1	Are laboratory facilities for testing and/or calibration, including but not limited to energy sources, lighting and environmental conditions, such as to facilitate correct performance of the tests and/or calibrations?			
5.3.1	Does the laboratory ensure that the environmental conditions do not invalidate the results or adversely affect the required quality of any measurement?			
5.3.1	Is particular care taken when sampling and tests and/or calibrations are undertaken at sites other than a permanent laboratory facility?			
LQSR 5.3	Do fixed site or mobile laboratory operations have the space, equipment, instruments, ventilation, utility services, storage space, safety equipment, and documentation and references to analyze for lead concentrations in the area of concern (see 29 CFR § 1910.1450)?			
LQSR 5.3	Do FSMOs have appropriate facilities to maintain integrity of sampling or testing equipment when not in use?			
5.3.1	Are the technical requirements for accommodation and environmental conditions that can affect the results of tests and calibrations documented?			
5.3.2	Does the laboratory: - monitor? - control? - and record? environmental conditions as required by the relevant specifications, methods and procedures or where they influence the quality of results?			
5.3.2	Is due attention paid, for example, to biological sterility, dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature, and sound/vibration			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	levels, as appropriate to the technical activities concerned?			
5.3.2	Are tests and calibrations stopped when the environmental conditions jeopardize the results of tests and/or calibrations?			
5.3.3	Is there effective separation between neighboring areas in which there are incompatible activities? Are measures taken to prevent cross-contamination?			
LQSR 5.3.1.1	Are portable testing activities, sample collection and field testing conducted to minimize risk of cross contamination?			
LQSR 5.3.1.1	At fixed site and mobile laboratory facilities, is wipe sampling of sample preparation and testing area surfaces conducted at least on a quarterly basis to determine the surface contamination level of lead? Are sample preparation and analysis suspended until the surface contamination is below the specified maximum allowable concentration of 50% of the lowest regulatory limit for dust wipe samples? (see 40 CFR Part 745 Final Rule, Federal Register, Vol. 61, no 169, August 29, 19696, page 4573) For FSMOs are appropriate contamination control blank samples run to monitor potential lead contamination as outlined in the quality manual?			
LQSR 5.3.1.2	Are lab ware cleaning procedures specified in a written standard operating procedure or instruction? Does the procedure include, where applicable, the frequency for monitoring lead concentrations in cleaning baths, the monitoring of glassware contamination during the analysis of reagent or other blanks, and periodic analysis of disposable lab ware contamination by analyzing			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	reagent or other blanks? NOTE: To assess possible contamination, glassware used for the method blanks should be processed through acid baths used for lab ware cleaning.			
5.3.4	Are access to and use of areas affecting the quality of the tests and/or calibrations controlled? Has the laboratory determined the extent of control based on its particular circumstances?			
5.3.5	Are measures taken to ensure good housekeeping in the laboratory? Are special procedures prepared where necessary?			
5.4 Test Methods and Method Validation				
5.4.1	Does the laboratory use appropriate methods and procedures for all tests within its scope? These include sampling, handling, transport, storage and preparation of items to be tested and/or calibrated, and where appropriate, an estimation of the measurement uncertainty as well as statistical techniques for analysis of test and/or calibration data.			
LQSR 5.4.1a	Prior to using methods for sample analysis has the laboratory confirmed and documented its proficiency?			
LQSR 5.4.1.a	Is competency demonstrated over the lead concentration and sample mass ranges for each matrix in the scope?			
5.4.1	Does the laboratory have instructions on the operation of all relevant equipment, and on the handling and preparation of items for testing where the absence of such instructions could jeopardize the results of tests?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.4.1	Are all instructions, standards, manuals and reference data relevant to the laboratory's work kept up to date and made available to personnel?			
5.4.1	Does deviation from test and calibration methods occur ONLY if the deviation has been: - documented? - technically justified? - authorized? - accepted by the customer?			
5.4.2	Does the laboratory use test and/or calibration methods, including methods for sampling, which meet the needs of the customer? Are these methods appropriate for the tests and/or calibrations they undertake?			
LQSR 5.4.1.b	If sample preparation and analysis methods are not specified by regulatory programs, does the laboratory, whenever possible, used validated procedures published federal agencies (USEPA, HUD, NIOSH, etc.), state agencies, or national or international recognized consensus organizations such as the ASTM? NOTE: Acceptable methods are cited in 40 CFR Part 745 – Lead Based Activities.			
LQSR 5.4.1.b	For each method has the laboratory demonstrated a quantitation limit less than or equal to 20% of the lowest relevant action level or regulatory limit for paint and soil, and 50% of the lowest level for dust wipes?			
5.4.2	Are methods published in international, regional or national standards preferably used? Does the laboratory ensure that it uses the latest valid edition of a standard unless it is not appropriate or possible to do so? Is the standard supplemented with			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	additional details to ensure consistent application?			
5.4.2	When the customer does not specify the method, does the laboratory select appropriate methods that have been published either in international, national standards, by technical organizations, in relevant scientific texts or journals, or as specified by the manufacturers of the equipment? If the above does not apply, are the laboratory-developed methods or methods adopted by the laboratory appropriate for the intended use and validated?			
5.4.2	Is the customer informed as to the method chosen?			
5.4.2	Is the laboratory able to confirm that it can properly operate standard methods before introducing the tests? If the standard method changes, is the confirmation repeated?			
LQSR 5.4.1	Does the laboratory have records of method performance demonstration and validation for laboratory developed or modified procedures? Do these include method detection limit (MDL) and bias and precision?			
5.4.2	Does the laboratory inform the customer when the method proposed by the customer is considered inappropriate or out of date?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.4.3	Is the introduction of test and calibration methods developed by the laboratory for its own use a planned activity? Is the introduction assigned to qualified personnel equipped with adequate resources?			
5.4.3	Are plans updated as development proceeds? Is effective communication amongst all personnel involved ensured?			
5.4.4	When it is necessary to use methods not covered by standard methods, are these subject to agreement with the customer? Do they include a clear specification of the customer's requirements and the purpose of the test? Had the method developed been validated appropriately before use?			
LQSR 5.4.3.1	Sampling, test and/or calibration methods, procedures should be developed prior to the tests and/or calibrations being performed and should contain at least the following:			
	• method detection limit • scope and application • summary of the method • definitions • applicable matrix or matrices • applicable lead concentration range • applicable sample mass range • method performance (bias and precision) • interferences • safety considerations • reagents and standards • equipment and supplies • sample collection (where applicable) • sample preservation and storage			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	(where applicable) • sample preparation including grinding, homogenization, and sub sampling (where • applicable) • instrument calibration/verification • quality control procedures • detailed step-by-step procedures • calculations • data acceptance criteria • corrective actions for out-of-control data • contingencies for handling out of control data • references NOTE: Attachments or other references to SOPs may be used to meet the above.			
5.4.5.1	Does the laboratory follow the definition of validation as the confirmation by examination and the provision of objective evidence that the particular requirements for a specific intended use are fulfilled?			
LQSR 5.4.1.c	Does the laboratory validate the following to confirm that the methods are fit for the intended use? - new or non-standard methods - lab-designed/developed methods - standard methods used outside their intended scope - amplifications/modifications of standard methods			
LQSR 5.4.1.c	Do the methods meet the performance requirements of LQSR 5.4.1.b above?			
LQSR 5.4.1.c	If methods are validated by a third party do they meet the performance requirements of LQSR 5.4.1.b above? Has the laboratory determined its competency in following third party validated methods as described in LQSR 5.4.1.a (see above)?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.4.5.2	NOTE: The techniques used for determination of performance of a method should be one of, or a combination of, the following: - calibration using reference standards or materials - comparison of results achieved with other methods - inter-laboratory comparisons - systematic assessment of the factors influencing the result - assessment of the uncertainty of the results based on scientific understanding of the theoretical principles of the method and practical experience			
5.4.5.2	Is the validation as extensive as is necessary to meet the needs of the given application or field of application? NOTE: When some changes are made in the validated non-standard methods, the influence of such changes should be documented and, if appropriate, a new validation should occur.			
5.4.5.2	Does the laboratory record: - the results obtained? - the procedure used for the validation? - a statement as to whether the method is fit for the intended use?			
5.4.5.3	Are the range and accuracy of the values obtainable from validated methods (e.g. the uncertainty of the results, detection limit, selectivity of method, linearity, and limit of repeatability and/or reproducibility, robustness against external influences and/or cross-sensitivity against interference from the matrix of the sample/test object) as assessed for the intended use, relevant to the customers' needs?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.4.5.3	NOTE: Validation includes specification of the requirements, determination of the characteristics of the methods, a check that the requirements can be fulfilled by using the method and a statement on the validity. As method-development proceeds, regular review should be carried out to verify that the customer's needs are still being met. Any change in requirements requiring modifications to the development plan should be approved and authorized.			
5.4.6.1	Does the calibration laboratory, or a testing laboratory performing its own calibrations, have a procedure to estimate the uncertainty of measurement for all calibrations and types of calibrations? Is the procedure applied?			
LQSR 5.4.4	Are the laboratory's statistically determined minimum method performances within those provided in LQSR Tables 3 and 4? (see Appendix B of this checklist)			
LQSR 5.4.4.1	Are method detection limits (MDLs) established, statistically verified and monitored as needed for each methods and matrix? For methods with stated MDLs, has the laboratory demonstrated and documented its ability to meets these MDLs? Has the documented SOP for determining MDLs shown the laboratory can demonstrate the ability to detect the lead level below the action level in the matrix of concern?			
LQSR 5.4.4.2	Are the quantitation limits less than a value at least 2 times but no greater than 10 times the respective MDL?			
LQSR 5.4.4.3	Are the bias and precision determined for each analytical method? Are the bias and precision documented?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	Do the bias and precision meet the minimum criteria in LQSR Tables 3 and 4? (see Appendix B of this checklist)			
LQSR 5.4.4.4	Does the laboratory use documented procedures and appropriate techniques for representative sub-sampling of sample aliquots from submitted samples?			
LQSR 5.4.4.5	Are data reduction and review conducted by a qualified person? Does this reduction and review include (but limited to): comparison of quality control data, computation verification, transcription of data, and adherence to the SOPs? Where appropriate, are computations verified and transcription of data double checked? Is the review process documented and records retained with the final report for at least 5 years? NOTE: Qualified persons can be technicians, analysts, the quality manager, technical manager, or a responsible person described in LQSR 4.0. In the case of a one person laboratory, the review process shall be contracted out to an independent person or firm that is competent in terms of experience and training.			
5.4.6.2	Does the testing laboratory have procedures for estimating uncertainty of measurement? Are these procedures applied?			
5.4.6.2	In certain cases, the nature of the test method may preclude rigorous, metrologically and statistically valid calculation of uncertainty of measurement. In these cases, does the laboratory at least attempt to identify all the components of uncertainty and make a reasonable			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	estimation?			
5.4.6.2	Does the laboratory ensure that the form of reporting of the result does not give a wrong impression of the uncertainty?			
LQSR 5.4.1.c	Are acceptable operating characteristics for non-numerical or pass/fail technologies or methods appropriate to the associated regulatory limits? NOTE: For example, the measured values including its 95% uncertainty of measurement must be less than the associated regulatory limit.			
5.4.6.2	Is reasonable estimation based on knowledge of the performance of the method and on the measurement scope?			
5.4.6.2	Does the reasonable estimation make use of, for example, previous experience and validation data?			
5.4.6.2	NOTE: In those cases where a well-recognized test method specifies limits to the values of the major sources of uncertainty of measurement and specifies the form of presentation of calculated results, the lab is considered to have satisfied this clause by following the test method and reporting instructions.			
5.4.6.3	When estimating the uncertainty of measurement, are all elements in the uncertainty budget appropriate methods of analysis included in the calculation? NOTE: The predicted long-term behavior of the tested and/or calibrated item is not normally taken into account when estimating the measurement uncertainty.			
LQSR 5.4.1.d	Do the methods used for composite dust wipe samples address the increase in sample mass? Has the laboratory met the minimum performance requirements in LQSR 5.4.1.b			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	and demonstrated its competency in 5.4.1.a?			
5.4.7.1	Are calculations and data transfers subject to appropriate checks in a systematic manner?			
5.4.7.2	When computers or automated equipment are used for the acquisition, processing, recording, reporting, storage or retrieval of test or calibration data, does the laboratory ensure that (a-c): a) computer software developed by the user is documented in sufficient detail and is suitably validated as being adequate for use? NOTE: Commercial off-the-shelf software is sufficiently validated. However, lab software configuration or modifications should be validated as in 5.4.7.2a.			
5.4.7.2	b) for protecting the data, procedures are: - established? - implemented? Do such procedures include, but are not limited to: - integrity and confidentiality of data entry or collection? - data storage? - data transmission? - data processing?			
5.4.7.2	c) computers and automated equipment are maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of test and calibration data?			
5.5 Equipment				
5.5.1	Is the laboratory furnished with all items of sampling, measurement and test equipment required for the correct performance of the tests and/or calibrations (including sampling, preparation of test items,			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	processing and analysis of test and/or calibration data)?			
5.5.1	In those cases where the laboratory needs to use equipment outside its permanent control, does it ensure that the requirements of the LQSR are met?			
5.5.2	Is equipment and its software used for testing, calibration and sampling capable of achieving the accuracy required? Does it comply with specifications relevant to the tests and/or calibrations concerned?			
5.5.2	Have calibration programs been established for key quantities or values of the instruments where these properties have a significant effect on the results?			
5.5.2	Before being placed into service, is equipment (including that used for sampling) calibrated or checked to establish that it meets the laboratory's specification requirements and complies with the relevant standard specifications? Is it checked and/or calibrated before use?			
5.5.3	Is the equipment operated by authorized personnel?			
5.5.3	Are current instructions on the use and maintenance of equipment (including any relevant manuals provided by the manufacturer) readily available for use by the appropriate laboratory personnel?			
5.5.4	Is each item of equipment and its software used for testing and calibration and significant to the result, when practicable, uniquely identified?			
5.5.5	Are records of each item of equipment and its software significant to the tests and/or calibrations performed maintained?			
5.5.5	Do the records include at least the following (a-h):			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	a) the identity of the item of equipment and its software?			
5.5.5	b) the manufacturer's name, type identification, and serial number or other unique identification?			
5.5.5	c) checks that equipment complies with the specification?			
5.5.5	d) the current location, where appropriate?			
5.5.5	e) the manufacturer's instructions, if available, or reference to their location?			
5.5.5	f) dates, results and copies of reports and certificates of all calibrations, adjustments, acceptance criteria and the due date of next calibration?			
5.5.5	g) the maintenance plan, where appropriate, and maintenance carried out to date?			
5.5.5	h) any damage, malfunction, modification or repair to the equipment?			
LQSR 5.5	i) organization performing the repair, contact, phone number			
LQSR 5.4.4	j) date put into service			
5.5.6	Does the laboratory have procedures covering the following to ensure proper functioning and in order to prevent contamination or deterioration: - safe handling? - transport? - storage? - use and planned maintenance of measuring equipment?			
5.5.7	Is equipment that has been subjected to overloading or mishandling, gives suspect results, or has been shown to be defective or outside specified limits taken out of service?			
5.5.7	Is it isolated to prevent its use or clearly labeled or marked as being out of service until it has been repaired and shown by calibration or test to perform correctly?			

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ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.5.7	Does the laboratory examine the effect of the defect or departure from specified limits on previous tests and/or calibrations? Does the lab institute the "Control of Nonconforming Work" procedure?			
5.5.8	Whenever practicable, is all equipment under the control of the laboratory and requiring calibration labeled, coded or otherwise identified to indicate the status of calibration, including the date when last calibrated and the date or expiration criteria when re-calibration is due?			
5.5.9	When, for whatever reason, equipment goes outside the direct control of the laboratory, does the laboratory ensure that the function and calibration status of the equipment are checked and shown to be satisfactory before the equipment is returned to service?			
5.5.10	When intermediate checks are needed to maintain confidence in the calibration status of the equipment, are these checks carried out according to a defined procedure?			
LQSR 5.5.1	Are instruments that are routinely calibrated verified daily or prior to analyzing samples? Are acceptance criteria determined and documented? NOTE: Such checks may include: instrument sensitivity, noise levels, instrument response, and interference levels to be compared to historical performance levels.			
LQSR 5.5.1	Are instrument calibration/performance verifications done using reference standard materials of the same matrix as the materials being measured (if available)?			
LQSR 5.5.1	Are QC limits and frequencies determined and implemented?			

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ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	If not, are types of samples, minimum frequencies and required acceptance limits shown in LQSR Tables 1 and 2 met? (see Appendix A of this checklist)			
LQSR 5.5.1.a	Does the laboratory have a system of equipment calibration (where applicable)?			
LQSR 5.5.2.a	Do all calibration curves bracket the expected sample concentrations? Are calibration standards distributed evenly across the range? Are calibration curves dated, labeled and included at least the following: • applicable method • instrument identification • analysis date • lead concentrations • instrument response • identification of personnel responsible			
LQSR 5.5.2.b	Are the axes of the curves labeled? For electronic systems that automatically compute the calibration curve are the curve equations and correlation coefficient recorded?			
LQSR 5.5.2.c	Are the criteria for the acceptance of a calibration curve established and documented?			
LQSR 5.5.2.d	For linear curves is the extent of the linear range verified and are calibration standards limited to that range?			
LQSR 5.5.2.1	Initial Calibration: Prior to the analysis of samples (as appropriate) are at least three calibration standards which span or bracket the sample concentrations and an initial calibration blank (ICB) used to construct the calibration curve? Are calibration acceptance criteria stated? Are new calibration curves established			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	whenever out of control conditions are indicated? If a linear fit is used is linearity evaluated using the calibration standards? Are acceptance criteria stated (see LQSR Table 1 and 2, Appendix A of this checklist)? NOTE: For those technologies and software requiring fewer calibration standards manufacturer recommendations are to be followed.			
LQSR 5.5.2.2	Independent Calibration Verification (ICV): Is an independent calibration standard analyzed daily or prior to analyzing a sample? Are minimum performance criteria contained in LQSR Tables 1 and 2 (Appendix A of this checklist) met? For instruments that produce a numerical result is the ICV standard at a lead level in the range of the customer specified levels of concern or action levels such as regulatory limits? For instruments that produce a pass/fail result (except for positive or negative screening): • Is the ICV Positive (ICV-P) lead level no more than 20% above the applicable regulatory limit? • Is the ICV Negative (ICV-N) not less than 20% below the applicable regulatory limit?			
LQSR 5.5.2.3	Continuing Calibration Verification: Are continuing calibration verification (CCV) standards analyzed per the SOP? Is the CCV standard prepared from an independent reference standard or from the same standards used to prepare the			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	instrument calibration curve? Are acceptance criteria stated (see LQSR Table 1 and 2, see Appendix A of this checklist)?			
LQSR 5.5.2.3.a	Are at least two CCV standards analyzed every 12 hours, or according to the instrument manufacturer's recommendation, or at a predetermined SOP frequency – whichever is most frequent?			
LQSR 5.5.2.3.b	For instruments that produce a numerical result, are the concentration of these standards determined by the operating range of the instrument, the regulatory limits, and/ method specified levels?			
LQSR 5.5.2.3.c	For instruments that produce a pass/fail result, are the concentration of these standards determined by the operating range of the instrument, the regulatory limits, and/ method specified levels? For instruments that produce a pass/fail result (except for positive or negative screening): • Do the QC samples have lead levels no more than 20% above the applicable regulatory limit for the CCV Positive (CCV-P)? • Do the QC samples have lead levels not less than 20% below the applicable regulatory limit for CCV Negative (CCV-N)?			
LQSR 5.5.2.3.d	When two consecutive CCV checks are outside acceptable limits is a new calibration curve established? When a CCV is confirmed outside the limits are the samples affected reanalyzed after the new curve is established, evaluated and accepted? Is sample analysis suspended and not restarted until a new curve is established			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	and verified?			
LQSR 5.5.2.4	Are continuing calibration blank (CCB) standards analyzed in accordance with the testing SOP?			
5.5.11	Where calibrations give rise to a set of correction factors, does the laboratory have procedures to ensure that copies (e.g. in computer software) are correctly updated?			
5.5.12	Is test and calibration equipment, including both hardware and software, safeguarded from adjustments that would invalidate the test and/or calibration results?			
5.6 Measurement Traceability				
Note: Must include evidence of traceability for all aspects of 5.6				
5.6.1	Is all equipment used for tests and/or calibrations, including equipment for subsidiary measurements (e.g. for environmental conditions) having a significant effect on the accuracy or validity of the result of the test, calibration or sampling calibrated before being put into service? Does the laboratory have an established program and procedure for the calibration of its equipment?			
5.6.2.1.1	For laboratories performing their own calibration, is the program for calibration of equipment designed and operated so as to ensure that calibrations and measurements made by the laboratory are traceable to the International System of Units (SI)?			
5.6.2.1.1	Does a laboratory performing its own calibration establish traceability of its own measurement standards and measuring instruments to the SI by means of an unbroken chain of calibrations or comparisons linking them to relevant primary standards of the SI measurement units?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.6.2.1.1 NIST 5.6.1	Is the link to SI units achieved by reference to national measurement standards (when available: NIST or another BIPM signatory)?			
5.6.2.1.1	Are the national measurement standards primary standards, which are primary realizations of the SI units or agreed representations of SI units based on fundamental physical constants, or; Are they secondary standards (standards calibrated by another national metrology institute)?			
5.6.2.1.1	When using external calibration services, is traceability of measurement assured by the use of calibration services from laboratories that can demonstrate competence, measurement capability and traceability?			
5.6.2.1.1	Do the calibration certificates issued by these laboratories contain the measurement results, including the measurement uncertainty and/or a statement of compliance with an identified metrological specification?			
5.6.2.1.2	There are certain calibrations that currently cannot be strictly made in SI units. In these cases, does calibration provide confidence in measurements by establishing traceability to appropriate measurement standards such as: - the use of certified reference materials provided by a competent supplier to give a reliable physical or chemical characterization of a material? - the use of specified methods and/or consensus standards that are clearly described and agreed by all parties concerned?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.6.2.2.1	For testing laboratories, the requirements given in 5.6.2.1 apply for measuring and test equipment with measuring functions used, unless it has been established that the associated contribution from the calibration contributes little to the total uncertainty of the test result. When the above situation arises, does the laboratory ensure that the equipment used can provide the uncertainty of measurement needed?			
5.6.2.2.2	Where traceability of measurements to SI units is not possible and/or not relevant, does the calibration laboratory follow the same requirements for traceability to, for example, certified reference materials, and agreed methods and/or consensus standards?			
5.6.3.1	Does the laboratory have a program and procedure for the calibration of its reference standards?			
5.6.3.1	Are reference standards calibrated by a body that can provide traceability as described in 5.6.2.1?			
5.6.3.1	Are such reference standards of measurement held by the laboratory used for calibration only and for no other purpose, unless it can be shown that their performance as reference standards would not be invalidated?			
5.6.3.1	Are reference standards calibrated before and after any adjustment?			
5.6.3.2	Are reference materials, where possible, traceable to SI units of measurement, or to certified reference materials?			
LQSR 5.6.1	Do reference materials have an expiration date assigned? Are reference materials ***not*** used past their expiration date?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	Are reference materials ***not*** used if damaged, contaminated or suspected of being damaged or contaminated?			
5.6.3.2	Are internal reference materials checked as far as is technically and economically practicable?			
5.6.3.3	Are checks needed to maintain confidence in the calibration status of reference, primary, transfer or working standards and reference materials carried out according to defined procedures and schedules?			
5.6.3.4	Does the laboratory have procedures for safe handling, transport, storage and use of reference standards and materials in order to prevent contamination or deterioration and in order to protect their integrity?			
LQSR 5.6.1	Are records of all reference standards, reference materials, and reagents including certificates of analysis, purity, origin and traceability, as provided by the manufacturer, maintained for a period of at least 5 years?			
5.7 Sampling				
5.7.1	Does the laboratory have a sampling plan and procedures for sampling when it carries out sampling of substances, materials or products for subsequent testing?			
5.7.1	Is the sampling plan available at the location where sampling is undertaken? Is the sampling procedure available at the location where sampling is undertaken?			
5.7.1	Are sampling plans, whenever reasonable, based on appropriate statistical methods?			
5.7.1	Does the sampling process address the factors to be controlled to ensure the validity of the test results?			
5.7.2	Where the customer requires deviations, additions or exclusions from the documented sampling procedure, are these			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	recorded in detail with the appropriate sampling data? Are these included in all documents containing test and/or calibration results? Are these communicated to the appropriate personnel?			
5.7.3	Does the laboratory have procedures for recording relevant data and operations relating to sampling that forms part of the testing or calibration done?			
LQSR 5.7	When collecting dust, paint and soil samples as part of testing for lead, is the sampling performed in accordance to 40 CFR 745 – Lead Based Paint Activities?			
LQSR 5.7.1	If the laboratory is responsible for supplying sampling media, is the media evaluated, as appropriate, for lead contamination? Is the evaluation process defined in an SOP and the results recorded?			
5.7.3	Do these records include: - the sampling procedure used? - the identification of the sampler? - environmental conditions (if relevant)? - diagrams or other equivalent means to identify the sampling locations as necessary? - if appropriate, the statistics the sampling procedures are based upon?			
5.8 Handling of Test Items				
5.8.1	Does the laboratory have procedures for the following regarding test items, including all provisions necessary to protect the integrity of the test item, and to protect the interests of the laboratory and customer: - transportation? - receipt? - handling? - protection? - storage?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	- retention and/or disposal?			
LQSR 5.2.8.1	Are the procedures available to sample collecting personnel?			
LQSR 5.8.2	Does the laboratory have a system for uniquely identifying test items?			
5.8.2	Is the identification retained throughout the life of the item in the laboratory?			
5.8.2	Is the system designed and operated so as to ensure that items cannot be confused physically or when referred to in records or other documents? Does the system, if appropriate, accommodate a sub-division of groups of items and the transfer of items within and from the laboratory?			
LQSR 5.8.2.5	Are multiple aliquots of a sample assigned a different ID code (e.g. a prefix or a suffix)?			
5.8.3	Upon receipt of the test item, are abnormalities or departures from normal or specified conditions, as described in the test method, recorded?			
5.8.3	When there is doubt as to the suitability of an item for test, or when an item does not conform to the description provided, or the test required is not specified in sufficient detail, does the laboratory consult the customer for further instructions before proceeding? Is the discussion recorded?			
LQSR 5.8.2.1	Is there full and complete documentation including sample identification, the location and date of sampling, sample matrix, and special remarks concerning the sample? Does sample labeling include unique field identification? Are appropriate sample containers used?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	Is there adequate sample for analysis?			
LQSR 5.8.2.2	Sample Receipt Logs: Is there a permanent record such as a log book or equivalent electronic record to document the receipt of all samples? Does the record contain: • date of the laboratory receipt of sample • sample collection date (if known) • unique laboratory ID code • field ID code supplied by sample submitter • sample matrix • requested analyses, including the method number, if applicable • signature or initials of sample receiver (if applicable)- for electronic sample logging systems, the identity of the sample receiver • Comments resulting because of sample rejection Is all associated documentation such as memos, transmittal forms for the sample retained?			
LQSR 5.8.2.3	For samples that do not meet acceptance criteria: Does the laboratory retain correspondence and records concerning final disposition of the sample or fully document the decision to proceed with the analysis of the compromised or suspect samples? Is the condition of such samples noted on the chain of custody documentation or the laboratory receiving records? Is the associated test result appropriately "qualified" on the final report?			
LQSR 5.8.2.4	Are legally defensible chain of custody protocols required by customers, federal,			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	state, tribal, or other programs? If the chain of custody is not required is it encouraged or recommended? Do chain of custody (if followed) records establish an intact, continuous record of the physical possession, storage and disposal of collected samples?			
5.8.4	Does the laboratory have procedures and appropriate facilities for avoiding deterioration, loss or damage to the item during storage, handling and preparation?			
5.8.4	Are handling instructions provided with the item followed?			
LQSR 5.8.1	Are appropriate space, equipment and procedures provided for sample receipt, storage and processing?			
5.8.4	When items have to be stored or conditioned under specified environmental conditions, are these conditions maintained, monitored and recorded?			
5.8.4	Where at test item or a portion of an item is to be held secure, does the laboratory have arrangements for storage and security that protect the condition and integrity of the secured items or portions concerned?			
LQSR 5.8.2.5	Does the laboratory comply with all applicable federal, state, tribal, or local regulations regarding environmental containment and waste disposal?			
5.9 Assuring the Quality of Test Results				
5.9.1	Does the laboratory have quality control procedures for monitoring the validity of tests and calibrations undertaken?			
5.9.1	Is the resulting data recorded in such a way that trends are detectable, and where practicable, statistical techniques applied to the reviewing of the results? Is this monitoring planned and reviewed?			
5.9.1	Does this monitoring include, (but is not			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	limited to) (a-e): a) regular use of certified reference materials and/or internal quality control using secondary reference materials?			
5.9.1	b) participation in inter-laboratory comparison or proficiency-testing programs, specifically the ELPAT program? *Assessor must show evidence that this is taking place.*			
5.9.1	c) replicate tests or calibrations using the same or different methods?			
5.9.1	d) retesting or recalibration of retained items?			
5.9.1	e) correlation of results for different characteristics of an item?			
LQSR 5.9.1	Does the laboratory continually evaluate its performance, analyze bias and precision for each matrix and participate quarterly in the ELPAT proficiency program for each matrix analyzed? Does the laboratory seek feedback whenever possible for the client supplied duplicates, spikes, and/or blanks? Does the laboratory's system process control and performance monitoring use statistical process control (SPC) techniques? Do the SPC methods specify warning and action limits and the monitoring of trends over time? If there is insufficient data to determine the QC frequency and/or action limits, does the laboratory use the frequencies and criteria in LQSR Tables 3 and 4 (see Appendix B of this checklist)? Are the QC procedures stated in quality documents such as the QMSM and/or specific SOPs?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	Do these procedures address, as appropriate: • duplicate or "side by side" field sample analyses • spiked and blank sample analyses • blind samples • split/spiked field sample analyses • control charts or equivalent • calibration standards • laboratory control samples • internal standards			
LQSR 5.9.1.1	Laboratory Control Samples (LCS) Are LCS samples (of the same matrix of the test samples) prepared and analyzed with a minimum frequency of one (1) per twenty (20) field samples or batch? For instruments that produce a numerical result is the LCS at a lead level near the level of concern or action level and shall not require extensive pretreatment dilution or concentration? For instruments that produce a pass/fail result (except for positive or negative screening): • Is the LCS lead level no more than 20% above the applicable regulatory limit? • Is the LCS lead level not less than 20% below the applicable regulatory limit? • Does not require extensive pretreatment dilution or concentration?			
LQSR 5.9.1.1	Matrix Spike (Split/Spike) Field Samples Are matrix spikes analyzed with a minimum frequency of 5% of the samples			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	for each matrix type per batch? For fewer than 20 samples in a batch is at least one matrix spike for each matrix spike analyzed? Are matrix spikes prepared using a split field sample (before digestion)? Is the level of lead enough to result in a lead concentration of the prepared sample of five (5) times the sample's observed lead level, or five (5) times the MDL, whichever is greater? Are matrix spike analyses performed using field samples (whenever possible) to monitor potential field sample matrix interferences? For field samples too small or difficult to homogenize does the laboratory select alternative QC options (such as duplicate laboratory control samples of the same matrix)?			
LQSR 5.9.1.1	Are method blanks containing all reagents (and for dust wipes, the representative blank wipe) subjected to all preparation steps and processed and analyzed along with the samples? Is the method blank frequency at least 5% of the sample for each matrix per batch of samples? For fewer than 20 samples in a batch is at least one method blank for each matrix per batch analyzed? Are method blanks or other QC results NOT used to correct sample results?			
LQSR 5.9.1.2	Precision Determination - Split Field Samples Are split field samples for precision			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
	determination analyzed with a minimum frequency of 5% of the samples for each matrix type per batch? For fewer than 20 samples is at least one split field sample for each matrix spike analyzed? If there is insufficient sample or the analytical technology is does not allow for split samples, does the laboratory use alternative QC procedures (such as the analysis of duplicate laboratory control samples with the appropriate matrix material)?			
5.9.2	**Is quality control data analyzed and, where it is found outside pre-defined criteria, planned action taken to correct the problem and to prevent incorrect results from being reported?**			
5.10 Reporting the Results				
5.10.1	Are the results of each test or series of tests carried out by the laboratory reported accurately, clearly, unambiguously and objectively, and in accordance with any specific instructions in the test methods?			
5.10.1	Are the results reported, usually in a test report or certificate? Does the report include all the information requested by the customer and necessary for the interpretation of the test results and all information required by the method used? (This information is normally that required by 5.10.2 and 5.10.3 or 5.10.4.)			
5.10.1	In the case of tests performed for internal customers, or in the case of a written agreement with the customer, are the results reported in a simplified way?			
5.10.1	Is any information listed in 5.10.2 to 5.10.4, not reported to the customer, readily available in the laboratory that carried out the test?			

ISO & LQSR Req.	Characteristic	Yes	No	Comments regarding deficiencies/effectiveness (if applicable)
5.10.2	Does each test report or certificate of analysis include at least the following information (a-k), unless the laboratory has valid reasons for not doing so:			
LQSR 5.10.2	a) a title (e.g. "Test Report", "Report of Results", or "Laboratory Results"			
5.10.2	b) the name and address of the laboratory, and the location where the tests were carried out, if different from the address of the laboratory?			
5.10.2	c) unique identification of the test report or certificate (such as the serial number), and on each page an identification in order to ensure that the page is recognized as a part of the test report, and a clear identification of the end of the report or certificate?			
LQSR 5.10.2	d) the customer's name and address or project name, as applicable?			
5.10.2	e) identification of the method used?			
5.10.2	f) a description of, the condition of, and unambiguous identification of the item(s) tested?			
5.10.2	g) the date of receipt of the test item(s) where this is critical to the validity and application of the results, and the date(s) of performance of the test?			
5.10.2	h) reference to the sampling plan and procedures used by the laboratory or other bodies where these are relevant to the validity or application of the results?			
LQSR 5.10.2 LQSR 5.10.2.1	i) the test results with, where appropriate, the units of measurement? REQUIREMENT: Reporting zero concentration is not permitted. The laboratory is required to determine a minimum positive finite lead level appropriate for the technology used. Measured values below this level shall be reported with a qualifier "less than" ("<") this positive level. For pass/fail			

	technologies a clear statement of measurement capability with associated uncertainty shall be reported.			
5.10.2	j) the name(s), function(s), and signature(s) or equivalent identification of person(s) authorizing the test report?			
5.10.2	k) where relevant, a statement to the effect that the results relate only to the items tested?			
5.10.2	NOTE: Hard copies of test reports or certificates should also include the page number and total number of pages. Labs should include a statement specifying report/certificate shall not be reproduced except in full, without written approval by the laboratory.			
5.10.3.1	In addition to the requirements listed in 5.10.2, do test reports, where necessary, include the following (a-e):			
5.10.3.1	a) deviations from, additions to, or exclusions from the test method, and information on specific test conditions, such as environmental conditions?			
5.10.3.1	b) where relevant, a statement of compliance/non-compliance with requirements and/or specifications?			
5.10.3.1	c) where applicable, a statement on the estimated uncertainty of measurement? (information on uncertainty is needed in test reports when it is relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit.)			
5.10.3.1 LQSR 5.10.2.n	d) where appropriate and needed, opinions and interpretation including if quality control results did not meet requirements?			
5.10.3.1	e) additional information that may be required by specific methods, customers, or groups of customers?			
LQSR 5.10.2.r	f) identification of inconclusive results and the reason that they are determined to be inconclusive			

LQSR 5.10.2.r	g) identification of the NLLAP accrediting body			
5.10.3.2	In addition to the requirements listed in 5.10.2 and 5.10.3.1, do test reports containing the results of sampling include the following (a-f), where necessary, for the interpretation of test results:			
5.10.3.2	a) the date of sampling?			
5.10.3.2	b) unambiguous identification of the substance, material or product sampled (including the name of the manufacturer, the model or type of designation and serial numbers as appropriate)?			
5.10.3.2	c) the location of sampling, including any diagrams, sketches or photographs?			
5.10.3.2	d) a reference to the sampling plan and procedures used?			
5.10.3.2	e) details of any environmental conditions during sampling that may affect the interpretation of the test results?			
5.10.3.2	f) any standard or other specification for the sampling method or procedure, and deviations, additions to or exclusions from the specification concerned?			
LQSR 5.10.3	Report Review Do final reviews undergo a documented final review prior to the release? Is the reviewer qualified? NOTE: A qualified person can be a technician, analyst, quality manager, technical manager, or a responsible person as defined by the LQSR. In a one person laboratory or where a qualified person is not available for review, the review is the review contracted out to a competent independent person or firm? Is the review process documented and signed by the reviewer? Are records of the review retained with the			

	final report for a minimum of five (5) years?			
5.10.5	When opinions and interpretations are included, does the laboratory document the basis upon which the opinions and interpretations have been made? Are opinions and interpretations clearly marked as such in a test report?			
5.10.6	When the test report contains results of tests performed by subcontractors, are these results clearly identified? Does the subcontractor report the results in writing or electronically?			
5.10.7	In the case of transmission of test results by telephone, telex, facsimile or other electronic or electromagnetic means, are the requirements of this standard met?			
5.10.8	Is the format designed to accommodate each type of test or carried out and to minimize the possibility of misunderstanding or misuse?			
5.10.9	Are material amendments to a test report/ certificate after issue made only in the form of a further document, data transfer, including a statement equivalent to "Supplement to Test Report (or "Certificate of Analysis", etc)?			
5.10.9	Do such amendments meet all the requirements of this standard?			
5.10.9	When it is necessary to issue a complete new test report or certificate, is this uniquely identified? Does this contain a reference to the original that it replaces?			

Additional Requirements (Required for surveillance and re-accreditation assessments)				
Objective Evidence of Laboratory's utilization of PJLA's accreditation symbol must be included in the package. This includes but not limited to (Website page, letterhead, test report including subcontracted results if utilized)				
If any of the requirements of SOP-3 are not followed a nonconformance must be written				
Use of the Symbol	For applicant laboratories: Does the applicant laboratory use the PJLA Logo? Note Applicant laboratories are not permitted to use the PJLA logo until official accreditation is granted by executive committee approval.			
	Is the accredited laboratory utilizing the correct symbol (i.e. testing)			
	Is the symbol reproduced in a size that is clearly distinguishable?			
	Is the symbol reproduced consistent with SOP 3)? Is the symbol identifiable?			
	Is the accredited laboratory properly stating their accreditation status? "Accredited to EPA NLLAP" or utilizing the ILAC criteria listed in the SOP-3 Procedure. (ILAC guidance not mandatory)			
	Is the accredited laboratory properly using the symbol on: a) promotional material and business stationary? b) test reports or certificates? (See note 1) c) website? d) technical literature? e) business reports f) quotations or proposals for work?			

	(symbols may only be listed for accredited laboratories) Note 1-Where statements of opinion and interpretation are outside the scope of the accreditation, the laboratory shall include a disclaimer in the report or certificate close to the accreditation symbol such as "the opinions/interpretations expressed on this report are outside the scope of this laboratory's accreditation."			
	Is the accredited laboratory appropriately using the symbol by **not** placing the symbol on: a) legal documents (i.e. contracts or checks) b) on test reports/certificates or any other material referencing work or items not covered by scope of accreditation? c) any documentation of sites that are not accredited by PJLA d) on subcontractor's certificates or documentation? e) on products or items which laboratory has tested)? Where tests outside the scope of the accreditation are included on reports, certificates or enclosed letters with results, has the laboratory clearly defined "This laboratory is not accredited for the tests marked"?			

	Subcontracted Tests			
	If the accredited laboratory included the results of subcontracted tests on reports or certificates can they demonstrate that they have: a) obtained approval from the subcontracted laboratory? b) obtained approval from the subcontractor to report excerpts from the subcontractor's report on the certificate? c) objective evidence that the subcontractor itself is NLLAP accredited for the specific tests concerned and results have been included in the subcontractor's endorsed report or certificate?			
	Does the laboratory use any oversight or recognition body logo or symbol on their reports or certificates, or any other material? If yes, which body's logo or symbol are they using?			
****To be reviewed at all assessments (Accreditation, Surveillance and Reaccreditation****				
PL-1 Proficiency Testing Requirements for Applicant and Accredited Laboratories				
	For applicant laboratories: Is there objective evidence for PT activity for each item to be included within proposed scope of accreditation? Are the results meaningful i.e. demonstrating the laboratory's competence in performing specified tests per the LQSR?			
	For accredited laboratories: Is there a documented proficiency testing plan or schedule? Does this plan or schedule include all matrices on the scope of accreditation to be tested per the LQSR? Has the laboratory completed quarterly			

	ELPAT proficiencies? Has the proficiency plan or schedule been approved by PJLA?			
	For any unfavorable results gathered during proficiency testing, was appropriate corrective action taken?			

PL-2 Measurement Traceability Policy			
Does the laboratory have documented policies and procedures regarding measurement traceability and reference this traceability on test reports? Does the laboratory have documented procedures detailing the verification, transport and storage of reference standards?			
Has the laboratory employed the services of an external calibration provider(s) that are accredited to ISO/IEC 17025:2005 for the calibration(s) performed? If not, can the laboratory demonstrate reverse traceability, an uninterrupted chain, back to NIST or another NMI?			
Does the laboratory have on file and available the current certificates and scopes of accreditation for the external calibration laboratories employed?			
PL-3 Policy on Measurement Uncertainty for Calibration and Testing Laboratories			
For applicant laboratories: Has the laboratory applied its documented procedure to provide measurement uncertainties for every measured quantity, instrument or gage listed in its scope of accreditation? (Well recognized test methods or procedures that specify limits to the values of major sources of uncertainties will meet this requirement)			
For accredited laboratories: Are stated uncertainties periodically reviewed and updated to evaluate changes to be made to any influence listed in an uncertainty budget? Does the laboratory include a metrological statement or reference estimated uncertainties on test reports?			

Surveillance of Previous Nonconformities and Corrective Action			
The assessor shall verify that previous nonconformities have been resolved and that corrective actions have been effectively implemented.			

Additional Notes:

Appendix A

Table 1 Summary of Instrument Calibration Performance Requirements for an instrument which produces a numerical result

QC SAMPLE	FREQUENCY	ACCEPTANCE LIMITS
Independent Calibration Verification (ICV)	Once per day after calibration	Within ±10 % of known value
Initial Calibration Blank (ICB)	Once per run at the beginning of the run	Absolute value not more than 50 % of the lowest regulatory limit for the sample matrix analyzed or minimum level of concern
Continuing Calibration Verification (CCV)	At the beginning and end of a sample run, as well as every 12 hours, or according to instrument manufacturer's recommendations, or according to instrument Performance Characteristic Sheet (PCS), or at a predetermined SOP frequency whichever is most frequent	Within ±20 % of known value
Interference Check Sample (ICS) (where applicable)	At the beginning and end of each run or twice every 12 hours	Within 20 % of known value
Continuing Calibration Blank (CCB)	After each ICS and CCV	Absolute value not more than 50 % of the lowest regulatory limit for the sample matrix analyzed or minimum level of concern

In the absence of sufficient data for statistical determination of adequate QC limits and frequency, the types of QC samples, minimum frequencies and the required minimum acceptance limits shown in this table shall be met, as appropriate.

Appendix A

Table 2 Summary of Instrument (or Equivalent) Performance Requirements for an instrument (or equivalent) which produces Pass-Fail result

QC SAMPLE	FREQUENCY	ACCEPTANCE LIMITS
Independent Calibration Verification - Positive (ICV-P) (sample lead level no more than 20 % above the applicable regulatory limit; omit for positive screen technologies)	Once per run at the beginning of the run	Positive
Independent Calibration Verification - Negative (ICV-N) (sample lead level no less than 20 % below the applicable regulatory limit; omit for negative screen technologies)	Once per run at the beginning of the run	Negative
Initial Calibration Blank (ICB)	Once per run at the beginning of the run	Negative
Continuing Calibration Verification Positive (CCV-P) (sample lead level no more than 20 % above the applicable regulatory limit; omit for positive screen technologies)	At the end of a run as well as every 12 hours, or according to the manufacturer's recommendations, or according to instrument PCS, or at a predetermined SOP frequency, whichever is most frequent	Positive
Continuing Calibration Verification Negative (CCV-N) (sample lead level no less than 20 % below the applicable regulatory limit; omit for negative screen technologies)	At the end of a run as well as every 12 hours, or according to the manufacturer's recommendations, or according to instrument PCS, or at a predetermined SOP frequency, whichever is most frequent	Negative
Interference Check Sample (ICS) (where applicable)	At the beginning and end of each run or twice every 12 hours	Result consistent with lead level
Continuing Calibration Blank (CCB)	After each ICS and CCV	Negative

Appendix B

Table 3 Summary of QC Sample Performance Requirements for an instrument which produces a numerical result

QC SAMPLE	FREQUENCY	ACCEPTANCE LIMITS
Laboratory Control Sample	One per 20 samples or batch (min. frequency 5 %)	Within ±20 % of known value
Matrix Spike Sample	One per 20 samples or batch (min. frequency 5 %)	Within ±25 % of calculated value
Duplicate Sample	One per 20 samples or batch (min. frequency 5 %)	Within ±25 % Relative % Difference (RPD)
Method Blank	One per 20 samples or batch (min. frequency 5 %)	Absolute value not more than 50 % of the lowest regulatory limit for the sample matrix analyzed or minimum level of concern

In the absence of sufficient data for statistical determination of adequate QC limits and frequency, the types of QC samples, minimum frequencies and the required minimum acceptance limits shown in this table shall be met, as appropriate.

Table 4 Summary of QC Sample Performance Requirements for an Instrument (or equivalent) which Produces Pass-Fail Results

QC SAMPLE	FREQUENCY	ACCEPTANCE LIMITS
Laboratory Control Sample Positive LCS-P (sample lead level no more than 20 % above the applicable regulatory limit; omit for positive screen technologies)	One per 20 samples or batch (min. frequency 5 %)	Positive
Laboratory Control Sample Negative LCS-N (sample lead level no less than 20 % below the applicable regulatory limit; omit for negative screen technologies)	One per 20 samples or batch (min. frequency 5 %)	Negative
Duplicate Laboratory Control Sample LCS-P or LCS-N	One per 20 samples or batch (min. frequency 5 %)	Positive or Negative, depending on the choice of lead level and the capability of the technology
Method Blank	One per 20 samples or batch (min. frequency 5 %)	Negative

In the absence of sufficient data for statistical determination of adequate QC limits and frequency, the types of QC samples, minimum frequencies and the required minimum acceptance limits shown in this table shall be met, as appropriate.