9-30-2004

Quality Assurance Plan for Lead and Asbestos Hazard Prevention Program, 2004

Maine Department of Environmental Protection

QUALITY ASSURANCE PLAN

FOR

LEAD AND ASBESTOS HAZARD PREVENTION PROGRAM

THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Revision Number: 1
Date: September 30, 2004

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In accordance with the requirements of DEP SOP OC-QM-002, “QAPP Approval,” the following actions have been taken:

1. Level I review (Form) was provided at both preliminary and final stages by Malcolm C. Burson, DEP Quality Assurance Manager.

2. Alan Peterson, EPA-NE Quality Assurance, reviewed the QAPP in draft, and provided comments to MEDEP which were incorporated in the final version.

3. Deborah Stahler, MEDEP, provided Level II (Content) review, and indicated her approval on Friday, September 10, 2004.

Accordingly, the QAPP is approved, as indicated on the signature page.

TABLE OF CONTENTS

Appendices

SECTION A: PROJECT MANAGEMENT ELEMENTS

Title and Approval Sheet – Element A.1

This is the cover sheet to this document.

Table of Contents – Element A.2

Distribution List – Element A.3

The following persons will receive copies of this Quality Assurance Plan (QAP):

- Director, DEP Bureau of Remediation and Waste Management
- Director, DEP Division of Solid Waste Management
- Quality Assurance Manager, DEP Commissioner's Office
- Staff of DEP Lead and Asbestos Hazard Prevention Program
- Abatement Coordinator, US EPA New England, AHERA and Lead Program
- NESHAPS Coordinator, US EPA New England

Project/Task Organization – Element A.4

Data generated from sampling and analysis for asbestos and lead are primarily intended to ascertain compliance and support enforcement actions of the program. Additionally, sampling and analysis may be used for compliance assistance purposes, such as for conducting lead screenings to determine if lead is present on certain surfaces.

A.4.1 Organizational Hierarchy

The organizational chart for the DEP Lead & Asbestos Hazard Prevention Program (LAHPP a.k.a. "Unit") is delineated in Appendix A. There are several different job classifications within the Division that implement the lead and asbestos programs, including: the Division Director; an Environmental Specialist IV (LAHPP Program Coordinator); one Oil and Hazardous Materials Specialist III; four Oil and Hazardous Materials Specialist IIs; and one Environmental Technician. Additionally, one Planning and Research Associate I within the DEP Division of Solid Waste Management, and several clerical and financial management positions within the Bureau of Remediation & Waste Management provide administrative support. Data may also be relied upon by the Maine Department of the Attorney General and the U.S. Environmental Protection Agency in pursuit of settlement of civil and/or criminal cases as referred by the DEP.

A.4.2 Personnel Responsible for QAP Implementation

The Department has designated a Quality Assurance Manager (Department QAM) to oversee Quality Systems within the Department and to conduct audits of programs requiring QAPs. The Division Director is responsible for designating the Quality Assurance Coordinator (Unit QAC) and the Program Quality Assurance Manager (Unit QAM) for the DEP/LAHPP. The current QAC is the program OHMS III, and the Unit QAM is the LAHPP Program Coordinator.

The Unit QAC is responsible for drafting and updating the QAP as necessary, seeing that the specific quality control (QC) procedures as outlined in the QAP are followed. The Unit QAM is responsible for ensuring tracking and recording of results of QC programs within the Division, and reviewing QA/QC material generated for sampling projects. Both are responsible for notifying the appropriate personnel and their supervisors, when necessary, of any observed problems needing corrective action. The Unit QAC and QAM will receive specific QA/QC training as needed to ensure that each is qualified to perform the tasks relating to the QAP. This training will include attending conferences and/or training provided by the Department, private industry, or USEPA.

The LAHPP will implement this Quality Assurance Plan (QAP) for all environmental activities that generate data. The QAP ensures that data are of sufficient known quality to withstand scientific and legal challenge relative to the use for which the data are obtained. All programs and activities funded by the USEPA will follow the quality measures outlined in this QAP. The Program Coordinator is responsible for seeing that Unit personnel receive adequate training in order to provide the required QC for all environmental monitoring and/or measurement. In addition, the Program Coordinator may assign staff to periodically observe other staff under actual field conditions to insure that the Standard Operating Procedures (SOPs), as outlined in this document, are being followed.

Background/Problem Definition, and Project/Task Description – Element A.5 and A.6

The United States Environmental Protection Agency (EPA) requires that all environmental monitoring and measurement efforts mandated or supported by U.S. EPA participate in a centrally managed Quality Assurance Plan (QAP). As stated in USEPA Executive Order 5360.1 "Policy and Program Requirements to Implement the Mandatory Quality Assurance (QA) Plan", the primary goal of the QAP is to ensure that all environmentally related measurements performed or supported by USEPA produce data of known quality. The quality of the data are known when all components associated with its derivation are thoroughly documented, with such documentation being verifiable and defensible.

Asbestos is of concern here in Maine as it is present in many building materials and can cause disease. It is estimated to cause disease in more than 25,000 people in the United States annually and even low concentrations are of concern (Libby, Montana has a high incidence of disease from exposure in home settings). Lead is also of concern as Maine's housing stock is relatively old with significant amounts of lead paint, and the ingestion or inhalation of very small amounts of lead can cause poisoning in young children . Renovation work has been shown to release lead dust into the environment and cause elevated blood lead levels in numerous children here in Maine. The LAHPP is responsible for ensuring compliance with state and federal lead and asbestos laws and regulations. This is achieved through educational, compliance, and enforcement activities with regard to the following regulations:

- 06-096 CMR 424, the "Maine Lead Management Regulations",
- 06-096 CMR 425, the "Maine Asbestos Management Regulations", and
- 40 CFR Part 763 "Asbestos in Schools Rule"

Responsibility for conducting Clean Air Act NESHAPS (40 CFR Part 61) inspections has also been delegated by EPA to DEP, and this work is performed by the LAHPP.

Activities of LAHPP personnel include: targeting and conducting inspections of contractors, consultants, schools, and buildings that contain lead or asbestos; conducting investigations of complaints, tips and referrals; and providing education and technical assistance when requested by the regulated community or

general public. These activities often involve sampling and analysis of materials suspected to be asbestos or lead containing as defined in the regulations.

The purpose of conducting sampling and analysis of suspect material for asbestos or lead is to determine whether the suspect material meets the regulatory definitions of asbestos-containing material or lead-based paint. If the material does meet the applicable regulatory definition, then anyone responsible for that material may be subject to the regulations. Determining if a material is an asbestos-containing material or lead-based paint is necessary to ascertain whether the regulations are applicable to a person's or company's activities, and therefore whether compliance inspection and enforcement activities are appropriate.

Quality Objectives and Criteria – Element A.7

The quality of the sampling plan needs to be sufficient to allow the Attorney General's Office, and in some cases the United States Environmental Protection Agency, to pursue civil or criminal enforcement action against a violator. From a legal standpoint, this means identifying whether a material contains more than 1% asbestos by weight as determined by weight, visual evaluation, or point count analysis, or whether paint or other coating contains lead in concentrations more than 1.0 milligrams per square centimeter or more than 0.5% by weight.
(asbestos: 06-096 CMR Chapter 425, Sec 6.B; and lead: 06-096CMR, Chapter 424, Sec 7.D)

Generally site-specific Data Quality Objectives (DQOs) will not be needed prior to collecting data as it is assumed that the DQO of all sampling and analysis is for the above-mentioned legal and enforcement purposes. If another DQO is indicated, then an alternative site-specific DQO will be established. Three steps will be followed in developing an alternative site-specific DQO: 1) Identify the goal of the sampling and analysis, i.e., why are we doing it? 2) Identify who will use the data. 3) Identify the data quality needed to meet the site sampling and analysis goal and data use.

Special Training/Certification – Element A.8

Training Requirements. LAHPP staff who may collect samples as part of their routine work activities include all the Oil & Hazardous Materials Specialists (OHMSs). At a minimum, LAHPP OHMSs training includes:

- CERCLA 40-Hour Hazardous Materials Training and annual 8-hour refreshers;
- Initial Asbestos Inspector training and annual refreshers meeting the requirements of Asbestos Model Accreditation Plan; Interim Final Rule (59 FR 5236, February 3, 1994); (see Appendix B for course content)
- EPA NESHAPs inspector course;
- Initial Lead Inspector training and annual refreshers meeting the requirements of 40 CFR Part 745 Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities; Final Rule August 29,1996; (see Appendix C for course content) and;
- XRF radiation safety training.

Additional training may be assigned and/or approved by the LAHPP Program Coordinator. Completion of training and proof of re-certification will be documented for each employee, and maintained according to Department training record standards. Professional certifications will be maintained by staff in accordance with performance expectations set by the Program Coordinator in conformance with program and division policies. Additionally, Unit members who perform fieldwork, including collection of samples, must pass an annual physical, undergo medical monitoring and be trained and fit-tested for respirator use.

Lab Requirements

Asbestos. The LAHPP uses outside laboratory services for analysis of samples for asbestos. To perform asbestos analysis, the laboratory must be licensed by DEP LAHPP, be an actively participating laboratory in bulk or air analysis quality assurance programs, and be certified for analysis in schools if appropriate. Laboratories performing asbestos analysis on samples generated in Maine are required to provide QA/QC information as part of the licensing process. Laboratories, performing analysis on bulk samples obtained anywhere other than school buildings, must be actively participating and rated proficient by the American Industrial Hygiene Association's (AIHA) bulk quality assurance program. Laboratories, which perform analysis on bulk samples obtained in school buildings must be accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Licensing standards for asbestos laboratories are contained in Appendix D, "Application for Licensing as an Asbestos Analytical Laboratory".

Lead. Laboratories performing analyses of lead in paint, soil, dust, and water for the purposes of complying with Chapter 424 shall be accredited by the EPA's National Lead Laboratory Accreditation Program (NLLAP) and certified for environmental lead analysis in accordance with the Maine DHS, Chapter 263, "Maine Comprehensive and Limited Environmental Laboratory Certification Rules." Labs performing analysis of lead in water must be certified by the Maine DHS.

Analyst Requirements

Asbestos. All asbestos bulk samples collected by Department staff are analyzed by LAHPP-certified asbestos bulk analysts employed by LAHPP-licensed Asbestos Analytical Laboratories. Certification as an Asbestos Bulk Analyst requires an initial successful completion of a Department-approved training course

and exam in the techniques and procedures for identification and quantification of asbestos in bulk samples (e.g., McCrone Institute Asbestos Bulk Analysis course or its equivalent). Each Bulk Analyst must annually submit evidence to the DEP demonstrating successful completion of Quality Assurance checks as part of the laboratory's quality assurance program. Current licensing and certification status for LAHPP-certified asbestos bulk analysts and LAHPP-licensed Asbestos Analytical Laboratories are maintained by the LAHPP Licensing Coordinator.

Lead. Unit staff primarily use an x-ray Fluorescence (XRF) machine for sample analysis involving lead-based paint. Paint shall be sampled for lead using an XRF according to the Unit's SOPs for Lead Sampling (see Appendix E) unless the surface is not suitable for this method of analysis. The XRF must have a currently valid radioactive materials license in accordance with the State of Maine Rules Relating to Radiation Protection (10-144A CMR 220, effective October 1, 1994).

- Original Chain of Custody Form and laboratory analytical data sheets;
- A copy of the Notice of Inspection (NOI);
- All records obtained during the investigation, including photographs;
- A complete copy of investigative reports and memorandums transmitting analytical or other data obtained during investigations;
- Any alternative QAPPs, Work Plans, Health and Safety Plans (HASPs), and SAPs specific to a project;
- All official correspondence received by or issued by the DEP/LAHPP relating to the investigation including records of telephone calls;
- One copy of the sampling plan if sampling varied from the LAHPP SOPs;
- One copy of the final report (if applicable), and transmittal memoranda; and
- Any other relevant documents related to the original investigation/inspection (including XRF readouts and/or work sheets for lead inspections) or follow-up activities related to the investigation/inspection

Document control is a systematic procedure for ensuring that all sampling/monitoring documents are properly identified and accounted for during and after the completion of investigations and project reports. The term document control, as it applies to DEP/LAHPP inspections and investigations, refers to the maintenance of inspection, investigation and project reports, all termed a "project file". Project files shall be maintained by the appropriate inspector/project manager at a designated filing location within the agency for 2 years after completion and then sent to the State Archive Records Center for 5 years. Records are then destroyed after 5 years. All documents as outlined below shall be kept in a project file:

- Original Chain of Custody Form (Appendix F) and laboratory analytical data sheets;
- A copy of the Notice of Inspection (NOI); (Appendix G);
- All records obtained during the investigation, including photographs;
- A complete copy of investigative reports and memorandums transmitting analytical or other data obtained during investigations;
- Any alternative QAPPs, Work Plans, Health and Safety Plans (HASPs), and SAPs specific to a project;
- All official correspondence received by or issued by the DEP/LAHPP relating to the investigation including records of telephone calls;
- One copy of the sampling plan if sampling varied from the LAHPP SOPs;
- One copy of the final report (if applicable), and transmittal memoranda; and

- Any other relevant documents related to the original investigation/inspection (including XRF readouts and/or work sheets for lead inspections) or follow-up activities related to the investigation/inspection

Under no circumstances are any personal opinions or irrelevant information to be filed in the official project files. Factual observations are recorded on the Notice of Inspection which is in the project file. The Unit field staff shall review the file at the conclusion of the project to insure that the file is complete.

"Public record" or "public records" shall mean all documents, papers, letters, maps, books, tapes photographs, films, sound recordings, or other material regardless of physical form or characteristics made or received pursuant to law or ordinance or in connection with the transaction of official business by the DEP/LAHPP. The following records shall not be deemed public:

* Trade secrets and commercial or financial information obtained from a person, firm, or corporation, which is of a privileged or confidential nature;
* Preliminary drafts, notes, impressions memoranda, working papers, and work products; and
* Records, reports, opinions, information, and statements required to be kept confidential by federal or state law, rule, rule of court, or regulation by state statute.

Records and documents shall be maintained in accordance with the Division of Solid Waste Management Records Retention Policy (Appendix H).

SECTION B: DATA GENERATION AND ACQUISITION

Sampling Process Design and Sampling Methods – Elements B.1 and B.2

Sampling plan design and specific protocols for data collection activities are detailed in the Unit's lead and asbestos sampling SOPs (Appendix C). Sampling for asbestos and/or lead at most sites will follow a standardized sampling plan as reflected in the SOPs. Sampling activities shall be conducted in accordance with these SOPs unless unusual site-specific conditions preclude following the SOPs. Under such unusual circumstances, Unit staff may deviate from these general sampling plans. Any deviation and the rationale for deviating from the SOP shall be detailed in the activity report. The report shall also include an evaluation of the deviation's impact on the DQOs for that particular sampling event. The Unit staff person assigned has overall responsibility for developing the alternative sampling plan for a specific site, and may seek input from the Unit QAC, the Unit QAM, and other field personnel as needed.

Sample Handling and Custody – Element B.3

Sample handling and custody procedures are also standardized and detailed in the SOPs cited above and shall be followed in all cases and investigations.

Analytical Methods – Element B.4

Bulk samples shall be analyzed for asbestos by NVLAP-accredited laboratories using EPA-approved methodologies detailed in "Test Method, Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116, July 1993)." Bulk samples analyzed by either polarized light or point counting methodologies have no detection limits; that is, if a fiber is present it is expected to be seen and counted. There is therefore no limit of detection. Variation among analysts must be documented by the laboratory's QA/QC program and the independent quarterly lab proficiency program (both required by DEP Chapter 425, *The Asbestos Management Regulations*).

Paint, dust and soil samples shall be analyzed for lead by NLLAP-accredited laboratories in accordance with the requirements of the Environmental Lead Proficiency Analytical Testing Program (ELPAT). Water samples are submitted to the Maine Department of Human Services Health & Environmental Testing Lab (HETL) for analysis in accordance with EPA-approved methods. Minimum detection limits of the HETL are as follows:

a) 0.028% by ICP method for paint
b) 1.17mg/kg by ICP for soil
c) 0.17ug/filt by ICP for wipes
d) 0.012% by GFAA method for paint
e) 0.58mg/kg by GFAA for soil
f) 0.0594ug/filt for wipes

Additionally, reporting limits for HETL are as follows:

a) 3ppm soil
b) 300ppm paint
c) 2ug/ft2 wipes
d) 3ug air filters

Quality Control – Element B.5

Quality control is of the utmost importance; sampling and analysis procedures must be standardized to be defensible in the court system, and by staff and the Attorney General's Office for civil actions. Quality control of sampling is achieved by staff using procedures delineated in the sampling plan SOPs cited above, collecting duplicate field samples and field blanks, and by Unit managers performing periodic audits to ensure that these procedures are being followed. Quality control of sample analysis is achieved through implementation of the laboratories' QA/QC program that has been approved by the appropriate state and federal licensing and accreditation programs.

Field QC samples such as duplicate field samples are collected at a rate of 5 percent. Field blank samples are collected at a rate of at least one per week per media sampled.. Table 1 shows the frequency and number of QC samples that should be collected during a sampling event.

TABLE 1
Guidelines for Minimum QA/QC Samples
For Field Sampling Events

Medium	**Duplicate Field Samples**	**Field Blanks**
Bulk	One in twenty	In accordance w/SOP or one per week
Soil	One in twenty	In accordance w/SOP or one per week
Water	One in twenty	In accordance w/SOP or one per week
Dust	One in twenty	In accordance w/SOP or one per week.

Notes:
QA/QC requirements on a site-specific basis may dictate a more stringent frequency. Laboratory blanks and spikes are method-specific and are not included in this table.

Duplicate samples are collected at the minimum rate of 1 per 20 samples If fewer than 20 samples are collected in a week, then one duplicate sample will be collected per week.

Instrument/Equipment Testing, Inspection, and Maintenance and Calibration Frequency – Elements B.6 and B.7

Asbestos. Sampling equipment for collection of bulk samples for asbestos consists of: clean "whirl-pac" bags, clean latex gloves, and a "clean" tool to dislodge the asbestos from the substrate (if needed). Inspectors carry these items with them on all inspections and compliance investigations. The "whirl-pac" bags are disposed of by the lab and latex gloves are disposed of by the inspector after a single use. Any tool used to dislodge material to be sampled from a substrate will either be disposed of after use by the inspector or shall be thoroughly cleaned by washing and rinsing to remove any residual material prior to reuse. There is no corrective maintenance associated with this disposable and/or washable sampling equipment.

Lead. Sampling for lead is done primarily with an x-ray fluorescence (XRF) machine (manufacturer and model, RMD-XR-1). Paint chips may also be collected for analysis for lead content. The XRF is calibrated by the manufacturer prior to purchase and calibrated in the field by the Unit field staff prior to, during, and after each use as specified in XRF Sampling SOP and "XRF Calibration and Maintenance.". The quality control check used by Unit field staff to ascertain precision of the XRF is to calibrate the machine before and after use with a 1.0 micrograms per square foot standard. If the XRF average readings are plus or

minus 0.3 micrograms per square foot, then the XRF readings are considered "failed" and the machine must be re-calibrated. Periodic maintenance is required and is done by the manufacturer when the radiological source needs replacement (on average every 2 years). Paint chip, dust, and water sampling require minimal equipment, and no maintenance, and is handled as described for asbestos sampling equipment above.

Inspection/Acceptance of Supplies and Consumables – Element B.8

Supplies and consumables, including disposable gloves and whirl-pac bags, will be inspected by LAHPP field staff prior to use to ensure that they have not been contaminated or breached for asbestos and paint chip sampling. The OHMS II who coordinates safety for the Unit is responsible for ordering supplies and consumables for the entire Unit on an as-needed basis. Supplies and consumables for the XRF machine other than the radioactive source are unrelated to sampling and analysis performance. The radioactive source is replaced as needed and in accordance with the manufacturer's recommendations to ensure the use of the instrument meets performance specifications.

Non-direct Measurements – Element B.9

Lead and asbestos data from other sources that may be used by LAHPP to ascertain compliance and/or pursue enforcement includes sampling and analytical results from Maine-certified lead and asbestos professionals. Unit staff, prior to using data from an "outside vendor", such as a laboratory or consultant, shall determine that the companies performing the sampling and/or analysis activities were licensed by the Department when the activity was completed, that the individuals performing the actual activities were certified by the Department during the time of the activity, and that DEP-approved analysis methodologies, as *per* Chapters 424 or 425, were used during analysis.

Data Management – Element B.10

Once data has been collected as part of an inspection or investigation, that data becomes part of the case file. Information included in the case file is listed in Element A.9.

GROUP C: ASSESSMENT AND OVERSIGHT

Assessments and Response Actions – Element C.1

The Unit QAM is responsible for tracking and recording the results of QC programs within the Division; the Unit QAC is responsible for reviewing QA/QC material generated for specific sampling projects. Both are responsible for notifying the appropriate personnel and their supervisors, when necessary, of any observed problems needing corrective action

The Unit Supervisor is responsible for seeing that Unit personnel receive adequate training in order to provide the required QC for all environmental monitoring and/or measurement. In addition, the Program Coordinator may assign staff to periodically observe other staff under actual field conditions to insure that the Standard Operating Procedures (SOPs), as outlined in this document, are being followed.

The Unit QAM is responsible for ensuring that results of specific QC audits and any corrective actions are tracked and recorded. In addition, the Unit QAM (or, if unavailable, their designee) must approve for any modifications adopted to avoid the generation of data of questionable quality or to correct data of questionable quality previously generated. The QAC will be notified of any suspected problems and possible corrective actions.

The Unit QAM will be responsible for initiating field or laboratory audits as deemed necessary for any project, inspection, or investigation or analysis. The Unit QAM is responsible for ensuring that a response to any audit is completed along with any corrective action. The Unit QAM will also be responsible for assuring that the inspector/project manager generates the proper documentation for all data collection activities and forwards them to the appropriate people.

Additionally, yearly QA reviews will be conducted by the QAC with input from the Unit QAM as necessary. These reviews will outline any QA corrective actions or "unusual events" that have occurred throughout the year, and changes or updates that have been made to the QAP or SOPs. Records of QAPs and yearly review information shall be maintained by the Unit QAC at a designated filing location within the agency for 2 years after expiration, and then sent to the State Archive Records Center for 5 years. Records are then destroyed after 5 years.

Also, as past of the Department's Quality Assurance Program, periodic audits of systems, programs, and specific tasks within the Department are conducted. The LAHPP could be subject to a DEP Quality Assurance Program audit at any time.

Reports to Management – Element C.2

Quality Systems Program audits and their results are delivered to management at the conclusion of a program QA audit. LAHPP internal audits will be unannounced and results of those audits will be communicated, by written report, to staff and management (Solid Waste Division Director) following completion of the audit. The Unit QAM and/or QAC will conduct the internal audits and will develop recommendations in consultation with the other to be included in a report. Unit field staff are expected to follow recommendations immediately upon receiving the report.

GROUP D: DATA VALIDATION AND USABILITY

Data Review, Verification, and Validation – Element D.1

Data must be evaluated to determine its usefulness. Data may be of use as a screening tool even if it is not of sufficient quality or content for enforcement purposes. LAHPP staff will use the following criteria to accept, reject or qualify analytical data:

a) Accept data from:
   - Asbestos samples taken by a DEP-licensed consultant employing certified asbestos inspector(s) and analyzed by a DEP-licensed lab employing certified persons performing analysis of samples, using EPA approved methods; and
   - Lead paint, dust, soil and water samples taken by an appropriately-trained DEP employee or DEP-licensed Lead Inspector or Lead Risk Assessor, and lead dust samples taken by an appropriately-trained DEP employee or DEP-licensed Lead Sampling Technician.

b) Reject data from:
   - a source not described in (a) above
   - data from results that do not appear consistent (see D.2 below) with inspector knowledge or normal results, or
   - a lab that did not use an EPA-approved method.

c) qualify data from sources not meeting the criteria of (a) or (b) above. Such data may qualify for use as an indicator that lead or asbestos may be present

Verification and Validation Methods– Element D.2

Inspectors will review all data received from the laboratory to make an initial assessment whether any of the data appear inconsistent with other aspects of the inspection report. This includes an on-going review of quality control data generated by the analyzing laboratory by reviewing the results of all duplicate and field blank samples collected during sampling events. It also includes assuring that sample holding time criteria were met. The LAHPP Licensing Coordinator will review also annually the current licensing and certification status of LAHPP-certified asbestos bulk analysts and LAHPP-licensed Asbestos Analytical Laboratories used by the Department to ensure that each bulk analyst has submitted evidence to the DEP demonstrating successful completion of Quality Assurance checks as part of the laboratory's quality assurance program. The inspector is responsible for contacting the laboratory to identify the cause of the inconsistency and, based on the response from the laboratory, for recommending to the Unit QAM whether the results provided by the lab are reliable for enforcement purposes. The inspector is also responsible for recording the results of this data review effort. For example, if the suspect material was asbestos concrete siding and the report said it was loose fluffy insulation, the inspector would contact the lab to determine the cause of this inconsistency, would create a "Note to the File" describing this data verification effort and the response from the lab, and would recommend to the Unit QAM whether the data are useful in determining compliance. The Unit QAM is responsible for making the final determination on whether the data are used to support any enforcement action.

In order to receive the applicable accreditation, each NVLAP- and NLLAP-accredited laboratory is required to have a validation program for ensuring that their analytical results meet accuracy standards.

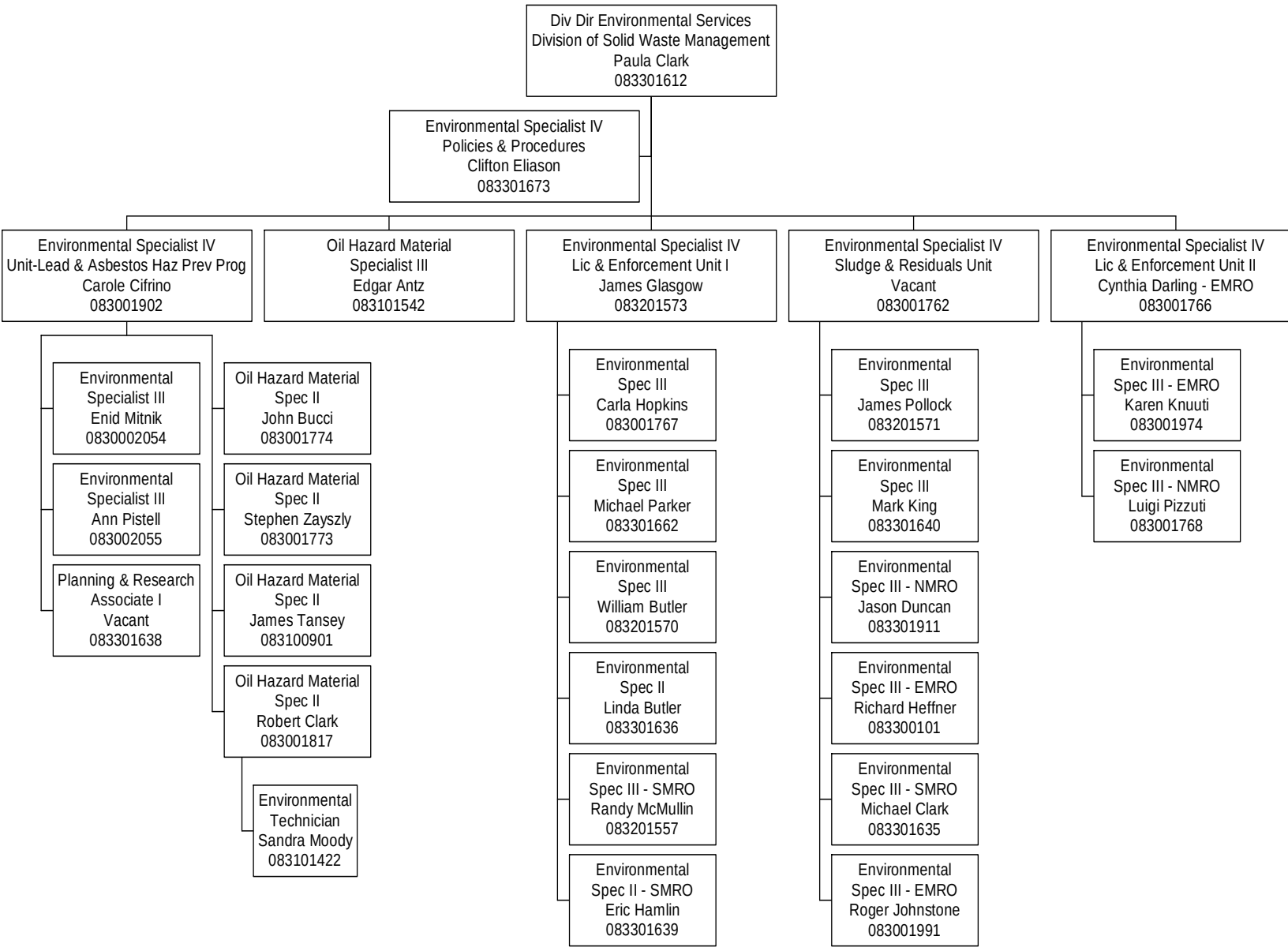
Reconciliation with User Requirements– Element D.3

User requirements are defined by law and regulation as percentages of asbestos and lead within a material. Any enforcement action must be supported by results of sampling and analysis showing the material to be asbestos-containing or lead-containing. Results of analysis for lead include results from proper use of the XRF.

Appendix A

Organizational Chart for the Lead & Asbestos Hazard Prevention Program

Division of Solid Waste Management



Appendix B

ASBESTOS BUILDING INSPECTOR

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

TABLE OF CONTENTS
(continued)

Appendix C

Lead Inspector Course

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

TABLE OF CONTENTS
(continued)

LIST OF TABLES

TABLE OF CONTENTS
(continued)

LIST OF FIGURES

Appendix D

DEP Licensing Standards for an Asbestos Analytical Laboratory

Chapter 425 Section 4.E. Asbestos Analytical Laboratory

(1) License Requirement. A business or public entity that qualitatively or quantitatively analyzes samples of solids, liquids, or gases for asbestos fibers, or that analyzes air samples for total fiber count, must be licensed as follows:

(a) An Asbestos Analytical Laboratory performing asbestos bulk and/or air analysis of samples generated in the State of Maine must hold a valid license for the type of service provided.

(b) An Asbestos Analytical Laboratory whose license encompasses air analysis must use phase contrast microscopy (PCM), transmission electron microscopy (TEM), or another US EPA approved method for the analysis of air samples.

(c) An Asbestos Analytical Laboratory whose license encompasses bulk analysis must use polarized light microscopy (PLM) or transmission electron microscopy (TEM) in accordance with methodologies detailed in EPA's document, Test Method, Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116, July 1993) and any documents referenced therein. Other US EPA approved methods of bulk analysis may be used as well.

(d) An Asbestos Analytical Laboratory that performs air sample analysis must be an active participating laboratory rated proficient by the AIHA's PAT (American Industrial Hygiene Association's Proficiency Analytical Testing) program.

(e) An Asbestos Analytical Laboratory that performs bulk sample analysis must be accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or be an active participating laboratory rated proficient by AIHA's bulk quality assurance program.

NOTE: Samples collected as part of a school project must be analyzed by a NVLAP accredited lab in accordance with federal requirements.

(2) Personnel Requirements

(a) An Asbestos Analytical Laboratory must have on staff at all times a certified Asbestos Air Analyst if the laboratory performs air analyses, or a certified Asbestos Bulk Analyst if the laboratory performs bulk analyses.

(b) Each employee of an Asbestos Analytical Laboratory who engages in work as an analyst must hold a valid Asbestos Air or Bulk Analyst certificate, as applicable.

(3) Application and Recordkeeping Requirements

(a) Background information on the laboratory, including:

(i) The names of the applicant's owner(s), or operator(s), principal(s), and officer(s);

(ii) Location and mailing address;

(iii) A list of all other entities performing asbestos abatement activities or asbestos associated activities in which individuals listed under section 4.E(3)(a)(I) of this rule are an owner or operator, principal or officer;

(iv) A list of all names (or acronyms) by which the applicant's firm is known or under which it does business;

(v) Any information requested by the Department for purposes of determining the proficiency and adequacy of the applicant's standard operating procedures;

(b) The laboratory must submit documentation describing its QA/QC program for ensuring accuracy of analysis of air and bulk samples. This must include at a minimum, annual QA/QC training for all air and bulk analysts that includes:

(i) A review of applicable methods (NIOSH 9002, EPA/600/R-93/116, etc.);

(ii) A review of relevant current literature (AIHA, ACGIH, McCrone, etc.) and state-of-the-art technology;

(iii) A review of the lab's current QA/QC program, which should include at a minimum: the statistical calculation of intrinsic sample variability, intra-counter variability, and inter-and intra-laboratory variability, including the laboratory's current Relative Standard Deviation;

(iv) A review and hands-on session for microscope cleaning and calibration; and

(v) Two hours of reading QA samples to determine the analyst's proficiency, including actual field samples, round-robin samples from other laboratories if applicable, and third party QA samples such as the PATs or AARs.

(c) An applicant for Asbestos Analytical Laboratory must submit sufficient information to demonstrate that the applicant meets the recordkeeping requirements set forth in these regulations and must make the following available for review within 24 hours of request by the Department:

(i) Sample chain of custody procedures, including but not limited to handling, storage, and disposal procedures;

(ii) Analytical quality assurance program(s);

(iii) Equipment calibration and standardization procedures;

(iv) Results of the last four quarters of PAT or round robin tests, including individual analyst results;

(v) Laboratory standard procedures for asbestos analysis;

(vi) An up to date asbestos analytical equipment inventory;

(vii) Documents related to laboratory personnel training;

(viii) The certificate of the laboratory owner, operator, or supervisor;

(ix) A copy of their NVLAP or AIHA accreditation as applicable; and

(x) A copy of their quality assurance program ensuring proficiency of all analysts.

(d) Copies of state certificates and dates of employment for employees performing analyses; and

(e) Copies of analyses performed, indicating sample identification number, analysis methods utilized, analytical results, and the name of the certified employee performing the analysis.

(4) In-house Asbestos Analytical Laboratory

(a) License Requirement. An In-house Asbestos Analytical Laboratory is required to be licensed by the Department pursuant to these rules. In-house laboratories are exempt from laboratory proficiency as long as each analyst is rated proficient by AIHA's Asbestos Analytical Registry or by an active participating laboratory that is rated proficient by AIHA or NVLAP and that has an independent business relationship with the in-house laboratory. Analysts must be annually rated proficient as part of their individual AIHA certification.

(b) Application and Recordkeeping Requirements. An applicant for In-house Asbestos Analytical Laboratory must meet all other application and recordkeeping requirements set forth in this rule for Asbestos Analytical Laboratory.

Appendix E

LAHPP Standard Operating Procedures for Lead & Asbestos Sampling

Part #7 Section 1. XRF Sampling & Analysis

Part #7 Section 2. Paint Chip Sampling

Part #7 Section 3. Settled Dust Sampling for Lead

Part #7 Section 4. Water Sampling for Lead

Part #7 Section 5. Soil Sampling for Lead

Part #7 Section 6. Bulk Sampling for Asbestos

Part#7 Section 7. Chain of Custody Procedure

Part #7 Section #1 Data Quality Assurance

Description: XRF Sampling & Analysis

Type: Lead Sampling & Analysis

Date Issued: April 20, 2004

1.0 Scope

1.1 This section establishes sampling procedures and protocols using the XRF.

2.0 Policy

2.1 Unit staff shall use these procedures for sampling building components suspected of containing lead-based paint. Unit staff may deviate from these procedures with warranted justification and shall note deviations on the inspection report.

3.0 General Information

3.1 **Radiation Source.** The LPA- 1 Analyzer uses a Co-57 radioactive source and an advanced, solid-state, room temperature, radiation detector to generate and detect the x-ray fluorescence spectrum of a painted surface. The LPA- 1 method of measurement is based on the spectrometric analysis of lead K-shell X-ray fluorescence within a controlled depth of interrogation.

3.2 **Radiation License and Training Requirements.** The LHAPP XRF is licensed through the Department of Human Services Radiation Control Program and is listed on the DHS's Lead Prevention Program's license. This license is located at the Division of Solid Waste's Lead and Asbestos Hazard Prevention Program Radiation Safety Coordinator's desk. Only staff who have completed radiation training and are issued radiation dosimeter badge may use the XRF.

4.0 Operating the LPA-1

Refer to the LPA-1 user guide for additional information and figures showing the features of the instrument

4.1 Insert the key into the LPA-1 and turn on the XRF.

4.2 Pull the trigger briefly to obtain a READY message.

4.3 Ensure that the proper time and date are displayed. If they are not, refer to the manual for entering proper time and date.

4.3 Use the SET key to display the abatement level. Ensure that the abatement level is set to 1.0mg/cm^2.

4.4 Using the NEW UNIT key create new Unit.

4.5 Open the Shutter lock located in the front of the devise.

4.6 Initiate Calibration as described below.

5.0 Calibrating the LPA-1. Calibrate the XRF whenever initiating an inspection, every four hours during an inspection, at the conclusion of the inspection, or whenever the devise will be turned off.

5.1 Using the SELECT MODE key, select TIME CORRECTED mode

5.2 Take three readings on the NIST SMR 1.0mg/cm^2 standard and record each reading in the Calibration Check Test Results form. Calculate average of three readings. If the difference of the Calibration Check Average from the NIST SMR film value is greater than the calibration check tolerance ($\pm$.3mg/cm^2), then do not use the devise.

5.3 After calibrating the LPA-1, using the SELECT MODE key, select QUICK MODE and initiate inspection.

5.4 After the inspection is complete, including XRF retesting of 10 selected testing combinations described below, repeat the calibration check as described above. If the devise is not within the tolerance range then all readings taken since the last successful calibration check should be treated as unreliable.

6.0 Conducting an Inspection

6.1 Select testing combinations to be tested. The test locations shall be representative of the testing combination(s) including all layers of paint, and be at least six inches from pipes or electrical outlets to avoid interference.

6.2 The number of XRF reading(s) per testing combination, shall at a minimum, meet the requirements of Chapter 7, "HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, 1997 Revision". If acceptable test locations cannot be found for XRF testing, a paint chip sample shall be collected for laboratory analysis. All testing combination(s) that test inconclusive, shall be assumed to be coated with lead-based paint until otherwise demonstrated by paint chip analysis. Paint chip samples shall be collected in accordance with the Lead Paint Sampling SOP.

7.0 Quality Assurance/Quality Control

Evaluation of XRF Testing

7.1 At the conclusion of the inspection and before initiating final calibration check, calculate the retest tolerance limit in accordance with the XRF performance characteristic retest protocol. This is done by retesting 10 randomly selected previously tested testing combinations. Use the XRF retest spreadsheet to calculate the absolute difference between the two sets of readings, calculate the retest tolerance limit using the spreadsheet formula and compare. If the difference between the absolute averages is less than the retest tolerance, then the inspection passes the retest. See Appendix I for a copy of the XRF performance characteristic retest protocol.

Part #7 Section #2 Data Quality Assurance

Description: Paint Chip Sampling

Type: Lead Sampling

Date Issued: April 20, 2004

1.0 Scope

1.1 This section establishes sampling procedures and protocols for collecting paint chip samples.

2.0 Policy

2.1 Unit staff shall use these procedures for collecting paint chip samples of building components suspected of containing lead-based paint. Unit staff may deviate from these procedures with warranted justification and shall note deviations on the inspection report. NOTE: Because this is a destructive sampling method, collection of paint chip samples must be approved on a case-by-case basis by the Unit Supervisor or his/her designee.

3.0 General Information

3.1 **Paint Chip Sampling**. If dust sampling will be performed, it must always be done **before** paint chip sampling in order to minimize the prospect of cross-sample contamination. Paint chip sampling is a destructive method that may release a small quantity of lead dust. Although paint chip samples are to be collected from inconspicuous areas, the occupant must always be notified that paint chip sampling may be necessary.

4.0. Paint Chip Sampling Tools and Materials

4.1 Sharp stainless steel paint scraper.

4.2 Disposable wipes for cleaning paint scraper.

4.3 Non-sterilized non-powdered disposable gloves.

4.4 Hard-shelled containers (such as non-sterilized 50-mil polypropylene centrifuge tubes) that can be rinsed quantitatively for paint chip samples if results are to be reported in mg/cm^2. Sealed baggies can be used only if results are to be reported in ug/g or percent by weight.

4.5 Collection device (clean creased piece of paper or cleanable tray).

4.6 Field sampling and laboratory submittal forms.

4.7 Tape measure or ruler (if results are reported in mg/cm^2).

4.8 Plastic trash bags.

4.9 Flashlight.

4.10 Masking tape.

4.11 Heat Gun or other heat source operating below 1100°F to soften the paint before removal.

5.0 Containment

5.1 **Method One:** Plastic Sheeting Underneath Sampling Area. A clean sheet of plastic measuring four feet by four feet should be placed under the area to be sampled to capture any paint chips that are not captured by the collection device or creased piece of paper. Any visible paint chips falling to the plastic should be included in the sample. Dispose of the plastic after each sample is collected by placing the sheeting in a trash bag. Do not throw away the plastic at the dwelling. Wet wipes may be used to clean the area.

5.2 **Method Two:** "Glovebag" Approach. If further containment is deemed necessary, a "glovebag" approach may be used. A durable sheet of plastic is loosely taped to the surface to be sampled, with a paint scraper, collection device, and shipment container housed inside the plastic. There should be enough "play" in the plastic to permit a scraping motion without dislodging the tape holding the plastic to the surface. Large plastic baggies can be used in lieu of the sheet of plastic if paint chips are to be shipped to the lab in plastic baggies. Properly conducted, this method completely seals the surface during the actual scraping operation. A four by four foot sheet of plastic is still required under the glove bag to capture any debris that falls to the ground during the glove bag removal. The tape should be slowly removed from the surface to avoid lifting any additional paint off of the surface.

6.0 Paint Sample Collection.

6.1 The paint chip sample need not be more than 2-4 square inches in size (consult with the laboratory for the optional size). Persons collecting paint chips should wear new disposable gloves for each sample. The most common paint sampling method is to scrape paint directly off the substrate. The goal is to remove all layers of paint equally, but none of the substrate. A heat gun may be used to soften the paint before removal to reduce the chances of including substrate with the sample and to help prevent sample loss. Including substrate in the sample will dilute the lead content if results are reported in ug/g or weight percent. Hold the heat gun no closer than six inches from the surface. Do not scorch the paint. Discontinue heating as soon as softening or blistering is observed.

6.2 Use a razor-sharp scraper to remove paint from the substrate. Paint samples collected in this fashion are usually reported in ug/g or % lead only. The sample may be placed in a baggie for shipment to the laboratory.

6.3 If the area sampled is measured exactly (+/- 1/16th), and all the paint within that area can be removed and collected, it is possible to also report the results in mg/cm^2. All of the sample must be placed in a hard-shelled container for shipment to the laboratory. The hard-shelled container is used since the laboratory will analyze the entire sample submitted. The exact dimensions of the areas sampled must be recorded on the filed sampling form. For mg/cm^2, including a small amount of substrate in the sample is permitted.

7.0 Cleanup and Repair.

7.1 All settled dust generated must be cleaned up using wet wipes.

7.2 The surface can be resealed with new paint if necessary. If desired, apply spackling and/or new paint to repair the area where paint was removed.

7.3 Personnel conducting paint sampling should avoid hand-to-mouth contact (specifically, smoking, eating, drinking, and applying cosmetics) and should wash their hands with running water immediately after sampling. The lead inspector should ask to use the resident's bathroom for this purpose. Wet wipes may be used if no running water is available or if the bathroom is not available.

8.0 Laboratory Submittal. Submittal Form Preparation. The sample numbers on the sample container must be the same as those on the field sampling form and must also be used on the laboratory submittal form. Confirm that all samples recorded are in fact present on the laboratory submittal form. Chain of custody requirements should be followed.

9.0 Laboratory Analytical Procedure. Laboratories analyzing paint chip samples must participate in the Environmental Lead Laboratory Proficiency Testing Program or equivalent and be an EPA-NLLAP Accredited Laboratory and certified for environmental lead analysis in accordance with the Maine Department of Human Services Chapter 263, "Maine Comprehensive and Limited Environmental Laboratory Certification Rules". The Maine Health and Environmental Testing Laboratory (HETL) currently meets these standards.

Part #7 Section #3 Data Quality Assurance

Description: Settled Dust Sampling for Lead

Type: Lead Sampling

Date Issued: April 20, 2004

1.0 Scope

1.1 This section establishes sampling procedures and protocols for collecting settled dust samples.

2.0 Policy

2.1 Unit staff shall use these procedures for collecting paint chip samples of building components suspected of containing lead-based paint. Unit staff may deviate from these procedures with warranted justification and shall note deviations on the inspection report.

3.0 General Information

Wipe Sampling for Settled Lead-Contaminated Dust. Wipe samples for settled leaded dust can be collected from floors (both carpeted and uncarpeted), interior and sash/sill contact areas, and other reasonably smooth surfaces. Wherever possible, hard surfaces should be sampled. Wipe media should be sufficiently durable so that it is not easily torn, but can be easily digested in the laboratory. Recovery rates of between 80-120% of the true value should be obtained for all media used for wipe sampling. Blank media should contain no more than 25 ug/wipe (the detection limit using Flame Atomic Absorption)

4.0 Sampling Tools and Materials

4.1 Type of disposable wipe: Any wipe material that meets the following criteria may be used:

Contains low background lead levels,
Is a single thickness,
Is durable and does not tear easily (do not use Whatman™ filters),
Does not contain aloe,
Can be digested in the laboratory,
Has been shown to yield 80-120% recovery rates from samples spiked with leaded dust (not lead in solution), and
Must remain moist during the wipe sampling process (wipes containing alcohol may be used as long as they do not dry out).

4.2 **Non-sterilized non-powdered disposable gloves.** Disposable gloves are required to prevent cross-sample contamination from hands.

4.3 Non-sterilized polyethylene centrifuge tubes (50 ml size) or equivalent hard-shell container that can be rinsed quantitatively in the laboratory.

4.4 Dust sample collection forms.

4.5 Camera & film to document exact locations (Optional).

4.6 **Template Options.** Masking tape or hard, smooth, reusable templates may be used to define the area to be wiped. Periodic wipe samples should be taken from the templates to determine if the template is contaminated. Disposal templates are also permitted so long as they are not used for more than a single surface. Templates must be larger than $0.1ft^2$, but smaller than $2ft^2$. Templates for floors are typically $1ft^2$. Templates are usually not used for windows due to the variability in size and shape (use masking tape instead).

Note: Masking tape may damage the painted surface.

4.7 Container labels or permanent marker.

4.8 Trash bag or other receptacle (do not use pockets or trash containers at the residence).

4.9 Rack, bag, or box to carry tubes (optional).

4.10 Measuring tape.

4.11 Disposable shoe coverings (optional).

5.0 Single Surface Wipe Sampling Procedure

5.1 Outline Wipe Area:

5.1.1 Floors: Identify the area to be wiped. Do not walk on or touch the surface to be sampled (the wipe area). Apply masking tape to perimeter of the wipe area to form a square or rectangle of about one square foot. No measurement is required at this time. The tape should be positioned in a straight line and corners should be nominally perpendicular. When putting down any template, do not touch the interior wipe area.

5.1.2 Window sills and other rectangular surfaces: Identify the area to be wiped. Do not touch the wipe area. Apply two strips of masking tape across the sill to define a wipe area at least 0.1 square foot in size (approx. 4 inches x 4 inches).

5.2 **Preliminary inspection of the disposable wipes.** Inspect the wipes to determine if they are moist. If they have dried out, do not use them. When using a container that dispenses wipes

through a “pop-up” lid, the first wipe in the dispenser at the beginning of the day should be thrown away. The first wipe may be contaminated by the lid and is likely to have dried to some extent. Rotate the container prior to each use to ensure liquid inside the container contacts the wipes.

5.3 **Gloves.** Don a disposable glove on one hand; use a new glove for each sample collected. If two hands are necessary to handle the sample, use new gloves, one for each hand. It is not necessary to wipe the gloved hand before sampling.

5.4 **Collection of sample.** Place the wipe at one corner of the surface to be wiped with wipe fully opened and flat on the surface. For square sample areas, complete a first wipe pass side-to-side as follows. With the fingers together, grasp the wipe between the thumb and the palm. Press down firmly, but not excessively with both the palm and fingers (Do not use only the fingertips or the heel of the hand to hold down the wipe, because there will not be complete contact with the surface and some dust may be missed.) Do not touch the surface with the thumb. Proceed to wipe side-to-side with as many “S”-like motions as are necessary to completely cover the entire wipe area. Exerting excessive pressure on the wipe will cause it to curl. Exerting too little pressure will result in poor collection of dust. Attempt to remove all visible dust from the wipe area.

5.4.1 Next, fold the wipe in half with the contaminated side facing inward. (The wipe can be straightened out by laying it on the wipe area, contaminated side up, and folding it over.) Once folded, place in the top corner of the wipe area and press down firmly with the palm and fingers. Complete a second wipe pass moving from top-to-bottom and wiping the area with “S”-like motions. Attempt to remove all visible dust. Do not touch the contaminated side of the wipe with the hand or fingers. Do not shake the wipe in an attempt to straighten it out, since dust may be lost during shaking.

5.5 For rectangular sample areas: two side-to-side passes must be made over half of this surface, the second pass with the wipe folded so that the contaminated side faces inward. For a window sill, do not attempt to wipe the irregular edges presented by the contour of the window channel. Avoid touching other portions of the window with the wipe. If there are paint chips or gross debris in the window sill, attempt to include as much of it as possible on the wipe. If all of the material cannot be picked up with one wipe, field personnel may use a second wipe at their discretion and insert it in the same container. Consult with the analytical laboratory to determine if they can perform analysis of two wipes as a single sample. When performing single-surface sampling, do not use more than two single surface wipes for each container. If heavily dust-laden, a smaller area should be wiped. It is not necessary to wipe the entire window well but do not wipe less than 0.10 ft^2 (approx. 4” x 4”).

6.0 **Packaging the Wipe.** After wiping, fold the wipe with the contaminated side facing inward again, and insert aseptically (without touching anything else) into the centrifuge tube or other hard-shelled container. If gross debris is present, such as paint chips in a window well, make every attempt to include as much of the debris as possible in the wipe.

6.1 Seal the tube and label with the appropriate identifier. Record the laboratory submittal sample number on the field sampling form.

7.0 Area Measurement. After sampling, measure the surface area wiped to the nearest eighth of an inch using a tape measure or a ruler. The size of the area wiped must be at least 0.10 ft^2 in order to obtain an adequate limit of quantitation. No more than 2 square feet should be wiped with the same wipe or else the wipe may fall apart. Record specific measurements for each area wiped on the field sampling form.

8.0 Form completion. Fill out the appropriate field sampling forms completely. Collect and maintain any field notes regarding type of wipe used, lot number, collection protocol, etc.

9.0 Trash Disposal. After sampling, remove the masking tape and throw it away in a trash bag. Remove the glove; put all contaminated gloves and sampling debris used for the sampling period into a trash bag. Remove the trash bag when leaving the dwelling. Do not throw away gloves or wipes inside the dwelling unit where they could be accessible to young children, resulting in a suffocation hazard.

10.0 Blank Preparation. After sampling the final dwelling unit of the day, but before decontamination, field blank samples should be obtained. Analysis of the field blank samples determines if the sample media is contaminated. Each field blank should be labeled with a unique identifier similar to the others but that identifies the sample as a field blank.

10.1 Blank wipes are collected by removing a wipe from the container with a new glove, shaking the wipe open, refolding as it occurs during the actual sampling procedure, and then inserting it into the centrifuge tube without touching any surface or other object. One blank wipe is collected for each dwelling unit sampled or, if more than one dwelling unit is sampled per day, one blank for every 50 field samples, whichever is less. Also, collect one blank for every lot used. Record the lot number.

11.0 Lead Inspector Decontamination. After sampling, wash hands thoroughly with plenty of soap and water. A bathroom in the dwelling unit may be used for this purpose, with the owner's or resident's permission. If there is not running water in the dwelling unit, use wet wipes to clean the hands. During sampling, inspector must not eat, drink, smoke, or otherwise cause hand to mouth contact.

12.0. Laboratory Submittal. Submittal Form Preparation. The sample numbers on the sample container must be the same as those on the field sampling form and must also be used on the laboratory submittal form. Confirm that all samples recorded are in fact present on the laboratory submittal form. Chain of custody requirements should be followed.

13.0. Laboratory Analytical Procedure. Laboratories analyzing dust samples must participate in the Environmental Lead Laboratory Proficiency Testing Program or equivalent and be an EPA-NLLAP Accredited Laboratory and certified for environmental lead analysis in accordance with the Maine Department of Human Services Chapter 263, "Maine Comprehensive and Limited Environmental Laboratory Certification Rules". The Maine Health and Environmental Testing Laboratory (HETL) currently meets these standards.

Part #7 Section #4 Data Quality Assurance

Description: Water Sampling for Lead

Type: Lead Sampling

Date Issued: April 20, 2004

1.0 Scope

1.1 This section establishes sampling procedures and protocols for collecting water samples.

2.0 Policy

2.1 Unit staff shall use these procedures for collecting water samples suspected of containing lead-based paint. Unit staff may deviate from these procedures with warranted justification and shall note deviations on the inspection report.

5.0 General Information

Identify the tap(s) which serve as the major source(s) of drinking and cooking water in the residential dwelling or child-occupied facility.

6.0 Water Sampling Equipment

250 ml sterilized water containers.
Disposable non-powdered gloves.

7.0 Water Sampling Methods

Collect a first-draw and flushed sample in accordance with the following procedure:

5.1 First-Draw Samples. Collect a water sample from the cold water tap(s) after there has been no water used for at least six hours. The water sample(s) should contain the first drops of water as the faucet is turned on and continue until the sample container is filled

5.2 Flushed Samples. Collect a water sample from the same cold water tap(s) as the first-draw samples. Allow the water to run for five (5) minutes after collecting the first-draw samples before filling the sample container to be identified as the flushed sample.

6.0 Laboratory Submittal

6.1 Submittal Form Preparation. The sample numbers on the sample container must be the same as those on the field sampling form and must also be used on the laboratory submittal form.

Confirm that all samples recorded are in fact present on the laboratory submittal form. Chain of custody requirements should be followed.

7.0 Laboratory Analytical Procedure

Laboratories analyzing water samples must participate in the Environmental Lead Laboratory Proficiency Testing Program or equivalent and be an EPA-NLLAP Accredited Laboratory and certified for environmental lead analysis in accordance with the Maine Department of Human Services Chapter 263, "Maine Comprehensive and Limited Environmental Laboratory Certification Rules". Analysis of lead in water must be performed by a laboratory certified by the Maine Department of Human Services to analyze for lead in drinking water. The Maine Health and Environmental Testing Laboratory (HETL) currently meets these standards.

Part #7 Section #5 Data Quality Assurance

Description: Soil Sampling for Lead

Type: Lead Sampling

Date Issued: April 20, 2004

1.0 Scope

1.1 This section establishes sampling procedures and protocols for collecting soil samples.

2.0 Policy

2.1 Unit staff shall use these procedures for collecting soil samples suspected of containing lead-based paint. Unit staff may deviate from these procedures with warranted justification and shall note deviations on the inspection report.

8.0 General Information

3.1. Collection Technique General Description. Bare soil samples are typically collected with a coring device or a scooping technique. The device may be used in either of two ways. Most coring devices come equipped with a "T" handle which can be attached to the top of the coring tool or probe. This allows the sample collector to push the tool into the ground. The coring tool can be twisted with the "T" handle as it is pushed into the ground in order to allow the cutting edge of the soil probe to cut through roots and packed earth. In softer soils, a disposable new plastic syringe at least ½ inch diameter can be used for each composite sample.

3.2 The other method for using the coring tool is to attach a hammer device to the top of the coring tool. To utilize the coring tool in this manner, the hammer device is first attached to the top of the coring tool and the tip of the probe is placed on the ground where the sample is to be collected. The hammer is then raised and allowed to fall while it is guided by the sample collector's hands. The hammer attachment may be the most appropriate tool when the nature of the soils is hard and compacted. Otherwise the "T" handle is easier to use.

3.3 The soil samples are collected by driving or pushing the coring tool into the ground. The tool is then moved gently from side to side to loosen a plug of soil. The tool is then pulled from the ground and the soil sample is pushed so that the upper part of the soil plug lies between one inch marks made on the coring device.

The top one half inch of the soil sample is then cut from the core with a stainless steel knife or cutting tool provided for that purpose. This top one half inch section of the soil core is then transferred to a sample container. All sub-samples are collected in this manner. The collection of sub samples form the sampling line is referred to as a "composite" sample.

3.4 After collecting a composite sample, the soil probe should be discarded.

4.0 Materials and Supplies.

4.1 **Core sampling devices:** Standard disposable soil coring device. Other similar core sampling devices may be used, such as disposable plastic syringes with the end cut off. The plunger is used to remove the soil from the syringe body.

4.2 Disposable wipes.

4.3 **Non-sterilized 5" x 8" plastic sealed baggies:** Unless baggies are 4 mil industrial strength, samples must be double bagged.

4.4 Non-sterilized non-powdered disposable gloves.

4.5 Floor plan & property sketch.

4.6 Soil sample collection form.

4.7 Laboratory submittal form.

4.8 Pre-printed labels or permanent ink pen.

4.9 Trash bag or other receptacle (do not use pockets or trash containers at the residence).

5.0 Bare Soil Sampling Procedures.

5.1 Soil sampling is not recommended when the ground is frozen.

5.2 The location of soil samples should be recorded on the exterior site plan sketch.

5.3 **Perimeter Sampling Locations:** One composite soil sample should be collected so that at least 5 and no more than 10 different aliquots of surface soil are collected from the building perimeter. The aliquots should be collected from all sides of the building where bare soil is present. Each spot should be at least 2 feet distant from each other and 2 feet away from the foundation, unless the bare soil is closer than 2 feet.

5.4 **Play Area Sampling Locations:** A second composite sample should consist of at least 5 and not more than 10 aliquots collected along an X-shaped grid in the child's principal play area. Each spot should be at least 1 foot distant from each other. The soil where the aliquots are collected must be bare.

5.5 The core sampling device should be used to deliver the top ½ inch of soil from each spot to the baggie. No special effort should be made to collect visible paint chips. If paint chips are present, they should not be avoided and should be included in the sample. When sampling play

areas, the lead inspector should make an effort to avoid including grass, twigs, stones, and other gross debris in the sample.

5.6 When all aliquots of the composite sample have been placed in the baggie, the baggie should be zip locked or sealed. If the baggie is not 4 mil industrial weight, the sample should be double bagged. A label with the sample number should be affixed to the baggie. The number should be recorded on the soil platform showing the approximate location of each sample and the soil collection field data form.

5.7 The core sampler should be disposed of after each composite sample is collected. If a disposable core sampler is used, it can be used for all sub-samples, but not new composite samples unless it is cleaned thoroughly.

6.0. Laboratory Submittal

6.1 Submittal Form Preparation. The sample numbers on the sample container must be the same as those on the field sampling form and must also be used on the laboratory submittal form. Confirm that all samples recorded are in fact present on the laboratory submittal form. Chain of custody requirements should be followed.

7.0 Laboratory Analytical Procedure. Laboratories analyzing soil samples must participate in the Environmental Lead Laboratory Proficiency Testing Program or equivalent and be an EPA-NLLAP Accredited Laboratory and certified for environmental lead analysis in accordance with the Maine Department of Human Services Chapter 263, "Maine Comprehensive and Limited Environmental Laboratory Certification Rules". The Maine Health and Environmental Testing Laboratory (HETL) currently meets these standards.

Part #7 Section #6 Data Quality Assurance

Description: Bulk Sampling for Asbestos

Type: Asbestos Sampling & Analysis

Date Issued: **April 29, 2004**

1.0 Scope

1.1 This section establishes sampling procedures and protocols for asbestos inspections and investigations.

2.0 Policy

2.1 Unit staff shall use these procedures for sampling materials suspected of containing asbestos. Unit staff may deviate from these procedures with warranted justification and shall note deviations on the inspection report.

3.0 Procedure

3.1 Procedures for sampling bulk materials, and procedures for identification of documents and photographs and bulk samples taken, are as follows:

- Wear ppe as appropriate. For contaminated areas, areas where asbestos-containing materials are deteriorated, or any active containment, use tyvek suit, disposable gloves, and half-faced respirator at a minimum. For areas with little likelihood that asbestos will be disturbed or contamination is not evident, at a minimum use disposable gloves. Field staff must use judgement when deciding appropriate ppe to use; minimizing the potential for contamination and exposure is the primary goal here.

- Lightly wet the material or sample under controlled conditions. Use the minimum amount of water needed to prevent fiber release as water in a sample can be problematic for the lab.

- Collect a minimum of 3 samples of each homogeneous suspect material as per Chapter 425 protocols detailed in Sec 6.B. Usually simply finding or taking a piece by hand will suffice as there are normally pieces that are accessible. Other tools and techniques for collecting the sample may be used with the goal being to collect a representative cross section of all homogeneous suspect materials. A core borer works well for sampling various layers of thermal system insulation (TSI). A sample size of 2 inches by 2 inches is generally sufficient.

- Place the samples in individual plastic sample bags (whirl-pacs) and identify the samples with permanent marker according to the following:

- ✓ Assign each sample a separate number;
- ✓ Identify by:
  - ➢ Sample Number abbreviation (SN)
  - ➢ Date (000000) (day month year)
  - ➢ Unit staff initials (XXX).

- ➢ Photograph the location where each sample was taken and mark these photo locations on the inspection diagram. Put all three samples into another clean bag after identification. Decontaminate all four bags back at the DEP decon facility prior to sending them to the lab.

- ➢ Record a description of each sample on the NOI.

☛☛ Example: Ed Antz takes 3 bulks, some pictures, and some documents at a facility on Jan 14, 2004: Samples would be

- ✓ SN01011404EWA: 3 bulk samples of TSI
- ✓ SN04011404EWA: digital photos of area, 7 photos
- ✓ SN05011404EWA: survey documents from the facility

- ➢ Complete a Chain of Custody form, including the assigned sample numbers. Ensure that the samples are appropriately tracked on the Chain of Custody form and delivered to a DEP-licensed laboratory (currently we are using URS on Water Street in Hallowell, for analysis). Be sure to have the laboratory sign off on the Chain of Custody form and retain the pink copy in the inspection file.

Notes:

a) If more samples are to be taken during that same day, then the sample numbers continue sequentially. In the above example, the next 3 bulk samples would be SN06, 07, and 08011404EWA.
b) Digital photos are identified on the disc itself as a sample, not individual photos.

Part#7 Section 7. Chain of Custody Procedure

1.0 PURPOSE

The purpose of this document is to describe the Maine Department of Environmental Protection, Lead and Asbestos Hazard Prevention Program (LAHPP) procedure for chain of custody documentation.

2.0 SCOPE

This procedure applies to all staff in the LHAPP who collect asbestos and lead samples. This procedure describes each step to be followed for chain of custody documentation from the collection of the samples until they are taken to the laboratory.

3.0 Introduction

This SOP establishes the proper methods for implementation of sample chain of custody documentation and procedure to ensure consistency among staff. Proper sample chain of custody procedures are essential to collecting valid information which may be used in any legal proceedings.

4.0 RESPONSIBILITIES

All LAHPP staff must follow this procedure when performing activities involving the collection of samples. The Program Coordinator is responsible for ensuring (via training, required reading, etc.) that staff understand this procedure and strictly adhere to it for all sampling events.

4.1 Definitions

-- Chain of Custody Form--Documentation detailing who is legally responsible for samples at any point in time from collection until the sample results or actual samples are used in legal proceedings.
-- Custody--A sample is “in custody” when: 1) the sample is in the sampler's possession, or 2) the sample is in the sampler's view, after being in the sampler's possession, or 3) the sample was in the sampler's possession and then locked up by the sampler to prevent tampering, or 4) the sample is placed in a designated secure area.
-- Secure Area—An area in which entry is limited by keyed lock to a designated population.

5.0 GUIDELINES/PROCEDURES

Failure to maintain possession in the ways outlined in this SOP would constitute a break in sample custody and would likely discredit this sample as use of evidence in court proceedings. The sampler must assume that all samples collected will some day be used as evidence in court and treat the task of sample custody accordingly.

Whenever possible, all samples will be checked into the laboratory performing the analyses on the same day the samples are collected. If it is impossible to check in samples at the laboratory the same day, the samples should be placed in a secure area. The most appropriate location for overnight storage is the locked equipment storage cabinet located adjacent to the 3rd floor elevator. These samples will be kept secure until the samples may be checked in to the laboratory.

For overnight trips or other times when it is not possible to check the samples into the laboratory, the samples should be stored in a secure area such as the locked equipment storage cabinet located adjacent to the 3rd floor elevator or a locked motel room, locked truck, locked personal residence.

5.1 Sample Chain of Custody

The completed sample chain of custody form is the documentation corresponding with and detailing the custody of the sample from the time the sample was collected until the samples or the results of analysis are introduced as evidence in legal proceedings. All information obtained in the field pertinent to the samples should be recorded in a Notice of Inspection. The chain of custody form will document the information identifying the sample and a record of the relinquishing and receiving individuals. MEDEP will use the LHAPP Chain of Custody form as the appropriate chain of custody form.

5.2 Procedure for Completion of Chain of Custody

Samplers from LAHPP will complete the following sections of the LHAPP Chain of Custody as the samples are obtained.

1) Project Code--give the complete and correct name for the site or contractor name where the samples were taken;

2) Project Location--give the correct town.

3) Sampler(s)--the sampler(s) should sign in the space(s) provided.

4) Field Sample # -this section identifies unique sample identifier sequentially, using sample sequence number and sample date (e.g. 01-081004,02-081004, 03-081004) and sampler initials

5) Lab sample # - this section is used by the analyzing laboratory to record their unique sample number they assign to be sample.

6) Sample Location--this section records from where the sample was taken (e.g. waste bag, debris etc)

7) Date—this section records the date the sample was collected

8) Time—this section records the time at which a sample was obtained

9) Sample Type--identify the type of sample (e.g. bulk, composite, core, or duplicate

10) Analyses Requested--identify the appropriate analyses requested for each sample

11) Chain of Custody--this section is records the custody of the sample. All changes of sample custody must be recorded on this sample record. The receiving official in the lab must check that the sample information recorded corresponds to the samples received. Once the receiving official is satisfied that the record accurately represents the samples provided, the receiving official must sign in the "Received by" section and fill in the DATE/TIME section appropriately.

5.3 Disposition of Completed Chain of Custody

Once the paperwork is completed, the laboratory completing the analysis should retain the white original. The sampler should retain the last (usually pink or yellow) carbon copy. The transporter(s) of the samples should retain any additional carbon copies, if any are available.

6.0 DOCUMENTATION

The sampler responsible for insuring the custody of the sample is responsible for insuring that all the appropriate paperwork is completed to document the chain of custody of the sample. This sampler must record all information pertaining to the sample in the Notice of Inspection and make sure that all relevant information is accurately transferred to the sample record. The sampler must insure that all relinquishing and receiving officials sign, date, and note the time of each switch of sample custody. Failure to properly follow these record-keeping procedures may discredit the sample as evidence in legal proceedings.

After check-in of samples has been completed the sampler should return the yellow or pink carbon copy of the sample record to the project file. This copy is maintained in the file until the results are returned from the lab. The carbon copy of the sample record should then be attached to the results. Following these procedures will insure that the chain of custody of the samples on the sample record has been maintained.

Appendix F

Chain of Custody Form

Maine Department of Environmental Protection

Chain of Custody Record

Lead & Asbestos Hazard Prevention Program
17 State House Station
Augusta, Me 04333-0017
Tel (207) 287-2651 FAX (207) 287-7826

Project code	*project location*	*samplers (signatures)*

Field sample #	*lab sample #*	*Sampling location*	*Date*	*time*	*sample type*	*analyses*

Elinquished by	*date*	*Time*	*received by*	*date*	*time*
Relinquished by	*date*	*Time*	*received by*	*date*	*time*
Relinquished by	*date*	*Time*	*received by*	*date*	*time*
Relinquished by	*date*	*Time*	*received by*	*date*	*time*

Maine Department of Environmental Protection
Lead & Asbestos Hazard Prevention Program
17 State House Station
Augusta, ME 04333-0017
Tel (207) 287-2651 FAX (207) 287-7826

Notice of Inspection

Date:	*time:*	*daily sequence #*	*Inspection code #*

Abatement/general/demo contractor name & address:	*owner/agent name & address:*
Facility/site location:	*consultant/inspector name & address:*

reason for inspection:	*inspection type:*	*Inspection results:*
☐ **Targeted by NAIS** ☐ **Compliance Assistance** ☐ **Targeted Lead** ☐ **For-cause**	☐ **Asbestos** ☐ **Lead**	☐ **Violations (See Below)** ☐ **No Violations**

remarks/violations:

sample type/number collected:

The inspection and/or samples collected described above were done in connection with the administration and enforcement of Chapter 425, Asbestos Management Regulations and/or Chapter 424, Lead Management Regulations. By signing this form the recipient acknowledges receipt of this Notice of Inspection. Signing this form is not an admission of guilt.

recipient signature(owner agent/contractor agent/inspector)	*recipient printed name*	*recipient title*
consultant signature	*consultant printed name*	*consultant title*

DEP inspector signature	*DEP inspector printed name*

Appendix H
Division of Solid Waste Management
Records Retention Policy
3/21/02

Description	**In Agency Retention**	**Records Center**	**Disposition**
Solid waste landfill licensing files – retention period begins from decision date/date of final action	Until closure certification is received	30 years	Archive
Operations, annual report, and operational monitoring files for solid waste landfills	5 years of until superceded by new submittal (whichever happens last)	Through post closure period	Archive
Solid waste landfill closure and post-closure files - retention period begins from date closure certification received	30 years	5 years	Archive
Solid waste Original Order files, original Enforcement Orders, & AHERA Inspection files	Forever	N/A	N/A
Solid waste rulemaking – retention period begins from decision date/date of final action	2 years	14 years	Archive
Solid waste contracts – retention period begins from date contract is disencumbered	2 years	8 years	Destroy
Non-hazardous transporter licensing files – retention period begins from license expiration date	3 years	7 years	Destroy
Lead & Asbestos notification files	2 years	5 years	Archive
Lead and Asbestos licensing and inspection files – retention period begins from date license expires or inspection completed	2 years	5 years	Destroy
All licensing files for solid waste facilities other than landfills and for septage – retention period begins from decision date/date of final action	Until site is inactive	10 years	Archive
Operations, annual report, and operational monitoring files for solid waste facilities other than landfills	5 years of until superceded by new submittal (whichever happens last)	5 years	Archive
All Division of Solid Waste Management Enforcement files – retention begins from date case is closed. Includes all remediations, uncontrolled tire stockpiles, solid waste facilities and activities, septage, lead, and asbestos.	2 years	10 years	Archive

Appendix I

Evaluation of XRF Testing - Performance Characteristic Retest Protocol

XRF: LPA-1, S/N 1270 Inspection Date: _____

Location:_____

The following is part of a QA/QC program evaluating XRF testing readings as described in the Performance Characteristics Sheet Date November 27, 1995, Edition No. 3 for RMD LPA - 1

	(a)	(b)	(c)	(d)	(e)	(f)
	Reading No.	Initial Result	Reading No.	Retest Result	Average (b) + (d)	(e) ^{2}
					=C10+E10/2	=F10*F10
					=C11+E11/2	=F11*F11
					=C12+E12/2	=F12*F12
					=C13+E13/2	=F13*F13
					=C14+E14/2	=F14*F14
					=C15+E15/2	=F15*F15
					=C16+E16/2	=F16*F16
					=C17+E17/2	=F17*F17
					=C18+E18/2	=F18*F18
					=C19+E19/2	=F19*F19
totals		=SUM(C10:C19)		=SUM(E10:E19)		=SUM(G10:G19)
Averages		=C20/10		=E20/10		
		(g)		(h)		(f)
	1. Difference between (g) and (h)=		=ABS(E21-C21)			
				C=total (f)	=G20	
	2. Retest Tolerance Limit=		=F32			
				Cx0.0072=	=F24*0.0072	D
				D + 0.032=	=F26+0.032	E
				Square Root of E =	=SQRT(F28)	F
				F x 1.645	=F30*1.645	

3. If the difference between (g) and (h) is less than the Retest Tolerance Limit, the inspection has passed the retest.