APPENDIX A10

STAT ANALYSIS CORPORATION

STAT Analysis Corporation

Quality Assurance Manual

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Policy Statement

STAT Analysis Corporation

This Quality Manual summarizes the policies and operational procedures associated with STAT Analysis Corporation in Chicago, Illinois. Specific protocols for sample handling and storage, chain-of-custody, and laboratory analysis, data reduction, corrective action, and reporting are described. All policies and procedures have been structured in accordance with the National Environmental Laboratory Accreditation Conference (NELAC) standards adopted in June 2003 (current as of the date of this publication), American Industrial Hygiene Association (AIHA), and ISO/IEC 17025 regulations, guidance, and technical standards. The laboratory management is committed to comply with these standards. This manual has been prepared in accordance with the guidance documents listed in Appendix 3. Further details on these policies and procedures are contained in SOPs and related documents. This Quality Manual, SOPs, and related documentation describe the laboratory's management system policies related to quality. The purpose of this Quality Assurance Manual is to describe the quality management system in place at STAT Analysis Corporation.

STAT Analysis Corporation performs chemical analyses for inorganic and organic constituents in various matrices. The objective of STAT Analysis Corporation's quality management system is to produce data that is scientifically valid and of known and documented quality in accordance with standards developed by NELAC, ISO/IEC 17025, AIHA and any applicable federal or state government entity's regulations or requirements. STAT Analysis Corporation conducts all business with integrity and in an ethical manner. The laboratory management is committed to good professional practice, to the quality of its environmental testing in servicing its clients, and to continually improve the effectiveness of the management system. All personnel involved with environmental testing activities within the laboratory must review this quality manual. It is the responsibility of each staff member, manager, director, and owner to perform their duties with the highest ethical standards and professional conduct to ensure compliance with this Quality Manual and related documentation.

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1. INTRODUCTION

This Quality Manual is applicable to the NELAC and AIHA divisions contained within this organization. It is the policy of STAT Analysis Corporation (STAT) to produce analytical results of the highest degree of repeatability, precision, and accuracy in a laboratory that employs state of the art analytical instrumentation operated by highly skilled, qualified, motivated, and responsible analysts. The laboratory management is committed to follow NELAC, AIHA, and ISO/IEC 17025 requirements. This Quality Manual is based on NELAC, ISO 17025 and AIHA standards. All employees are to be trained and committed to following the requirements herein.

The primary purpose of this document is to establish and maintain uniform operational and quality control guidelines for operations that affect the quality of the data produced in this laboratory. The establishment of, and adherence to, uniform elements of an intra-laboratory quality control program are essential to the production of reliable analytical data. The QA/QC requirements for all relevant preparation and analytical methods, and any verified modifications of such, used in this laboratory are described in this manual or described in relevant Standard Operating Procedures (SOPs).

While the implementation of a quality assurance policy is a management function, each individual has a responsibility for the operational aspects of quality control. It is the individual responsibility of each analyst and his/her supervisor to monitor quality control indicators and to provide for corrective actions when necessary. Appropriate communication processes, such as training, seminars, and one-on-one instructions are used to train personnel regarding the effectiveness of the management system. Personnel are trained regarding relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system. Personnel are trained on the importance of meeting customer requirements as well as statutory and regulatory requirements. Laboratory management ensures that the integrity of the management system is maintained when changes are planned and implemented.

This manual and the quality control protocols described herein are not to be viewed as all-inclusive. Rather, they serve as a basic foundation on which to build stronger quality assurance/quality control program. It is the policy of this laboratory to use the most stringent controls whether dictated by methodologies and SOPs, accrediting bodies, or Quality Assurance Project Plans (QAPP).

This revision (Rev.07) of the QAM was developed by modifying Rev.06 of the QAM. Summary of the changes made is presented in Appendix 1. An electronic file containing new text in italics and deleted text identified as strike-outs is archived on the network.

2. LABORATORY ORGANIZATION and MANAGEMENT STRUCTURE

Hi-Tek Environmental Inc., d/b/a, FEIN 36-4128978, was incorporated in December 1996. The laboratory is located at 2242 W. Harrison Street, Chicago, IL 60612. An electronic keypunch provides limited access to this building.

It is company policy that all employees must be free from commercial, financial and other pressures that might adversely interfere with the quality of their work. All employees must be aware that customer relations and service are an integral part of their job description. To prevent the possibility of staff being placed under pressure by clients or other sections of the laboratory, reporting relationships have been established to isolate staff from this pressure. The responsibilities of the employee in dealing with the client will be specified in order to maintain independence of judgment and integrity.

The Organizational Chart for STAT is shown in Appendix 2.

2.1 Staff Qualifications and Responsibilities

This section will show that STAT have personnel, who, irrespective of other responsibilities, have the authority and the resources to fulfill their responsibilities, including the development, implementation, maintenance, and continuous improvement of the management system. They also have the resources to identify departures from the management system or other SOPs and to initiate corrective actions to minimize or prevent such departures.

2.1.1 President/CEO ensures that those who hold the positions of Laboratory Director, Technical Manager, and Quality Assurance Manager, meet the requirements of NELAC, ISO 17025 and AIHA.

2.1.2 Laboratory Director

Duties
The Laboratory Director has the overall responsibility for analytical and operational activities of the laboratory. The director will be responsible for supervision (and appointment of supervisors) of laboratory personnel and ensuring that sufficient numbers of qualified staff are employed to supervise and perform the work of the laboratory. The director will assure that sample acceptance criteria have been met, samples are properly logged into the Laboratory Information Management System (LIMS), and samples are properly labeled and stored. The Director will be responsible for production and quality of data reported by the laboratory.

Qualifications
The Laboratory Director should have a minimum of 2 years experience managing a laboratory. He or she shall have earned a bachelor's degree, or higher, in chemistry.

2.1.3 Technical Manager

Duties
The Technical Manager, under the general direction of the laboratory director, is responsible for the appropriateness of the technical background of all tests

performed by the laboratory. The Technical Manager has the responsibility to monitor performance standards in quality assurance and quality control and monitoring the validity of the analyses performed and the data generated in the laboratory to assure quality data. This individual is part of the whole corrective action process and is responsible for the final approval of any corrective actions performed at the laboratory. He/she shall be available during at least 50 percent of the laboratory operating hours to address technical issues for laboratory staff and customers and acceptable onsite supervision must be demonstrated. The Technical Manager maintains the LIMS. The Technical Manager provides proper educational direction to laboratory staff. The Technical Manager's responsibilities meet those defined for the Technical Manager in NELAC Chapter 4.1.1.1 and AIHA Laboratory Quality Assurance Program(LQAP) Section 2A.6.1.

The Technical Manager ensures that all laboratory personnel possess the necessary educational and technical background appropriate to the job they perform. By signing the Demonstration of Capability statement, the Technical Manager certifies that the laboratory analyst has met the requirements to perform the specific test method analysis.

In the event that the Technical Manager is absent for more than fifteen consecutive calendar days, the Technical Manager will appoint the Laboratory Director as a temporary replacement. In the event that the Technical Manager is absent for more that sixty-five consecutive calendar days, the acting Technical Manager or the Quality Assurance Manager will notify the Illinois Accrediting Authority in writing.

Qualifications
The Technical Manager should have a minimum of 4 years experience in an environmental laboratory. He or she shall have earned a bachelor's degree, or higher, in chemistry with a minimum of 24 college semester credit hours in chemistry.

2.1.4 EMPAT Technical Manager

Duties
The EMPAT Technical Manager, under the general direction of the laboratory director, is responsible for the appropriateness of the technical background of all tests performed by the microbiological laboratory. The EMPAT Technical Manager has the responsibility to monitor performance standards in quality assurance and quality control and monitoring the validity of the analyses performed and the data generated in the laboratory to assure quality data. The EMPAT Technical Manager is located on site and has the responsibility for the function and administration of the day-to-day operation of the microbiological laboratory. The EMPAT Technical Manager provides proper educational

direction to microbiological laboratory staff. The EMPAT Technical Manager, or designee, functions as the approved signatory.

Qualifications
The EMPAT Technical Manager should have a minimum of 2 years experience in a microbiological environmental laboratory. He or she shall have earned a bachelor's degree, or higher, in microbiology, biology, or related life science, with a minimum of 20 college semester credit hours in microbiology.

2.1.5 Quality Assurance Manager/ Quality Assurance Coordinator

Duties
The Quality Assurance Manager has the responsibility for the maintenance and coordination of the quality assurance and quality control (QA/QC) program for the laboratory. The QA Manager is responsible for the data review procedures for the laboratory. The QA Manager should have a general knowledge of the analytical test methods for which data reviews are performed. The QA Manager reviews and approves all analytical SOPs for test methods. The QA Manager is independent of the analyst. The QA Manager is responsible for conducting or arranging an annual internal audit of the entire laboratory operation and technical systems. The Quality Assurance Manager is responsible for the day-to-day monitoring of the laboratory quality systems.

The QA Manager reports directly to the President/CEO.

In the event that the QA Manager is absent for more than fifteen consecutive calendar days, the President/CEO will appoint either the Technical Manager or the Laboratory Director as a temporary replacement.

Qualifications
The Quality Assurance Manager must have a minimum of a bachelor's degree in natural or physical sciences and have documented training in QA/QC and statistical procedures. He/she also must have a general knowledge of the analytical test methods.

2.1.6 EMPAT Quality Assurance Coordinator

Duties

The EMPAT Laboratory Quality Assurance Coordinator has the responsibility for the maintenance and coordination of the quality assurance and quality control (QA/QC) program for the microbiological laboratory. The EMPAT Laboratory QA Coordinator is responsible for the data review procedures for the laboratory and re-analyzing five percent of all samples. The EMPAT Laboratory QA Coordinator will also provide genus/species identification when needed. The EMPAT Laboratory QA Coordinator is responsible for conducting an annual internal audit of the microbiological laboratory operation.

Qualifications
The EMPAT Laboratory QA Coordinator must have a minimum of a bachelor's degree in microbiology, biology, or related life science. The EMPAT Laboratory QA Coordinator must have a minimum of six months of relevant microbiological laboratory experience and familiarity with microbiological QA/QC.

2.1.7 Department and Project Managers

Duties
Department Managers are responsible for supervising analysts, analysts in training, and technicians. They are responsible for reviewing and verifying data produced by analysts in training and technicians. Project Managers are responsible for primary client contact. They review and approve client's reports for completeness and adherence to all project specific criteria.

Qualifications
Department Managers must have a minimum of a bachelor's degree in natural or physical sciences, enough course work to qualify for a minor in chemistry, and have at least one year of experience in the analyses pertaining to the applicable fields of testing.

Project Managers must have a minimum of a bachelor's degree in natural or physical sciences and have at least one year of experience in the analyses of environmental samples.

2.1.8 Analysts

Duties
The analyst is responsible, under the direction of the Department Manager, for the applicable analyses of the samples submitted to the laboratory. Analysts shall be responsible for complying with all quality assurance and quality control requirements pertaining to their technical functions.

Qualifications
The analyst shall have a bachelor's degree (or equivalent), or an associates degree with one year experience, or greater than two years experience with experience in

natural or physical sciences. Analysts will have one year of full-time employment in the environmental testing field, and have documented proof of technical proficiency via in-house training at STAT, including an Initial Demonstration of Capability (IDOC). Analysts shall have demonstrated ability to produce reliable results through accurate analysis of certified reference materials (CRMs), proficiency testing samples, or in-house quality control samples. Their performance must be documented. Instrumentation Analysts must have four hours of equipment manufacturer training or two-week apprenticeship under an experienced analyst.

2.1.9 Analyst in Training

Analyst in training must meet the requirements of Technician while in process of meeting the requirements of Analyst.

2.1.10 Technician

Duties
The technician is responsible for carrying out the designated activities related to the analysis of materials submitted to the laboratory and works under the direct supervision of the Department Manager or Analyst.

Qualifications
The Technician shall have a minimum of a high school diploma or equivalent. Technicians will have documented proof of technical proficiency via in-house training at STAT, including an IDOC. Instrumentation Technicians must have four hours of equipment manufacturer training or two-week apprenticeship under an experienced analyst.

2.2 Approved Signatories

All analysts that have passed training for a particular analysis can sign off on data either as analyst or secondary review (as appropriate). All client correspondence is to be signed either by the Laboratory Director, Technical Manager, Department Managers, or Project Managers as appropriate. Quotes can be generated and signed by the President/CEO, Laboratory Director or Project Manager (unless specific approval is given to another employee by the named individuals). All bid proposals are to be signed by the President/CEO, Laboratory Director, Project Managers or designee.

2.3 New Work Requirements

All new analyses must undergo a thorough review prior to release. The Laboratory Director, Technical Manager, Quality Assurance Manager, and Department Manager may undertake this review. This review may include:

- Staff and appropriate equipment are available as well as appropriate workspace to perform the task.
- Standard Operating Procedure must be in place.
- Initial Demonstration of Capability (IDOC) must be performed.
- Method Detection Limit Study (if applicable) must be performed.
- A Blind Quality Control Sample must be satisfactorily completed, if available.

The procedure to review new work and new test method analyses is outlined in SOP 220 Customer Service.

2.4 Departures from Policies and Procedures

All laboratory personnel are instructed to follow the policies and procedures as outlined in the Quality Assurance Manual and supporting laboratory documentation. On occasion, departures from these policies and procedures may be taken. Any such departures must be fully defined, documented, and approved by the Technical Manager or the President/CEO. If the departure is considered a permanent change, a new revision of the laboratory's quality documentation may be necessary.

Any modifications to reference test methods are listed in Section 5 of the test method SOPs. These modifications are approved by management as indicated by the signatures on the SOP cover page.

Minor modifications to test methods for particular samples are allowed if these modifications are fully documented. An example follows:

The test method SOP states that a 30-gram soil sample is extracted and analyzed for Semi-Volatile Organic compounds. The submitted sample weighs only 10 grams. The analyst notes in the logbook that the minimum amount of sample was not available for analysis. The client agrees that the sample can be analyzed as submitted. The final reporting limit for this sample will be elevated due to limited sample size.

3. DOCUMENT CONTROL

All documents are logged into STAT Document Master List (attached as Appendix 3). Documents are assigned a unique document number, revision and effective date noted. Controlled documents (SOPs) are also listed with all individuals who have been issued these documents (including external clients). This document, QA 001 Quality Assurance Manual Revision 07, is a controlled document. The Document Master List includes software (e.g. excel spreadsheets and reporting templates, instrument operating software) and external source documents.

The procedure to maintain and control laboratory documents is outlined in SOP 005 Document Control.

4. GENERAL LABORATORY PRACTICES

A Document Control System is described in SOP 005. All aspects of laboratory operations are documented in Standard Operating Procedures (SOPs). Each page of these SOPs will contain 1) SOP Number, 2) Revision Number, 3) Effective Date, and 4) current page number of the total number of pages in the document. This is described in SOP 100, SOP on SOPs.

4.1 Introduction

Intrinsic to the production of quality analytical data is the quality of laboratory services available to the analyst. Without adequate quality control being exercised with regard to facilities, services, laboratory environment, instrumentation, and laboratory supplies, an analyst cannot be expected to produce reliable analytical data.

Access to the laboratory is restricted to STAT employees only, unless accompanied by a STAT employee. Recognizing the necessity of maintaining control over general laboratory operation, the subsequent sections outline provisions for maintaining the quality laboratory support services.

4.2 Laboratory Apparatus and Instruments

All support equipment is maintained in proper working order. All water baths, refrigerators, freezers, ovens, balances, pH meters, thermometers, mechanical pipettes, and the conductivity meter must be verified in accordance with SOP 1040 General Laboratory Practices (GLP) and/or the analytical SOP. Where possible, calibration and reference standards, traceable to national standards of measurement, are used in the laboratory to calibrate and/or verify the test equipment. These calibration and reference standards are only used for calibration and/or verification purposes. The laboratory uses an independent calibration service to perform an annual check of the balances and the calibration weights used to check the laboratory balances and an annual check of the mechanical pipettes. In addition, an independent calibration service is used to perform a calibration check of the NIST reference thermometer at least every three years.

Certificates for the calibration and reference standards, the thermometer calibration records, the annual calibration and service records for the balances, the annual calibration and service records for the mechanical pipettes, and the results of the independent calibration checks are kept in the QA Manager's files.

Correction factors are only used on laboratory thermometers; balances and mechanical pipettes must be within established acceptance tolerances listed in the SOP or the equipment is removed from service until repaired. Balances are marked with the calibration sticker received from the independent calibration service to indicate its calibration status. Thermometers are marked with the initials of the employee performing the annual calibration, date of calibration, and correction factor.

All quality control checks listed in this section must be recorded in the appropriate logbook. The acceptability of use is based upon the acceptance criteria listed in the SOP. Any equipment found to be defective or in need of maintenance is taken out of service. The procedure listed in Section 7.3, Equipment Maintenance Program, of the QA Manual is then followed.

Instructions for support equipment operations are found in STAT SOP 1040 General Laboratory Procedures.

4.2.1 Water baths

Check temperature with each use when the water bath is loaded to capacity.

Drain and clean water bath as required and refill with laboratory pure water.

4.2.2 Refrigerators and freezers

Check and document temperature daily.

Clean periodically and discard outdated materials

DO NOT store food in any laboratory refrigerator or freezer.

4.2.3 Ovens

When using the oven for analysis, record the temperature daily as per SOP.

4.2.4 Balances

Check with at least two Class 1 weights (traceable to NIST) over the expected range everyday that the balance is used and record in the balance logbook.

Clean and check level of the balance as needed.

Maintain annual maintenance service contract.

4.2.5 pH meters

Date all pH buffer solutions when opened. Buffers that have reached the manufacturer's expiration must be discarded and replaced.

Standardize meter daily, or before each use.

"Working" pH buffer solutions must be replaced weekly.

4.2.6 Thermometers

Unless otherwise specified by regulatory methodology, it is the policy of STAT to use only non-mercury containing thermometers in all laboratory operations.

Calibrate all laboratory thermometers annually with a reference NIST thermometer. Mark any necessary corrections on each thermometer and record in the Thermometer logbook. The reference NIST thermometer is calibrated annually by a vendor certified for calibrating NIST traceable thermometers.

4.2.7 Mechanical Pipettes

All mechanical pipettes are cleaned and checked quarterly. Annual calibration is documented in the pipette logbook.

4.2.8 Conductivity meter

Date all conductivity solutions when opened. Solutions that have reached the manufacturer's expiration must be discarded and replaced.

Standardize meter at least monthly or as needed.

"Working" conductivity solutions must be replaced weekly.

4.2.9 Incubators

When using the incubator, record the temperature daily as per SOP 1040.

4.2.10 Autoclaves

Record temperature, pressure, and time maintained during each autoclave use per SOP 1040.

4.3 Laboratory Supplies

4.3.1 Glassware

Glassware used in general laboratory operations must be of high quality borosilicate glass. Volumetric glassware must be of Class "A" quality, except where the method specifies plastic volumetric flasks.

Clean glassware in hot water with a suitable detergent, rinse in hot water to remove detergent residue, and finally rinse in laboratory pure water. Glassware used in special analyses may require more scrupulous cleaning (e.g., acid rinsing for metals or solvent rinsing for organics). Glassware must be dried or drained

thoroughly before use or storage. In operations of specific, low-level analyses, glassware should be isolated and maintained only for these specific operations.

If at any time a new washing compound or cleaning application is introduced, tests must be performed to ensure the glassware is free of interferences before routine analyses are begun. (STAT SOP QA 1020 Laboratory Glassware Cleaning)

4.3.2 Chemicals, Reagents, Solvents and Gases

The quality of chemicals, reagents, solvents, standards and gases used in the laboratory is determined by the sensitivity and specificity of the analytical techniques being used. Reagents of lesser purity than specified by a method will not be used.

Reagents, chemicals, solvents, and standard reference materials (excluding high-demand items) should be purchased in quantities to minimize extended shelf storage.

All reagents, chemicals, solvents, and standard reference materials are initialed and dated when received, when opened or prepared, and discard when outdated, or when evidence of discoloration or deterioration is detected (STAT SOP 1010 Analytical Standards and Reagents Receipt and Preparation).

4.3.3 Laboratory Reagent Water

The laboratory reagent water system is tap water that is processed through a carbon-filtering tank and two mixed-beds ion exchange tanks. This water is checked daily to ensure that it has at least 1 megohm-cm resistivity (= 1 umhos/cm conductivity) at 25^{o}C and recorded in conductivity logbook (STAT SOP 4200 Conductivity and SOP 1040 General Laboratory Practices**)**. Reagent water blanks are performed with each water batch to monitor for potential contamination.

4.4 Laboratory Hazardous Wastes Handling and Disposal Procedures

It is the policy of STAT Analysis to collect, store, package, label, ship and dispose of hazardous wastes in a manner which ensures compliance with all Federal, State and local laws, regulations, and ordinances. These procedures are designed to minimize employee exposure to hazards associated with laboratory-generated hazardous wastes and to afford maximum environmental protection (STAT SOP 1130 Waste Disposal).

4.5 Selection and Purchasing of Services and Supplies

Goods and services are purchased from qualified companies and individuals. The purchased items may be chemicals, consumable items, equipment, calibration services,

repair services, sub-contract laboratory services, consultant services, and building and environmental services. The laboratory maintains a list of qualified and approved vendors, suppliers, sub-contractors, consultants, and contractors. Vendors are deemed qualified if they possess ISO 9000 registration or if they can provide traceability of their products to NIST or to another recognized national standard of measurement. Service suppliers are deemed qualified if they provide certificates of calibration traceable to NIST or to another nationally recognized accreditation body or if they possess ISO 9000 registration. Purchased supplies and reagents and consumable materials that affect 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 test methods SOPs and/or calibrations concerned. Actions taken to check compliance are documented. A sub-contractor, usually a testing laboratory, provides test reports to STAT that is used to supplement the information sent to STAT's clients. A sub-contractor may perform test methods that are not currently being performed at STAT, or may serve as an adjunct to the testing methodology already in place at STAT. Sub-contractors are deemed qualified if they possess accreditation from the National Environmental Laboratory Accreditation Program (NELAP), American Industrial Hygiene Association (AIHA), Environmental Laboratory Accreditation Program (ELAP), National Voluntary Laboratory Accreditation Program (NVLAP), American Association for Laboratory Accreditation (A2LA), or from some other nationally recognized accreditation body. If there is no independent means to qualify a potential vendor or supplier, the following procedure is used: Obtain qualification statements, obtain a list of references or customers, and send inquiries to these parties to obtain written information concerning the quality of materials and services rendered. Contact the Better Business Bureau (BBB) to determine if any complaints have been filed. A request or a purchase order may be made to a vendor to supply a small lot of material to be qualified using STAT in-house test methodology. A request or a purchase order may be made to a supplier to perform a service that will be independently verified by an already approved supplier. If this qualifications procedure is deemed successful, the vendor or supplier may be added to the approved list. STAT will determine the best value for its expenditures if two equally qualified and approved vendors or suppliers offer the same materials or services.

5. VERIFICATION PROCEDURES

5.1 Introduction

It is the objective of STAT to provide our clients with data that is of known and documented quality consistent with the analytical methods and SOPs specified in Appendix 3. This is accomplished with the use of traceable calibrations and documentation of this traceability with external reference samples.

Where possible, calibration and reference standards, traceable to national standards of measurement, are used in the laboratory to calibrate and/or verify the test equipment.

These calibration and reference standards are only used for calibration and/or verification purposes.

5.2 Traceability of Calibrations

Each analytical process undergoes the following to document calibrations used in the laboratory:

5.2.1 Initial Demonstration of Capability: Each analyst/work cell to determine the range of instrument operation, if applicable, and to demonstrate precision and accuracy, analyzes a series of laboratory control standards. This study is signed by the analyst, Department Supervisor, the QA Director, and the Technical Manager. See the specific requirements in SOP 1230 Training and analytical SOPs.

5.2.2 Initial Calibration Determination: Based on the Initial Demonstration of Capability (IDOC), an initial calibration is performed. The ICAL determination must meet the criteria specified in the analytical SOP.

If the regulatory limit is stated or defined for a particular analysis or test parameter, the laboratory's policy is to perform the analysis using a calibration standard at or below the defined regulatory limit.

5.2.3 Initial Calibration Verification: The Initial Calibration Verification is immediately performed to determine the validity of the initial calibration. This standard is from a second source, if available. Concentrations and acceptance criteria are specified in the relevant analytical SOP.

5.2.4 Method Detection Limit Study: The laboratory performs an MDL study prior to instituting a new procedure/analysis and yearly thereafter. MDL study is not applicable for some tests, e.g., pH, odor, temperature, etc. These procedures are outlined in STAT SOP 1210 Method Detection Limits.

5.2.5 Quality Control Check Sample: External reference standards that are analyzed as an unknown by the analyst. This provides an independent check of the analytical process. These results may be placed in the analysts' training file. See section 5.3.2.2 for more details.

The laboratory maintains a reference slide and spore collection of each microbiological sample identified. Because microbiological analyses measures constantly changing living organisms, these organisms are inherently variable. Appendix 3 lists references used in this laboratory.

5.2.6 Continuing Calibration Verification: A calibration standard is prepared and analyzed when an initial calibration is not performed. At a minimum, a calibration check is analyzed at the beginning and at the end of each analytical

batch. Organic internal standard methods are an exception where the calibration check is analyzed only at the beginning of the analytical sequence. Refer to the analytical SOPs for frequency and acceptance criteria. If a calibration check fails the appropriate SOP stated criteria, and routine corrective action fails to produce a second calibration check within acceptance criteria, then the initial calibration and initial calibration verification is performed. All samples analyzed since the last calibration check was in control will be re-analyzed, except in those instances where the calibration check was exceeded high (high bias) and there are non-detect results for the corresponding analyte in the samples associated with the calibration check. Those non-detects may be reported.

5.2.7 Method Blank Determination: A method blank is performed once per preparation batch per matrix type. The method blank is a negative control. A method blank is acceptable if it does not contain an analyte of interest at a concentration greater than the highest of the following: the reporting limit, 10% of the regulatory limit for that analyte, or 10% of the measure concentration for that analyte in any environmental sample in the batch. Some approved test methods do not require method blanks (e.g., pH, temperature, conductivity, etc.)

5.2.8 Analytical Reagent Blank: Analytical reagents, without media, shall be prepared and analyzed, when applicable, with each batch of samples, using the same procedure that is used for field samples.

5.2.9 Field Blank: It is recommended that clients of the laboratory supply specimens of blank sampling media from the same source lot as was used for collecting the field samples. A field blank from this source lot can help determine possible contamination of an analyte during handling and shipping procedures.

5.2.10 Continuing Calibration Blank (Inorganic): Inorganic SOPs require continuing calibration blanks analyzed each time a calibration check is analyzed. The same criteria are used as specified for method blanks (5.2.7). All samples analyzed since the last continuing calibration blank that was in control will be re-analyzed, except in those instances where there are non-detected results for the corresponding analyte in the samples associated with the continuing calibration blank. Those non-detected results may be reported.

5.2.11 Interference Check Standards (ICS): ICSs used in ICP-MS analysis checks for metal complex interferents (e.g. Ar, C, Cl, etc) with a similar mass of low concentration analytes. The appropriate analytical SOP contains specific instructions for analysis of these standards.

5.2.12 System Tuning Verification (GC/MS and ICP/MS): The GC/MS is hardware tuned before performing the initial and continuing calibrations. These systems must meet the peak ratio criteria specified in the analytical SOPs. Volatile analyses use bromofluorobenzene (BFB) and Semi-volatile analyses use

decafluorotriphenylphosphine (DFTPP) to verify the hardware tune. The ICP-MS is similarly tuned with metals that span the mass range of interest prior to analysis. These criteria must be met before any of these analyses are performed. See the appropriate method SOP for specific criteria.

5.2.13 Internal Standard Area Monitoring (GC/MS and ICP/MS): Internal standards are monitored to determine the quality of the injection process. Criteria are in the appropriate analytical SOP with corrective action specified.

5.2.14 Laboratory Control Standard: Laboratory Control Standard (or Sample) (LCS) is performed at least once per preparation batch per matrix. The LCS and MS/MSD are positive controls that measure the percent recovery (5.5) of the analytes added prior to preparation/analysis. They provide the assurance that the analytical system is capable of measuring the analytes specified. If the LCS does not meet control limits specified in the SOP, analysis is halted and corrective action taken to bring the system under control, including re-preparation of all samples in the batch associated with the out-of-control LCS. LCS is not performed when spiking solutions are not available, e.g., color, odor, temperature, dissolved oxygen, or turbidity.

5.2.15 Surrogate or System Monitoring Compounds (Organic): Surrogate compounds are added to most organic chromatography methods. Surrogates indicate that sample preparation and analysis are within the appropriate method SOP criteria. Specific SOPs have procedures handling out-of-control situations, including sample re-extraction/re-analysis.

5.2.16 Matrix Spike/Matrix Spike Duplicate: Matrix Spike/Matrix Spike Duplicate analysis is similar to LCS analysis (5.2.14) except it is performed on client samples. The MS/MSD shall be prepared once per preparation batch of 20 or less samples per matrix type. If more than 20 samples are prepared a second MS/MSD shall be prepared after the twentieth sample.. Samples specified for MS/MSD analysis by clients will be selected if so indicated. MS/MSDs indicate the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. This information does not determine the validity of the entire batch. For cases where the sample cannot be divided (e.g., wipes, air samples, not enough sample provided by customer) and thus a MS/MSD pair cannot be prepared for the preparation batch, an LCS/LCSD pair is analyzed to measure precision.

5.2.17 Duplicate Analysis (for analyses not suitable for spiking): Samples that are not suitable for MS/MSD analysis will be analyzed in duplicate. A Laboratory Control Standard Duplicate (LCSD) will also be performed for tests not suitable for matrix spike analysis or duplicate analysis (e.g. wipes, air samples, etc.). Relative Percent Difference (5.4) is calculated and compared to control criteria listed in the approved method SOP.

Quality Control data such as the precision data (average percent RSD or RPD), and accuracy data (average total percent recovery of spiked samples and reference samples) are reviewed against statistical limits on a continuous basis to detect statistically significant trends.

5.3 Performance Testing Samples

5.3.1 Introduction

As part of the laboratory's Quality Assurance program, an independent means of assessing laboratory accuracy for its performance in the various test methodologies has been developed. The Performance Testing Program analyzes Performance Testing (PT) samples on a routine basis. These samples, are of an unknown concentration to the analyst who performs the test. The purpose of analyzing these samples is to determine whether the analyst/laboratory can produce analytical results within specified acceptance criteria.

For analysis of all PT samples, with the exception of the EMPAT fungal direct examination program, the laboratory's procedure is as follows:

- Upon receipt, the Performance Testing Samples are treated as any other sample submitted to the laboratory. They are logged into the system and assigned a unique laboratory number. A LIMS work order is generated and samples are distributed to the analysts. The samples are then prepared and analyzed in the same manner as any other submitted samples using the same procedures, equipment, and laboratory personnel. After the data review process, test results are recorded in the LIMS. A final report is generated and results are reported to the Technical Manager, Quality Assurance Manager and Laboratory Director. Depending upon the type of PT sample, the final report is then submitted to the PT provider or evaluated in-house. After evaluation, either by the PT provider or by the QA Manager, the report is filed in the QA Manager's office.
- For PT sample studies that are used for accreditation purposes, the evaluation report, copies of the PT study report forms, copies of all support documentation, and copies of any corrective action investigations and resolutions, are kept in the QA Manager's files. This allows easy reconstruction and review of this data by the accrediting authority during on-site audits. This data, along with any electronic records, is kept at a minimum of five years from the date of the evaluation report received from the PT provider. This time frame may be increased to comply with any additional regulatory program requirements.
- Successful analyses are used to obtain accreditation or to maintain the laboratory's current scope of accreditation. They may also be used to update employee-training records (continuing DOC), or to demonstrate to clients or other interested third parties that the laboratory is capable of producing quality data.
- For unacceptable results, or results that are in-control but are continually statistically biased high or low, corrective action must be taken to determine the

cause of the problem. This is accomplished by the corrective action process (SOP QA 230 Corrective Action). For PT sample studies that are used for accreditation purposes, copies of any corrective action investigations and resolutions are available to accrediting authorities.

- For the EMPAT fungal direct examination program, the analyst views and identifies the unknown samples on-line. On a quarterly basis, the laboratory has access to 20 different digital images for identification of spores.
- The laboratory will notify its clients and interested third parties, in writing, of any change to the laboratory's scope of accreditation (addition or deletion of analytes or fields of testing).

The laboratory has established policies in reference to the analysis of PT samples. They are as follows:

- PT samples are treated and analyzed in the same manner as other sample submitted to the laboratory.
- The laboratory does not send any PT sample, or portion of a PT sample, for which it seeks to obtain accreditation or maintain its current accreditation to another laboratory for analysis.
- The laboratory does not knowingly accept PT samples or portions of PT samples from other laboratories for any analyses for which the sending laboratory seeks accreditation or is accredited.
- Laboratory personnel do not communicate with any other individuals from any other laboratories concerning PT samples.
- Laboratory personnel do not attempt to obtain the assigned value or analyte concentration of any PT sample from the PT provider.

5.3.2 NELAC Performance Samples

The PT program is divided into two sections.

5.3.2.1 External Evaluation of Performance Sample

The first section of the program is dedicated to the analysis of PT samples for compliance with accreditation programs such as NELAC. The PT samples for this section of the program are of an unknown concentration to all laboratory personnel (blind to the laboratory). At a minimum of two times per year (approximately every six months), PT samples for each field of testing (each analyte/method/matrix) are purchased from a Proficiency Testing Oversight Body/Proficiency Testing Provider Accreditor (PTOB/PTPA) approved PT provider, when available. After analysis, a report is submitted to the PT provider for evaluation. The Technical Manager, Quality Assurance Manager and Laboratory Director are responsible for the accuracy and the format of the report submitted to the PT provider. In order to initially obtain and to currently maintain accreditation, the laboratory must be successful in the analysis of these samples in two of the three most recent rounds of testing. If there is a failure to successfully analyze a particular analyte or supplemental testing is warranted, the laboratory

must wait at least 30 days before analyzing additional samples. To maintain accreditation, the laboratory will continue to analyze samples at the prescribed frequency (two PT studies for each PT field of testing per year) unless there is a change in the program or in the environmental regulations. It will maintain a history of at least two acceptable PT studies for each PT field of testing out of the most recent three studies. The laboratory authorizes the PT provider to release the results of the laboratory's performance (sample results and acceptable/not acceptable status) on any of the PT samples directly to any accrediting authority, NELAP, and the PTOB/PTPA.

5.3.2.2 In-House Evaluation of Performance Samples

The second section of the program is for in-house evaluation of analyst performance. The PT samples for this section of the program are of an unknown concentration to the analyst performing the test (blind to the analyst). The QA Manager purchases these samples that include the true analyte concentration and performance acceptance limits. The QA Manager does not divulge this information to any of the laboratory personnel. PT samples are purchased from a PTOB/PTPA approved PT provider or another provider that can provide samples that are traceable to NIST, when available. After analysis, a report is submitted to the QA Manager for evaluation. The successful analyses of these samples may be used as documentation for the analysts continuing Demonstration of Capability in the applicable test methods.

5.3.3 AIHA Performance Samples

For purposes of this program, an industrial hygiene laboratory is defined as a laboratory that analyzes samples or materials for the purpose of evaluating occupational exposure or contamination resulting from occupational activities. The laboratory participates in three programs for accreditation: 1) the AIHA Industrial Hygiene Laboratory Accreditation Program (IHLAP) for accreditation of industrial hygiene laboratories; 2) the AIHA Environmental Lead Laboratory Accreditation Program (ELLAP) for accreditation of laboratories performing lead analysis, and the AIHA; and, the AIHA Environmental Microbiology Laboratory Accreditation Program (EMLAP). For the ELLAP program, the laboratory analyzes PAT samples in the following Fields of Testing: airborne particulates, dust wipes, paint chips and soil. The purpose of the PAT program is to ensure that the laboratory meets established performance criteria for the analysis of industrial hygiene samples.

This laboratory chooses to participate in the four rounds of performance samples per year. AIHA PT programs are performance based and the programs do not specify the use of any particular analytical method when analyzing PT samples, except for asbestos by PCM. Proficiency testing samples shall be analyzed using the same analytical procedure used to test client samples.

The laboratory shall be responsible for the timely and proper submission of all PT sample results to the AIHA. The laboratory shall submit data using the AIHA Data Entry Portal on the AIHA web site. The data must be entered into the system by the specified deadline. An unreported result is classified as an outlier unless the AIHA has pre-approved nonparticipation. The AIHA shall provide the PT reports to each participating laboratory forty-five days after the close of the PT round. Accredited laboratories shall maintain these records for use during the assessment process. The laboratory is responsible for notifying the AIHA of any changes in laboratory status that may affect the receipt of PT samples/information, such as a change in address or named recipient.

A result that is outside the statistical control limits determined for the Industrial Hygiene Performance Analytical Testing (IHPAT) or Environmental Lead Performance Analytical Testing (ELPAT) Environmental Microbiology Performance Analytical Testing (EMPAT) round is classified as an outlier.

5.3.3.1 IHPAT Round Performance Samples

Proficiency is determined Field of Testing by Field of Testing and round by round. A laboratory is rated proficient for a given round for the applicable Field of Testing (FoT) if there is not more than twenty-five (25) percent deficiency for a given Field of Testing for that round. A laboratory is rated as proficient for the FoT if it passes two out of three consecutive test rounds. The laboratory shall have participated in at least two (2) PT rounds to be considered for accreditation. When PT samples are analyzed by more than one analyst, averaging the results for reporting is not permitted. A single analyst's results are reported.

5.3.3.2 ELPAT Round Performance Samples

A laboratory is rated proficient for the applicable Field of Testing if there are not more than 25% cumulative outliers reported in the last four consecutive PT rounds in which the laboratory has participated at the time of accreditation or no outliers reported in the last two consecutive PT rounds. The laboratory shall have participated in at least two (2) PT rounds to be considered for accreditation.

5.3.3.3 EMPAT Round Performance Samples

In order to maintain accreditation, the laboratory must be 85 % successful in the analysis of microbiology samples in the three most recent rounds of testing. To maintain accreditation, the laboratory will continue to analyze samples at the prescribed frequency (three PT studies for each PT field of testing per year) unless there is a change in the program or in the environmental regulations. It will maintain a history of at least 85 % acceptable PT studies for each PT field of testing out of the most recent three studies.

5.4 Precision

Precision is expressed as percent relative standard deviation and is calculated by the formula:

$$\% \text{ RSD} = \frac{S \times 100}{X}$$

Where: S = Standard Deviation
X = Mean

Precision can also be expressed as relative percent difference and is calculated by the formula:

$$\% \text{ RPD} = \frac{D \times 100}{X}$$

Where: D = Difference between measurements
X = Mean

Percent difference is calculated by the formula:

$$\%D = \frac{(X-Y) \times 100}{X}$$

Where: X = Initial Measurement
Y = Comparison Measurement

5.5 Accuracy

Accuracy is expressed as percent recovery and calculated by the formula:

$$(Y - X)/Z \times 100 = \% \text{ Recovery}$$

Where: X = concentration in unspiked sample.
Y = concentration in spiked sample.
Z = theoretical spike concentration

5.6 Analytical Performance Summary

Quality control data are reviewed on a continuous basis. During the review, percent RSD, percent RPD, upper warning and control limits of precision data and percent recovery of accuracy data are evaluated against established control limits. If a statistically significant trend is observed, then warning and control limits may be updated, and documented in Addendum to the SOP.

Annually, a summary report of the laboratory's analytical performance is prepared. Contained in this report are: the precision data (average percent RSD or RPD, upper warning and control limits), and accuracy data (average total percent recovery of spiked samples, reference samples, and performance audit samples). The Quality Assurance Manager prepares this summary and it is reviewed by the Technical and the Laboratory Director prior to distribution for use.

6. METHODOLOGY

Test method SOPs are based upon nationally recognized test method references such as the United States Environmental Protection Agency (USEPA), National Institute for Occupation Safety and Health (NIOSH), Standard Methods (American Public Health Association, American Water Works Association, Water Environment Federation) and American Society for Testing and Materials (ASTM). These test methods are used for sample analyses, and the related sample handling and storage activities are appropriate and consistent with the required quality and accuracy deemed necessary for clients and their decision-making processes concerning environmental regulations and compliance. The laboratory uses the most stringent standard as stated in the reference test method or as specified in the applicable regulation.

Appendix 3 contains a table of the laboratory's scope of test methods and SOPs.

7. PHYSICAL FACILITIES AND EQUIPMENT

7.1 Facilities

STAT has over 12,000 square feet of state-of-the-art laboratory facilities. An electronic key-punch provides limited access to this building. The laboratory space and ventilation system was specifically refurbished to achieve the critical needs of an environmental laboratory. For example, laboratories for air toxics and volatiles analyses are positively pressurized and are supplied with fresh air that is carbon filtered. Environmental lead is digested and analyzed in a laboratory separate from bulk lead samples (paint chips, dust, etc) to prevent cross contamination. Separate laboratories are provided for microbiology, optical microscopy and electron microscopy. Three organic extraction laboratories occupy nearly 1400 square feet of space and allow for extraction of air, water and soil with room for further expansion.

There is no other testing facility being utilized other than the permanent lab premises. The rooms are dedicated to specific laboratory testing departments and administrative offices. The physical environment (temperature, humidity, lighting, and ventilation) is adequate to perform all testing methodologies. Temperature is monitored and controlled by individual thermostats in each room. Ventilation hoods are monitored as part of the laboratory safety program. Any problems encountered with the physical accommodations are immediately brought to the attention of the Technical Manager or

the Laboratory Director. The building engineer is then notified to take immediate corrective action to remedy any problems.

As part of the Internal Audit Process (SOP 1220 Internal Quality Assurance Audit), the QA Manager is required to monitor the laboratory's facilities to ensure that the facilities are adequate and that personnel are in compliance with laboratory policies. Those areas audited include the following:

- Ventilation: hoods checked and tagged per the Chemical Hygiene Plan
- Room temperature: monitor the TCLP extraction area
- Voltage surge suppressors to protect computer network and critical instrumentation
- Separation of incompatible areas is maintained
- Personnel movement is limited to prevent cross-contamination
- Good housekeeping practiced - items reviewed: benches, floors, hood used properly, clutter, glassware cleaning space and storage, bottle/container storage
- Waste storage area is reviewed to ensure safe practices
- Air Monitoring for Spores in Microbiology Laboratory: Background contamination is to be checked periodically (once every Quarter). If growth of Aggressive spores is observed, all areas of the laboratory are cleaned. The air system is checked, and if necessary, filter is replaced. Cleaning will continue until no background contamination is detected.
- Air Monitoring for Asbestos: Background contamination is to be checked periodically (once every Quarter) by taking air samples from areas where asbestos is handled, such as sample receiving, bulk asbestos analysis Laboratory, and PCM and Transmission Electron Microscopy (TEM) Laboratory. Samples are analyzed by TEM. If presence of asbestos is confirmed, all areas of the laboratory are cleaned. Cleaning will continue until no background contamination is detected.
- Background Monitoring for Lead in Lead Laboratory: Background contamination is to be checked periodically (once every Quarter). If lead is observed, all areas of the laboratory are cleaned. Cleaning will continue until no background contamination is detected.

7.2 Equipment

The major equipment in use at STAT Analysis Laboratory is listed in Appendix 4. The equipment list is under the control of the Quality Assurance Manager. The list is updated as required whenever new equipment is purchased or current equipment is permanently removed from service.

7.3 Equipment Maintenance Program

Proper maintenance of laboratory instrumentation is a key to longevity of the instrumentation, as well as providing the analyst with equipment capable of producing reliable analyses. The analysts and on occasion, vendor specialists, share the

responsibility for maintenance and repair of all STAT Analysis Laboratory equipment. The primary elements of the equipment maintenance program include:

- All major equipment receives a daily check for such things as: cooling fan operation, pump operation, indicator readings, mechanical checks, clean air filters, etc.
- Service schedules are established for performing routine preventative maintenance on all major equipment items.
- Records are maintained for major instrument repairs (See individual instrument maintenance logbooks).
- A conservative inventory of critical spare parts is maintained for high-use instrumentation.
- Vendor operation and maintenance manuals are maintained for laboratory instrumentation.

Any equipment that is found to be defective is taken out of service. The equipment is tagged by the person making the judgment and marked "Out of Service;" the person applies their initials and dates the tag. This action is noted in the maintenance logbook. The department supervisor is notified of this action. If deemed necessary, a corrective action report is initiated to determine if the malfunctioning equipment has potentially generated data that is suspect. The equipment is not put back into service until repairs are made and the equipment is shown to be performing properly after calibration and/or verification procedures have been successfully completed and documented in the maintenance logbook.

8. SAMPLE RECEIPT and ACCEPTANCE

8.1 Introduction

Complete documentation of the sample collection and handling process is an extremely important aspect of a regulatory monitoring effort. Formal chain-of-custody procedures provide a written record of sample traceability, accountability and serve to validate sample integrity. All samples received by STAT Analysis are controlled by these procedures. For more information see STAT SOP 300 (Sample Receiving and Login Procedure).

Appendix 5 contains a table of acceptable sample containers with sample preservation requirements for analyses listed in section 6.

Sample collection is typically a function of our client's activities. STAT does not provide sampling services. STAT's clients deliver samples to the laboratory for testing. However, STAT will attempt to ensure compliance with all applicable ISO/IEC 17025, AIHA, and NELAC requirements. STAT requests clients to submit field blanks with their samples, where applicable. A summary of STAT's written sample acceptance policy will be made available to sample collectors. Data from samples that do not meet the sample acceptance criteria will be unambiguously flagged to define the nature of the

variance. Sampling procedures for collection of subsamples are described within each method's Standard Operating Procedure (SOP).

8.2 Sample Acceptance Policy

Please refer to Appendix 6 for a detailed description of STAT's Sample Acceptance Policy. It becomes the client's responsibility to distribute the sample acceptance policy to all field collection personnel.

NOTE: STAT Analyses will not accept samples that require legal Chain-of-Custody.

8.3 Sample Acceptance Policy Differences

8.3.1 Additional Requirements for NELAC Samples :

8.3.1.1.1 Liquid Samples for volatiles analyses do not contain headspace.

8.4 Chain-of Custody Form

A Chain-of Custody (COC) should accompany every sample that is received for analysis by STAT Analysis. If the COC is not present, the client will be notified and the exception noted on the Sample Log and Checklist/Receipt Form (Sample Receiving and Login Procedure). (Attachments 1-3 list examples of COC forms.)

8.5 Standard Operating Procedure – Sample Receipt/Custody

The sample custodian or a designated alternate receives samples. Below are general guidelines for sample receiving and login, for specific details refer to SOP 300 Sample Receiving and Login Procedure. STAT accepts samples between the hours of 8 AM to 8 PM, Monday through Friday. STAT has a secured sample drop box outside the building for samples that do not require preservation and can fit inside the box. For samples that arrive after hours, the sample custodian will receive the samples the next business day. At the time of receipt, the custodian or designee will perform the following actions:

8.5.1 While wearing proper protective equipment, (a minimum of gloves, a lab coat, and safety glasses) all shipping containers (coolers) are opened in an adequately ventilated area to assure worker safety.

8.5.2 All shipping containers (coolers) are examined to verify that the custody seal is intact (if present). The parts of the custody seal are maintained in the client folder after opening.

8.5.3 If applicable, the temperature of the shipping cooler and/or temperature blank are measured to determine if proper temperature has been maintained. Proper temperature is defined as 0.1°C to 6°C (for NELAC-specific samples). Samples that have been received within six hours of collection and on ice will be noted as

being received "On Ice" as complete cooling to 4°C will not have been completed by that time.

8.5.4 The condition of the sample container (leaking, broken, mislabeled or unclearly labeled) is checked. Exceptions are noted on the Sample Receipt Checklist Form and the client is notified of the impact that the exception will have on the quality of data generated.

8.5.5 The COC is examined for accuracy and completeness. For all samples, especially environmental or industrial hygiene samples, it is vital that all COC procedures are followed properly. This is necessary to preserve the security of samples as evidence. Samples are considered secure for evidentiary purposes if they are in your possession, within view, or in a secured area. The laboratory is considered secure because access is limited. The COC record is used to document the change in possession from sampling, delivery, and receipt by the laboratory.

8.5.6 Samples received and sample container labels are compared against those listed on COC. Sample hold times are verified for sample acceptance. The client is notified if holding times have been exceeded.

8.5.7 Sample pH is verified for those samples that require specific chemical preservation. The sample pH result is recorded on the Sample Receipt Checklist Form and in LIMS. VOA water samples are not checked for pH at time of receipt but are checked after analysis. VOA samples are checked for headspace at time of receipt. Samples for cyanide analysis are checked for free chlorine at time of receipt. The sample free chlorine result is recorded on the Sample Receipt Checklist Form and in LIMS. The sample custodian treats samples that require additional preservation for pH adjustment or require the removal of free chlorine. The identification of chemical preservative is recorded on the Sample Receipt Checklist Form. The client is notified if samples have not been properly preserved.

8.5.8 Samples requiring refrigeration are stored in the appropriate sample refrigerators. Samples not requiring refrigeration are placed in the appropriate department storage areas.

8.5.9 The Chain of Custody is then signed, dated and timed. The Chain of Custody, Custody Seals, Waybill and Sample Receipt Checklist Form are placed in a Job Folder that is labeled with STAT Work Order Number and Client Name. All information/analytical reports pertaining to the specific job are stored in this folder. This includes quotes, faxes, correspondences, analytical reports, sub-contracted analytical reports, etc.

8.5.10 Any problems associated with samples on the COC are immediately noted on a Sample Log and Checklist form. The assigned STAT Project Manager is notified

of the problem(s). The Project Manager is responsible for communicating with the client on how to resolve issues associated with the samples.

8.5.11 The LIMS is used to generate the sample log and assign sample numbers that are a link to the sample field identification code or name. The sample log generates a unique work order for a specific project or group of samples. All sample containers are labeled with a unique laboratory sample number. This numbering system is also used to uniquely identify separate containers of the same sample submitted within the work group. The unique laboratory sample number is used throughout all of the laboratory records to identify the sample and any subsequent subsamples, extracts, or digestates of the original sample. The entry of sample information into the LIMS is password controlled. Thus, the name of the person entering the information is recorded. The following information is entered into the sample log (as applicable):

1. Client Name
2. Client Project Number
3. Client Project Name
4. Client Sample Number
5. Date and Time Sampled
6. Date Received
7. Turn Around Time
8. Date Due
9. Analytical Parameters performed in house
10. Subcontracted Analytical Parameters (if needed)
11. Subcontract Laboratory
12. Storage Refrigerator Number

8.5.12 The LIMS can generate work lists that contain Sample ID, Client ID, Date Received, Date Collected, Date Due, Test Code Test Name, Holding Time, Prep Date, Hold Time, Date, Storage Area, as well as indication that the hold time and/or due date is about to expire.

8.6 Policy for Disposal of Laboratory Samples

Samples and their extracts will normally be disposed of within (STAT SOP 1130 Waste Disposal) 90 days from receipt of samples or in accordance with individual SOPs. The exception to this will be when a sample hold request is implemented.

A disposal report will be generated and provided to designated staff as appropriate for samples characterized as non-hazardous (routine environmental). Sample disposal of the routine environmental samples should be completed by the appropriate analyst within 2 weeks from disposal report distribution. The routine environmental samples will be disposed of in the following manner:

Soil samples are placed in 55-gallon drums and disposed of as special waste with an approved special waste hauler.

Water samples are disposed of by pouring the water into 30-gallon plastic drum or, if deemed to be non-hazardous, are poured down the laboratory drain. Preserved samples may be neutralized prior to placing into the 30-gallon plastic drum. These drums are disposed with an approved special waste hauler.

Hazardous samples will be disposed as hazardous waste. All microbiological samples will be autoclaved prior to disposal. All waste is disposed according to SOP 1130 Waste Disposal.

9. SAMPLE RECORDS, DATA REVIEW AND DATA HANDLING

Sample accountability through the analytical process can be divided into five major elements: (1) initial sample logging, (2) sample preparation, (3) data acquisition, (4) data review, and (5) documentation/storage. The location of the sample and data records is discussed in SOP 1000 Control and Use of Laboratory Notebooks and in SOP 240 Archiving. Sample records must be able to reproduce the resultant analytical data. It is management's responsibility to ensure that all analytical and operational activities of the laboratory are properly and sufficiently documented. This is accomplished through the periodic audit and review processes as outlined in SOP 1220 Internal Quality Assurance Audit and SOP 006 Management Review of the Quality System. All data, whether manually generated or electronically generated, and final reports are available to the accrediting authority (NELAC, AIHA, etc.).

The following sections outline current sample and data documentation and review procedures.

9.1 Sample Logging

Samples received at STAT with accompanying identification and COC are logged into the Laboratory Information Management System. The sample custodian, or designate,

signs the laboratory receipt section of the COC. Each sample, and each sub-sample appropriately preserved, is assigned a unique sample ID.

9.2 Analytical Data Review and Handling

All raw analytical and instrument control data generated in the laboratory are either entered into bound data books or kept as strip charts, or in instruments computer hardcopy, tape, CD-ROM, or disk. The analyst reviews the data initially and all data entries checked 100% and then the data under goes a second review by a technical peer or supervisor. Errors, or potential errors, are investigated and corrected as necessary. The analytical section manager, Project Manager, Technical Manager, or Laboratory Director, for consistency of data and for assuring client's needs are met, performs final review. Refer to STAT SOP 1250 Data Review.

Information contained in these data logbooks includes the following: Work Order Number, Sample number, parameter, date of preparation or analysis, analyst, and all pertinent instrument identification with analytical conditions. For non-computerized instruments all calibration data, all readout data, calculations, final concentration, and quality control data should be recorded in the logbook.

9.3 Computerized Analytical Data System

9.3.1 All sample results are entered into the STAT Analysis Laboratory Information management System (LIMS). Sample preparation, as appropriate, will also be entered in LIMS.

9.3.2 For NELAC and Lead AIHA samples, all appropriate Quality Control data associated with these results are entered into the LIMS, including, but not limited to, Initial Calibration, Initial Calibration Verification, Continuing Calibration Verification, Continuing Calibration Blank, Method Blanks, Laboratory Control Standards, Matrix Spike/Matrix Spike Duplicate, Internal Standard Recoveries, and Surrogate Recoveries.

9.3.3 For all other AIHA samples, the quality control information is entered into a separate database or spreadsheet. The information is stored under a unique batch identification number. This information may include: Initial Calibration, Initial Calibration Verification, Continuing Calibration Verification, Continuing Calibration Blank, Method Blanks, Laboratory Control Standards, and Matrix Spike/Matrix Spike Duplicate recoveries as applicable.

9.3.4 Analytical Data Processing. All final analytical results are calculated after entry into the analytical results database.

9.3.5 Analytical Backlogs can be generated through the LIMS system. Sample Status will be updated to complete after results are calculated. Samples that are

complete will no longer appear on an analytical backlog report. The work order will only be available for Final Report after all sample results have been calculated and subjected to the Quality Control Validation Process.

9.4 Reporting

Final results of all analyses are provided in a standard computerized report format and forwarded to the requester (client) with cover memorandum. Remarks should be used with reported data to alert the user to some specific conditions that affects the data (e.g., holding times missed, samples diluted to remove interferences, etc.).

Exceptions to this report format must be noted and have approval of the Technical Manager or Laboratory Director.

Amendments or corrections to the issued test report are only made in the form of a revised document that includes the statement "This report is revised to reflect changes made after the initial report was issued" in the cover letter or in the case narrative.

Clients are notified immediately, in writing, of any event that cast doubt on the correctness or validity of the laboratory's calibrations, or test results given in any test report or amendment to a report. Such events might include: identification of defective measuring, identification of defective test equipment, or audit findings.

Test results are certified to meet all requirements of NELAC, and AIHA standards, or reasons are stated if they do not meet these standards.

In addition to the items mentioned, below, in 9.4.1 (7), the analytical report will make the following statements:

1. The report shall not be reproduced except in its entirety, unless written approval has been obtained from the laboratory.
2. The results of this report relate only to the samples tested.
3. The laboratory certifies that the test results meet all requirements of IEPA code, Title 35, Subtitle: A, NELAP/Part 186 or the AIHA LQAP Policy Document, current revision.
4. Accredited and non-accredited analyses will be distinguished.

9.4.1 Reporting Requirements

The Analytical Report will only be issued in its entirety. The Report will include:

1. The statement "Analytical Report";
2. Date, name and address of laboratory, phone number and name of contact person (with signature) and laboratory accreditation number. The person signing the report is accepting responsibility for the content of the report;

3. A unique Work Order Number and the total number of pages in the report, with all pages sequentially numbered;
4. Name and address of client and project identification;
5. Description and unambiguous identification of the sample(s) including the client identification code, date of sample receipt, date and time of sample collection;
6. Clear identification (including lab name and accreditation number) of any sample results that were generated by a subcontracted laboratory;
7. Case Narrative outlining any sample acceptance outliers and /or sample results with any failures or deviations from approved SOPs including the use and definitions of data qualifiers; as well as reporting uncertainties as required.
8. Identification of approved test method with date of sample preparation, sample preparation method, and/or analysis;
9. Identification of reporting units, such as mg/L, mg/Kg, mg/Kg–dry, ppbv, µg/filter µg/wipe, mg, µg, wt. %, or $\mu g/m^3$;
10. Measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified;
11. A statement to the effect that sample results relate only to the analytes of interest tested or to the sample as received by the laboratory;
12. Reference to sampling procedures if performed by the laboratory;

9.4.2 Reporting Differences

9.4.2.1 NELAC Differences

9.4.2.2 9.4.2.1.1 Clear identification of numerical results with values outside the quantitation limits.

10. CORRECTIVE AND PREVENTIVE ACTIONS

Out-of-control situations arise out of the analytical process. Corrective and Preventive actions are mechanisms for identifying and correcting out-of-control situations. Quality control data are evaluated, and if data are found to be outside control limits, corrective actions are taken to correct the problem and to prevent incorrect data from being reported.

10.1 Corrective Action

Routine corrective action will be taken at any time during the analytical process as outlined in the quality control sections of each SOP. These types of out-of-control situations include such things as: instrument calibration outliers, blank contamination, poor laboratory control standard recovery, poor surrogate recovery, poor matrix spike/ matrix spike duplicate recovery or RPD, etc. These situations require immediate corrective action. These required actions are specified in each analytical SOP. These

actions are documented by the analysts on the prep and work sheets to assure traceability of analysis performed.

Some out-of-control situations require a more formal corrective action process. They may be the result of internal or external audits, out-of-control proficiency testing analysis, continuing control chart outliers, or even the inability to produce analytical results on time. These situations require a more stringent process. This process may involve technicians, analysts, and laboratory management. The Quality Assurance Manager monitors this process (STAT SOP QA 230 Corrective Action). Essential steps in this process include documentation of the following:

- Identification of the problem.
- Assigning a tracking number to the Corrective Action.
- Assigning personnel to investigate the problem.
- Uncovering the cause of the problem.
- Correcting the problem.
- Monitoring the corrective action.
- Documentation of the corrective action.

Corrective Actions are resolved in a time frame relative to the severity of the defined problem. Some corrective actions may need to be immediately implemented in order for production to continue. Other corrective actions may require a certain amount of time in order to complete a full investigation. An appropriate time frame for completion of the corrective action is discussed with the affected parties. All corrective action investigations are to be completed within a two-week time frame unless unusual circumstances are documented that would extend this deadline. Corrective Actions investigations involve assigning an individual to investigate and determine the cause of the problem.

10.2 Preventive Action

Preventive actions are pro-active processes to identify opportunities for improvement rather than a reaction to the identification of problems. Preventive actions will be taken upon identification of needed improvements and potential sources of nonconformance. Action plans will be developed, implemented, and monitored to reduce the likelihood of the occurrence of such nonconformances and to improve on existing procedures. As part of the preventive action, operational procedures will be reviewed. Data review may also be conducted that include trend and risk analyses and proficiency-testing results.

Steps in the preventive action process may include:

- Identification of the source of nonconformance or needed improvements.
- Assigning personnel to investigate
- Reviewing operational procedures.
- Implementing needed improvements or procedure to avoid potential nonconformance.

- Monitoring the preventive action.
- Documentation of the preventive action.

11. QUALITY EXCEPTION REPORT

Some out-of-control situations are not correctable (e.g., silver matrix recovery when certain levels of chloride are present or VOA system monitoring compound recoveries on samples containing activated carbon). The Quality Exception report is executed and included in the case narrative of the analytical final report (STAT SOP QA 230 Corrective Action).

12. COMPLAINT

Client complaints are logged and resolved by project managers as outlined in STAT SOP 220 Customer Service. STAT seeks feedback from its customers so that improvements can be made to the management system, testing and calibration activities, and customer service.

13. CONFIDENTIALITY

All clients, including government entities, are entitled to all aspects of their project to be considered confidential. To protect national security concerns and proprietary rights, STAT Analysis will ensure client confidentiality. No aspects of client project can be released to others without the expressed written consent of the client. All data, electronic media, and reports are considered confidential

A Notice of Confidentiality is affixed to outgoing e-mails and facsimiles transmittals. Examples of these can be views in Attachments 4 and 5, respectively.

14. INTERNAL AUDITS

The Laboratory will undergo an annual internal audit, or more frequently if warranted. The Quality Assurance Manager will take the lead in this activity. If the Quality Assurance Manager is responsible for analytical activity, another member of the management team will audit that area. These activities are outlined in STAT SOP 1220 Internal Quality Assurance Audit.

15. MANAGEMENT REVIEW of the QUALITY SYSTEM

STAT strives continually to improve the effectiveness of its management system through the use of the quality policy, quality objectives, audit results, data analysis, corrective and preventive actions, and management review. This document, and the entire Quality Systems, is reviewed yearly. This process and procedures for development and submittal of quality assurance reports to management are outlined in STAT SOP 006 Management Review of Quality Systems. In addition to the annual report, quarterly quality assurance

reports are developed and submitted to management. Finding from management reviews include recommended actions for improvement and the actions are carried out within a reasonable time frame and documented.

Changes made to appendices of this document will not constitute a revision to this Quality Assurance Manual.

16. TRAINING

STAT ensures that all employees will have proper training for their job. A training file is maintained for each employee (STAT SOP 1230 Training (for NELAC/AIHA)). It is the responsibility of STAT Management to ensure all employees are educated on ethical and legal responsibilities, as well as, the punishment and penalties for improper, unethical, or illegal actions. Every employee is expected to read, understand, and sign a code of ethics statement.

The need for training beyond initial training on analytical SOPs will be assessed on a case-by-case basis. The department manager and laboratory director will determine if additional training is needed. The introduction of a new technique is an example of the need for additional training. The effectiveness of the training actions is evaluated by the trainer.

17. DATA INTEGRITY

STAT's management is committed to support and implement specific requirements of the data integrity procedure. STAT's procedures ensure that management and personnel are free from any undue internal and external commercial, financial, and other pressures and influences that may adversely affect the quality of their work. STAT promotes a culture of receptive environment where all employees can privately discuss ethical issues or report items of ethical concern. Such discussions are kept confidential, if need to be. The data integrity system includes four elements discussed below.

- Data Integrity Training: STAT has a training program in place for new employee orientation and on an annual basis for all employees to prevent breaches of ethical behavior. Written training material includes Appendix 7. Topics include:

    - Discussion regarding all data integrity procedures, data integrity training documentation, data integrity monitoring, and procedure documentation.
    - Employees are trained on STAT's responsibility to produce data that is scientifically valid, defensible, and of known and documented quality in accordance with all applicable federal, State, and local laws and regulations consistent with accepted professional and analytical practices in a manner that justifies the public trust. The employees are required to understand the critical need for honesty and full disclosure in all analytical reporting.

- Employees are provided specific examples of unethical behavior including improper data manipulations, adjustment of instrument time clocks, and inappropriate changes in concentrations of standards.
- Personnel are trained to inform STAT of any accidental or intentional reporting of non-authentic data by the employee or other employees. Employees are trained not to comply with instructions, requests, or direction by any manager or representative of management to perform any improper laboratory practices. Employees are trained to immediately report such event to all appropriate members of management including department manager, the Laboratory Director, the QA Manager and President/CEO, excluding such individuals who participated in such perceived improper instruction, request, or directive.
- Employees are required to understand that any infractions to the data integrity procedures will result in a detailed investigation. Any allegation of misconduct will be promptly investigated in an unbiased and confidential manner by an investigative team designated by the President. Investigation could lead to very serious consequences for the employee including immediate termination. The investigation, including any supporting documentation, actions and resolution, will be recorded and archived by the QA Director.
- Analysts are trained on proper documentation in Case Narratives where analytical data may be useful, but are partially deficient.

- Signed data integrity documentation for all employees: The initial data integrity training and the annual refresher training have a space for employee signature to verify that the employee has participated in the training and understands his or her obligations related to data integrity issues (see Appendix 7: Ethics Policy and Data Integrity Agreement.).

- In-depth periodic monitoring of data integrity: STAT is committed to document all activities associated with generating valid data. All tasks from sample receipt to issue of analytical reports are tracked and reviewed. Some examples of data monitoring activities include:
  - Documentation and secondary review of sample log-in
  - Documentation and review of all sample preparation activities in specific logbooks
  - Primary and secondary review of all analytical data
  - Primary and secondary review of all manual integration
  - Further review of all of the above steps by project manager and/or Quality Manager
  - Calibration of measuring devices, such as thermometers, balances, weights, and pipettes.

- Data Integrity Procedure documentation: All aspects of the data integrity procedures are documented. These include documenting all data monitoring

activities. All client communications are recorded. As discussed above, data integrity training material are developed and documented. Actions arising from data integrity issues, whether technical or ethical in nature, are documented.

18. SUB-CONTRACTING

Any sub-contracting of accredited analytical work must be to another NELAC or AIHA accredited laboratory with the appropriate fields of testing, approved test methods and analytes. STAT retains on file a copy of the certificate issued pertaining to the sub-contracting laboratory. The client will be notified in writing of the intention to sub-contract analytical work. The analytical report contains the name and accreditation number of the sub-contracted laboratory. STAT maintains a record of all laboratories to which we subcontract analytical work. See STAT SOP 220 Customer Service for additional information.

19. LABORATORY SAFETY

19.1 Introduction

All STAT employees must accept the responsibility for acting in accordance with safety rules and practices and for reporting any observed safety hazard. This section highlights some general guidelines and rules that specifically apply to the analytical laboratory. Therefore, in addition to adhering to guidelines, each person is trained in, and expected to read, understand, and follow STAT SAP 003 Chemical Hygiene Plan.

19.2 General

Lab coats and safety glasses should be worn at all times in the laboratory. The only exception to this is when personnel are working at computer terminals or microscopes. Lab coats are left in the laboratory. Latex or nitrile gloves are worn when chemical or samples are handled.

Open sandals and shorts will not be worn in the laboratories.

When working in any of the laboratories, it is recommended that all jewelry be removed and that personnel wash their hands frequently. Always wash hands thoroughly when leaving the laboratory.

When working with flammable materials, nylon or other totally synthetic clothing should be avoided to minimize the possibility of static sparks.

All containers should be labeled as to contents, with particular care to note corrosive or hazardous materials.

There will be no eating, drinking, or smoking in any of the laboratories.

Glassware that is chipped but still usable must be polished before re-use; otherwise, it must be discarded.

Never use any lab glassware as a container for food or drink.

An inventory of all chemicals used in the laboratory will be maintained.

Return all chemicals to their proper storage areas after use.

Never pipette by mouth.

The Safety Officer will conduct a quarterly safety inspection of the laboratory.

Perchloric acid or perchlorate salts are not stored or used in the laboratory. If at any time these chemicals are required in a method, special precautions will be necessary and should be coordinated with the Inorganic or Organic Manager and Laboratory Director.

All work areas should be cleaned at the end of each workday. Spills should be cleaned up immediately.

Samples should be in laboratories only during preparation and analysis; other wise keep them in the storage area.

All stock standards of a toxic nature should be prepared in a hood and stored in designated areas. Only experienced personnel should handle these standards.

Work of a hazardous nature will not be performed in a laboratory after normal business hours when only one person is present.

New personnel must be familiarized with safety practices, location of safety equipment, and made aware of possible hazards in the areas in which they will be working.

When conducting routine maintenance of electrical equipment observe all shock hazard warnings displayed on instrumentation.

Use safety guards where appropriate when using electrical equipment or ventilation/fume hood systems.

Observe all warnings regarding cylinders and sample storage areas.

When using pressurized systems, take care to tighten restraints before pressurizing system and depressurize the system before loosening restraints.

19.3 Sample Receiving and Login

When possible, determine the source of the samples and any special hazards that might be associated with them.

Some samples, when sealed in containers will build up pressure. Samples that indicate pressure should be brought to the attention of the Safety Officer or Laboratory Management.

20. DEFINITIONS

Acceptance Criteria: specified limits placed on characteristics of an item, process, or service defined in requirement documents. (ASQC)
Acceptance Limits: Established mathematical data quality limits for analytical method performance. (AIHA LQAP)
Accreditation: the process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards, thereby accrediting the laboratory. In the context of the National Environmental Laboratory Accreditation Program (NELAP), this process is a voluntary one. (NELAC)
A formal recognition that a facility meets AIHA Policy Requirements to carry out specific tasks or specific types of tests. (AIHA LQAP)
Accredited Laboratory: A testing laboratory that has been evaluated and granted accreditation covering as specific measurement or task and for a specified period of time. (AIHA LQAP)
Accrediting Authority: the Territorial, State, or federal agency having responsibility and accountability for environmental laboratory accreditation and which grants accreditation (NELAC)[1.5.2.3]
Accrediting Authority Review Board (AARB): five voting members from Federal and State Accrediting Authorities and one non-voting member from USEPA, appointed by the NELAP Director, in consultation with the NELAC Board of Directors, for the purposes stated in 1.6.3.e. (NELAC) [1.6.3]
Accuracy: the degree of agreement between an observed value and an accepted reference value. Accuracy includes a combination of random error (precision) and systematic error (bias) components which are due to sampling and analytical operations; a data quality indicator. (QAMS) (AIHA LAQAP)
AIHA: American Industrial Hygiene Association (AIHA LQAP)
Aliquot (subsample): A representative portion of a sample. It may be taken from any location or from a field sample. (AIHA LQAP)
Analysis: The qualitative or quantitative determination of a property or analyte in a substance of material. (AIHA LQAP)
Analyst: the designated individual who performs the "hands-on" analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent quality controls to meet the required level of quality. (NELAC)
Analytical Run: An analytical run consists of all samples processed continuously using an item of instrumentation or equipment. Such samples are analyzed applying the same set of standard calibration data. (AIHA LQAP)

Applicant Laboratory or **Applicant:** the laboratory or organization applying for NELAP accreditation. (NELAC)
Approved Signatory: A person who is recognized by a laboratory as competent and authorized by the laboratory management to sign test reports. (AIHA LQAP)
Assessment: the evaluation process used to measure or establish the performance, effectiveness, and conformance of an organization and/or its systems to defined criteria (to the standards and requirements of NELAC). (NELAC)
Assessment Criteria: the measures established by NELAC and applied in establishing the extent to which an applicant is in conformance with NELAC requirements. (NELAC)
Assessment Team: the group of people authorized to perform the on-site inspection and proficiency testing data evaluation required to establish whether an applicant meets the criteria for NELAP accreditation. (NELAC)
Assessor: one who performs on-site assessments of accrediting authorities and laboratories' capability and capacity for meeting NELAC requirements by examining the records and other physical evidence for each one of the tests for which accreditation has been requested. (NELAC)
A person who conducts technical systems audits. Used interchangeable with site visitor, and auditor. (AIHA LQAP)
Assessor Body: the organization that actually executes the accreditation process, i.e., receives and reviews accreditation applications, reviews QA documents, reviews proficiency testing results, performs on-site assessments, etc., whether EPA, the State, or contracted private party. (NELAC)
ASTM: American Society for Testing and Materials
Audit: a systematic evaluation to determine the conformance to quantitative and qualitative specifications of some operational function or activity. (EPA-QAD)
Batch: environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents. A **preparation batch** is composed of one to 20 environmental samples of the same NELAC-defined matrix, meeting the above-mentioned criteria and with a maximum time between the start of processing of the first and last sample in the batch to be 24 hours. An **analytical batch** is composed of prepared environmental samples (extracts, digestates or concentrates) that are analyzed together as a group. An analytical batch can include prepared samples originating from various environmental matrices and can exceed 20 samples. (NELAC Quality Systems Committee)
A group of samples that are processed in one operation: considered to be a uniform, discrete unit (AIHA LQAP)
Bias: A systematic error manifested as a consistent positive or negative deviation from the known true value. (AIHA LQAP)
Blank: a sample that has not been exposed to the analyzed sample stream in order to monitor contamination during sampling, transport, storage or analysis. The blank is subjected to the usual analytical and measurement process to establish a zero baseline or background value and is sometimes used to adjust or correct routine analytical results. Blanks include:
Equipment Blank: a sample of analyte-free media that has been used to rinse common sampling equipment to check effectiveness of decontamination procedures. (NELAC)
Field Blank: blank prepared in the field by filling a clean container with pure de-ionized water and appropriate preservative, if any, for the specific sampling activity being undertaken. (EPA OSWER)

Instrument Blank: a clean sample (e.g., distilled water) processed through the instrumental steps of the measurement process; used to determine instrument contamination. (EPA-QAD)
Method Blank: a sample of a matrix similar to the batch of associated samples (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses. (NELAC)
Reagent Blank: (method reagent blank): a sample consisting of reagent(s), without the target analyte or sample matrix, introduced into the analytical procedure at the appropriate point and carried through all subsequent steps to determine the contribution of the reagents and of the involved analytical steps. (QAMS)
Blind Sample: a sub-sample for analysis with a composition known to the submitter. The analyst/laboratory may know the identity of the sample but not its composition. It is used to test the analyst or laboratory's proficiency in the execution of the measurement process. (NELAC)
A sample submitted for analysis with a composition and identity known to the submitter, but unknown to the analyst, and used to evaluate proficiency in the execution of the measurement process. (AIHA LQAP)
Calibration: to determine, by measurement or comparison with a standard, the correct value of each scale reading on a meter, instrument, or other device. The levels of the applied calibration standard should bracket the range of planned or expected sample measurements. (NELAC)
A set of operations that establish, under specified conditions, the relationship between values indicated by a measuring instrument or system, or values represented by a material measure, and the corresponding known values of a standard. (AIHA LQAP)
Calibration Curve: the graphical relationship between the known values, such as concentrations, of a series of calibration standards and their instrument response. (NELAC)
A graphical relationship between the known values for a series of calibration standards and instrument responses. The levels of the calibration standards should bracket the range of measurements. (AIHA)
Calibration Method: a defined technical procedure for performing a calibration. (NELAC)
Calibration Standard: a substance or reference material used to calibrate an instrument. (QAMS)
Certification: Procedure by which a third party gives written assurance that the competence of a person, organization, or other entity to perform a function or service conforms to specified requirements. (AIHA LQAP)
Certified Reference Material (CRM): a reference material, one or more of whose property values are certified by a technically valid procedure, accompanied by or traceable to a certificate or other documentation which is issued by a certifying body. (ISO Guide 30 - 2.2)
A reference material that has one or more of its property values established by a technically valid procedure, and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. (AIHA LQAP)
Chain-of-Custody: Definitive evidence (a record) of the persons who had possession or custody of the sample(s) for all periods of time, as it moved from the point of collection to the final analytical result. (AIHA LQAP)

Chain-of-Custody Form: record that documents the possession of the samples from the time of collection to receipt in the laboratory. This record generally includes: the number and types of containers, the mode

Check Sample: An uncontaminated sample matrix spiked with a known amount of analyte, usually from the same source as the calibration standard. It is generally used to establish the stability of the analytical system, but also may be used to assess the performance of all or a portion 2 of the measurement system. (AIHA LQAP)

Clean Air Act: the enabling legislation in 42 U.S.C. 7401 *et seq.*, Public Law 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399, as amended, empowering EPA to promulgate air quality standards, monitor and to enforce them. (NELAC)

Comparability: Refers to the ability to compare data from different sources with a degree of confidence.

Completeness: Refers to the amount of data that is successfully collected with respect to that amount intended in the study design.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA/Superfund): the enabling legislation in 42 U.S.C. 9601-9675 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. 9601et seq., to eliminate the health and environmental threats posed by hazardous waste sites. (NELAC)

Confidential Business Information (CBI): information that an organization designates as having the potential of providing a competitor with inappropriate insight into its management, operation or products. NELAC and its representatives agree to safeguard identified CBI and to maintain all information identified as such in full confidentiality.

Confirmation: verification of the identity of a component through the use of an approach with a different scientific principle from the original method. These may include, but are not limited to:
Second column confirmation
Alternate wavelength
Derivatization
Mass spectral interpretation
Alternative detectors or
Additional cleanup procedures. (NELAC)

Conformance: an affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements. (ANSI/ASQC E4-1994)

Contributor: a participant in NELAC who is not a Voting Member. Contributors include representatives of laboratories, manufacturers, industry, business, consumers, academia, laboratory associations, laboratory accreditation associations, counties, municipalities, and other political subdivisions, other federal and state officials not engaged in environmental activities, and other persons who are interested in the objectives and activities of NELAC. (NELAC)[Art III, Const]

Control Chart: A graph of some measurement plotted over time or sequence of sampling, together with control limit(s) and, usually, a central line and warning limit(s). (AIHA LQAP)

Corrective Action: the action taken to eliminate the causes of an existing nonconformity, defect or other undesirable situation in order to prevent recurrence. (ISO 8402)
All activities taken, whether unsuccessful or not, to eliminate the cause(s) of an existing nonconformity or deficiency in order to prevent recurrence. (AIHA LQAP)

Data Audit: a qualitative and quantitative evaluation of the documentation and procedures associated with environmental measurements to verify that the resulting data are of acceptable quality (i.e., that they meet specified acceptance criteria). (NELAC)
Data Reduction: the process of transforming raw data by arithmetic or statistical calculations, standard curves, concentration factors, etc., and collation into a more useable form. (EPA-QAD)
Deficiency: an unauthorized deviation from acceptable procedures or practices, or a defect in an item. (ASQC)
A failure to comply with a requirement of the AIHA Accreditation Program(s) or a laboratory's own stated quality system requirements. (AIHA LQAP)
Delegate: any environmental official of the States or the Federal government not sitting in the House of Representatives, who is eligible to vote in the House of Delegates. (NELAC)
Demonstration of Capability: a procedure to establish the ability of the analyst to generate acceptable accuracy. (NELAC)
Denial: to refuse to accredit in total or in part a laboratory applying for initial accreditation or resubmission of initial application. (NELAC)[4.4.1]
Detection Limit: the lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. See Method Detection Limit. (NELAC)
Determination: An analysis with a qualitative result. (AIHA LQAP)
Deviation: A departure from written procedures, test methods, contracts or any other standard operating procedure that is part of the laboratory Quality Assurance System. (AIHA LQAP)
Document Control: the act of ensuring that documents (and revisions thereto) are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed properly and controlled to ensure use of the correct version at the location where the prescribed activity is performed. (ASQC)
Duplicate Samples: Two samples taken from and representative of the same population and carried through all steps of the sampling and analytical procedures in an identical manner. Duplicate samples are used to assess variance of the total method including sampling and analysis. (AIHA LQAP)
Environmental Laboratory Advisory Board (ELAB): a Federal Advisory Committee, with members appointed by EPA and composed of a balance of non-state, non-federal representatives, from the environmental laboratory community, and chaired by an ELAB member. (NELAC)[1.6.2]
Environmental Lead Laboratory Accreditation Program (ELLAP): This AIHA program complies with the requirements of the EPA National Lead Laboratory Accreditation Program (NLLAP) Laboratory Quality System Requirements (LQSR) and also conforms to the ISO/IEC 17025 Standard and ISO/IEC Guide 58 requirements. (AIHA LQAP)
Environmental Lead Proficiency Analytical Testing (ELPAT): Required quarterly quality assurance lead samples of various matrices analyzed by all accredited and participating laboratories of the ELLAP. Results are evaluated by AIHA and are used to determine laboratory proficiency. (AIHA LQAP)
Environmental Monitoring Management Council (EMMC): an EPA Committee consisting of EPA managers and scientists, organized into a Policy Council, a Steering Group, *ad hoc* Panels, and work groups addressing specific objectives, established to address EPA-wide monitoring issues. (NELAC)

Equipment: All physical items (including software and instruments) in the facility used in the performance of analytical testing. (AIHA LQAP)

Equipment Log: A chronological record of preventive and emergency maintenance performed on any equipment. The logs include a record of calls, service technician summaries, records of calibration by the manufacturer, routine user maintenance, and other information as required by these policies. (AIHA LQAP)

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA): the enabling legislation under 7 U.S.C. 135 *et seq.*, as amended, that empowers the EPA to register insecticides, fungicides, and rodenticides. (NELAC)

Federal Water Pollution Control Act (Clean Water Act, CWA): the enabling legislation under 33 U.S.C. 1251 *et seq.*, Public Law 92-50086 Stat. 816, that empowers EPA to set discharge limitations, write discharge permits, monitor, and bring enforcement action for non-compliance. (NELAC)

Field Blank: An analyte-free matrix carried to the sampling site, exposed to the sampling conditions (e.g., bottle caps removed), returned to the laboratory, treated as a sample, and carried through all steps of the analysis. For example, a clean culture media plate, sorbent tube, or a clean filter could be used as a field blank. The field blank, which should be treated just like the sample, evaluates possible effects attributable to shipping and field handling procedures. (AIHA LQAP)

Field of Accreditation: (previously Field of Testing) NELAC's approach to accrediting laboratories by matrix, technology/method and analyte/analyte group. Laboratories requesting accreditation for a matrix-technology/method-analyte/analyte group combination or for an updated/improved method are required to submit only that portion of the accreditation process not previously addressed (see NELAC, section 1.8 ff). (NELAC)

Field of Proficiency Testing: NELAC's approach to offering proficiency testing by matrix, technology, and analyte/analyte group.

FoT: Field of Testing

Finding: an assessment conclusion that identifies a condition having a significant effect on an item or activity. An assessment finding is normally a deficiency and is normally accompanied by specific examples of the observed condition. (NELAC)

Governmental Laboratory: as used in these standards, a laboratory owned by a Federal, state, or tribal government; includes government-owned contractor-operated laboratories. (NELAC)

Holding Times (Maximum Allowable Holding Times): the maximum times that samples may be held prior to analysis and still be considered valid or not compromised. (40 CFR Part 136)

Inspection: an activity such as measuring, examining, testing, or gauging one or more characteristics of an entity and comparing the results with specified requirements in order to establish whether conformance is achieved for each characteristic. (ANSI/ASQC E4-1994)

Interim Accreditation: temporary accreditation status for a laboratory that has met all accreditation criteria except for a pending on-site assessment which has been delayed for reasons beyond the control of the laboratory. (NELAC)

Inter-laboratory Comparisons: Evaluation of tests on the same or similar items by two or more laboratories. (AIHA LQAP)

Internal Quality Control: Routine activities and checks, such as periodic calibrations, duplicate analyses and matrix spikes that are included in routine internal procedures to control the accuracy and precision of measurements.

Internal Standard: a known amount of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method. (NELAC)

Laboratory: a body that calibrates and/or tests. (ISO 25) An entity that tests, either at a fixed site, mobile facility or field operations facility. (AIHA LQAP)

Laboratory Assessment: An onsite evaluation of a laboratory for the purpose of conducting a technical systems audit to assess compliance with AIHA accreditation requirements and technical competence to perform the testing for which the Lab is seeking accreditation. (AIHA LQAP)

Laboratory Control Sample (however named, such as laboratory fortified blank, spiked blank, or QC check sample): a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. (NELAC)

Laboratory Control Sample (LCS)/Method Spike Sample: A matrix-based reference material with an established concentration obtained from a source independent of the instrument calibration and traceable to NIST or other similar reference materials. The LCS is carried through the entire procedure from sample preparation through analysis as if it were a field sample. The purpose of the LCS is to evaluate bias of the method. (AIHA LQAP)

Laboratory Control Sample Duplicate (LCSD)/Method Spike Sample Duplicate: A duplicate of the LCS. (AIHA LQAP)

Laboratory Duplicate: aliquots of a sample taken from the same container under laboratory conditions and processed and analyzed independently. (NELAC)

Laboratory Quality Assurance Program(s) (LQAP): General term referring to any AIHA program or programs established to maintain the highest possible standards of performance for analysts and/or laboratories analyzing samples and evaluating exposures to hazardous agents. (AIHA LQAP)

Legal Chain-of-Custody Protocols: procedures employed to record the possession of samples from the time of sampling until analysis and are performed at the special request of the client. These protocols include the use of a Chain of Custody Form that documents the collection, transport, and receipt of compliance samples by the laboratory. **In addition, these protocols document all handling of the samples within the laboratory**. (NELAC)

Manager (however named): the individual designated as being responsible for the overall operation, all personnel, and the physical plant of the environmental laboratory. A supervisor may report to the manager. In some cases, the supervisor and the manager may be the same individual. (NELAC)

Matrix: the substrate of a test sample.

Field of Accreditation Matrix: these matrix definitions shall be used when accrediting a laboratory (see Field of Accreditation).

Drinking Water: any aqueous sample that has been designated a potable or potential potable water source.

Non-Potable Water: any aqueous sample excluded from the definition of Drinking Water matrix; includes surface water, groundwater, effluents, water treatment chemicals, and TCLP or other extracts.

Solid and Chemical Materials: includes soils, sediments, sludges, products and by-products of an industrial process that results in a matrix not previously defined.

Biological Tissue: any sample of a biological origin such as fish tissue, shellfish, or plant material. Such samples shall be grouped according to origin.

Air and Emissions: whole gas or vapor samples including those contained in flexible or rigid wall containers and the extracted concentrated analytes of interest from a gas or vapor that are collected with a sorbent tube, impinger solution, filter, or other device. (NELAC).

Quality System Matrix: These matrix definitions are an expansion of the field of accreditation matrices and shall be used for purposes of batch and quality control requirements. These matrix distinctions shall be used:

Aqueous: any aqueous sample excluded from the definition of Drinking Water matrix or Saline/Estuarine source; includes surface water, groundwater, effluents, and TCLP or other extracts.

Drinking Water: any aqueous sample that has been designated a potable or potential potable water source.

Saline/Estuarine: any aqueous sample from an ocean or estuary, or other salt-water source such as the Great Salt Lake.

Non-aqueous Liquid: any organic liquid with <15% settleable solids.

Biological Tissue: any sample of a biological origin such as fish tissue, shellfish, or plant material. Such samples shall be grouped according to origin.

Solids: includes soils, sediments, sludges and other matrices with >15% settleable solids.

Chemical Waste: a product or by-product of an industrial process that results in a matrix not previously defined.

Air and Emissions: whole gas or vapor samples including those contained in flexible or rigid wall containers and the extracted concentrated analytes of interest from a gas or vapor that are collected with a sorbent tube, impinger solution, filter, or other device. (NELAC)

The component or substrate (e.g., soil, air or charcoal tube) that contains the analyte of interest. (AIHA LQAP)

Matrix Spike (spiked sample or fortified sample): a sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. Matrix spikes are used, for example, to determine the effect of the matrix on a method's recovery efficiency. (QAMS)

An aliquot of sample, or sample media, spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. (AIHA LQAP)

Matrix Spike Duplicate (spiked sample or fortified sample duplicate): a second replicate matrix spike prepared in the laboratory and analyzed to obtain a measure of the precision of the recovery for each analyte. (QAMS)

May: denotes permitted action, but not required action.

Measurement Quality Objectives (MQOs): The desired sensitivity, range, precision, and bias of a measurement.

Method: see Test Method

Method Blank: An unexposed sampling media or reagent(s), not taken to the field or shipped, but carried through the complete sample preparation and analytical procedure. The blank is used to assess possible background contamination from the analytical process. This blank may also be referred to as a laboratory blank. (AIHA LQAP)

Method Detection Limit (MDL): the minimum concentration of a substance (an analyte) that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte. (40 CFR Part 136, Appendix B)

The minimum concentration of an analyte that, in a given matrix and with a specific method, has a 99 percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero. (AIHA LQAP)

Method Performance: A general term used to document the characteristics of a method. These characteristics usually include method detection limits, linearity, precision, accuracy and bias and uncertainty of measurement. See Acceptance Limits. (AIHA LQAP)

Must: denotes a requirement that must be met. (Random House College Dictionary)

National Accreditation Database: the publicly accessible database listing the accreditation status of all laboratories participating in NELAP. (NELAC)

National Institute of Standards and Technology (NIST): an agency of the US Department of Commerce's Technology Administration that is working with EPA, States, NELAC, and other public and commercial entities to establish a system under which private sector companies and interested States can be accredited by NIST to provide NIST-traceable proficiency testing (PT) to those laboratories testing drinking water and wastewater. (NIST)

National Environmental Laboratory Accreditation Conference (NELAC): a voluntary organization of State and Federal environmental officials and interest groups purposed primarily to establish mutually acceptable standards for accrediting environmental laboratories. A subset of NELAP. (NELAC)

National Environmental Laboratory Accreditation Program (NELAP): the overall National Environmental Laboratory Accreditation Program of which NELAC is a part. (NELAC)

National Voluntary Laboratory Accreditation Program (NVLAP): a program administered by NIST that is used by providers of proficiency testing to gain accreditation for all compounds/matrices for which NVLAP accreditation is available, and for which the provider intends to provide NELAP PT samples. (NELAC)

Negative Control: measures taken to ensure that a test, its components, or the environment do not cause undesired effects, or produce incorrect test results. (NELAC)

NELAC Standards: the plan of procedures for consistently evaluating and documenting the ability of laboratories performing environmental measurements to meet nationally defined standards established by the National Environmental Laboratory Accreditation Conference. (NELAC)

NELAP Recognition: the determination by the NELAP Director that an accrediting authority meets the requirements of the NELAP and is authorized to grant NELAP accreditation to laboratories. (NELAC)

Nonconformance: Noncompliance with any quality assurance policy, procedure, or specification. Nonconforming work results from an analysis event in which the QC results are not within acceptance limits and/or method specifications are not met. (AIHA LQAP)

Non-governmental Laboratory: any laboratory not meeting the definition of the governmental laboratory. (NELAC)

Performance Audit: the routine comparison of independently obtained qualitative and quantitative measurement system data with routinely obtained data in order to evaluate the proficiency of an analyst or laboratory. (NELAC)

Performance Based Measurement System (PBMS): a set of processes wherein the data quality needs, mandates or limitations of a program or project are specified and serve as criteria for selecting measurement processes which will meet those needs in a cost-effective manner. (NELAC)

Policy: An organization's written statement of commitment to implement a management program element. (AIHA LQAP)

Positive Control: measures taken to ensure that a test and/or its components are working properly and producing correct or expected results from positive test subjects. (NELAC)

Precision: the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed as standard deviation, variance or range, in either absolute or relative terms. (NELAC)

The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves. Precision is often expressed as standard deviation, variance or range, in either absolute or relative terms. (AIHA LQAP)

Preventive Action: A planned activity to identify, recognize and control potential sources of nonconformance and to introduce needed improvements. (AIHA LQAP)

Procedure: A written set of instructions that describe how to implement a policy requirement, or how to carry out a specific task. (AIHA LQAP)

Preservation: refrigeration and/or reagents added at the time of sample collection (or later) to maintain the chemical and/or biological integrity of the sample. (NELAC)

Primary Accrediting Authority: the agency or department designated at the Territory, State or Federal level as the recognized authority with responsibility and accountability for granting NELAC accreditation for a specified field of testing. (NELAC)[1.5.2.3]

Proficiency Analytical Testing (PAT): Refers to any proficiency analytical testing program(s), such as the programs established under the Analytical Quality Programs. See Inter-laboratory Comparisons. (AIHA LQAP)

Proficiency Testing: a means of evaluating a laboratory's performance under controlled conditions relative to a given set of criteria through analysis of unknown samples provided by an external source. (NELAC)[2.1]

Proficiency Testing Oversight Body/Proficiency Testing Provider Accreditor (PTOB/PTPA): an organization with technical expertise, administrative capacity and financial resources sufficient to implement and operate a national program of PT provider evaluation and oversight that meets the responsibilities and requirements established by NELAC standards. (NELAC)

Proficiency Testing Program: the aggregate of providing rigorously controlled and standardized environmental samples to a laboratory for analysis, reporting of results, statistical evaluation of the results and the collective demographics and results summary of all participating laboratories. (NELAC)

Proficiency Testing Study Provider: any person, private party, or government entity that meets stringent criteria to produce and distribute NELAC PT samples, evaluate study results against published performance criteria and report the results to the laboratories, primary accrediting authorities, PTOB/PTPA, and NELAP. (NELAC)

Proficiency Test Sample (PT): a sample, the composition of which is unknown to the analyst and is provided to test whether the analyst/laboratory can produce analytical results within specified acceptance criteria. (QAMS)

Protocol: a detailed written procedure for field and/or laboratory operation (e.g., sampling, analysis) that must be strictly followed. (EPA-QAD)

Quality: The suitability of a product or service for use, as perceived by the user. (AIHA LQAP)

Quality Assurance: an integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence. (QAMS)

An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure a product or service meets defined standards of quality within a stated level of confidence. (AIHA LQAP)

Quality Assurance Coordinator (QAC): The manager of the quality system. The quality manager is independent of the analyst (for a specific sample set) and reports directly to the highest level of management. (AIHA LQAP)

Quality Assurance [Project] Plan (QAPP): a formal document describing the detailed quality control procedures by which the quality requirements defined for the data and decisions pertaining to a specific project are to be achieved. (EPA-QAD)

Quality Control: the overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. (QAMS)

Technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide quality that is satisfactory, adequate, dependable and economical. (AIHA LQAP)

Quality Control Sample: an uncontaminated sample matrix spiked with known amounts of analytes from a source independent from the calibration standards. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. (EPA-QAD)

Quality Manual: a document stating the management policies, objectives, principles, organizational structure and authority, responsibilities, accountability, and implementation of an agency, organization, or laboratory, to ensure the quality of its product and the utility of its product to its users. (NELAC)

A document stating the quality policy, quality system and internal quality control procedures of the laboratory. (AIHA LQAP)

Quality System: a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC activities.

Quantitation Limits: levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported at a specified degree of confidence. (NELAC)

Range: the difference between the minimum and the maximum of a set of values. (EPA-QAD)
Raw Data: any original factual information from a measurement activity or study recorded in a laboratory notebook, worksheets, records, memoranda, notes, or exact copies thereof that are necessary for the reconstruction and evaluation of the report of the activity or study. Raw data may include photography, microfilm or microfiche copies, computer printouts, magnetic media, including dictated observations, and recorded data from automated instruments. If exact copies of raw data have been prepared (e.g., tapes which have been transcribed verbatim, data and verified accurate by signature), the exact copy or exact transcript may be submitted. (EPA-QAD)
Recognition: previously known as reciprocity. The mutual agreement of two or more parties (i.e., States) to accept each other's findings regarding the ability of environmental testing laboratories in meeting NELAC standards. (NELAC)[1.5.3]
Reference Material: a material or substance one or more properties of which are sufficiently well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials. (ISO Guide 30-2.1)
A material or substance, one or more properties of which are sufficiently homogeneous and well established to be used to monitor instrument and method performance. AIHA PAT samples may be used as reference materials. (AIHA LQAP)
Reference Method: a method of known and documented accuracy and precision issued by an organization recognized as competent to do so. (NELAC)
Reference Standard: a standard, generally of the highest metrological quality available at a given location, from which measurements made at that location are derived. (VIM-6.08)
A substance or reference material used to calibrate an instrument. Reference standards shall be NIST traceable or equivalent and of the highest quality available at the location. (AIHA LQAP)
Reference Toxicant: the toxicant used in performing toxicity tests to indicate the sensitivity of a test organism and to demonstrate the laboratory's ability to perform the test correctly and obtain consistent results (see Chapter 5, Appendix D, section 2.1f). (NELAC)
Relative Percent Difference (RPD): A term defined as RPD = ((R1 – R2)/R) x 100 where R1 – R2 represents the absolute difference of two (2) values and R represents the average of the two (2) values. (AIHA LQAP)
Relevant Degree: A program of collegiate study that is appropriate to the applicable accreditation program. (AIHA LQAP)
Replicate Analyses: the measurements of the variable of interest performed identically on two or more sub-samples of the same sample within a short time interval. (NELAC)
Reporting Limit: The lowest concentration of analyte in a sample that can be reported with a defined, reproducible level of certainty. This value is based on the low standard used for instrument calibration. For environmental lead analyses, the reporting limit must be at least twice the MDL. (AIHA LQAP)
Representativeness: Refers to the degree to which the data collected accurately reflect the population, group or medium being sampled.
Requirement: denotes a mandatory specification; often designated by the term "shall". (NELAC)
An essential criterion necessary for accreditation. (AIHA LQAP)
Resource Conservation and Recovery Act (RCRA): the enabling legislation under 42 USC 321 *et seq.* (1976), that gives EPA the authority to control hazardous waste from the "cradle-to-grave", including its generation, transportation, treatment, storage, and disposal. (NELAC)

Revocation: the total or partial withdrawal of a laboratory's accreditation by the accrediting authority. (NELAC)[4.4.3]
The formal, permanent removal of a laboratory's accreditation for noncompliance with AIHA accreditation requirements. (AIHA LQAP)
Run: A set of consecutive measurements performed on different samples. (AIHA LQAP)
Safe Drinking Water Act (SDWA): the enabling legislation, 42 USC 300f *et seq.* (1974), (Public Law 93-523), that requires the EPA to protect the quality of drinking water in the U.S. by setting maximum allowable contaminant levels, monitoring, and enforcing violations. (NELAC)
Sample: for instrumental analyses, a sample is defined as an analytical determination. Thus a Continuing Calibration Verification Standard (CCV) is analyzed after every ten determinations, regardless of the type of sample (QC sample or test sample). For those test methods that require the analysis of an Initial or Continuing Calibration Blank (ICB or CCB) after the ICV or CCV analysis, the ICB or CCB is not counted as a determination. In addition, if a reagent/solvent blank analysis (rinse blank) is performed to ensure that carryover from a highly concentrated sample has not contaminated the system, this is not counted as a determination. For certain analyses (i.e., GC/MS), the requirement to analyze a CCV is per number of hours, not per number of determinations.
Sample Log: A document where sample identification, date received, client, etc., are noted when samples arrive at the laboratory. The log is part of the sample tracking system. See Sample Tracking. (AIHA LQAP)
Sample Tracking: procedures employed to record the possession of the samples from the time of sampling until analysis, reporting, and archiving. These procedures include the use of a Chain of Custody Form that documents the collection, transport, and receipt of compliance samples to the laboratory. In addition, access to the laboratory is limited and controlled to protect the integrity of the samples. (NELAC)
A document system of following a sample from receipt at the laboratory, through sample processing and analysis, to final reporting. The system includes unique numbering, or bar coding labels, and the use of a Sample Log. (AIHA LQAP)
Secondary Accrediting Authority: the Territorial, State or federal agency that grants NELAC accreditation to laboratories, based upon their accreditation by a NELAP-recognized Primary Accrediting Authority. See also **Recognition** and **Primary Accrediting Authority**. (NELAC)[1.5.2.3]
Selectivity: (Analytical chemistry) the capability of a test method or instrument to respond to a target substance or constituent in the presence of non-target substances. (EPA-QAD)
Sensitivity: the capability of a method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest. (NELAC)
Shall: denotes a requirement that is mandatory whenever the criterion for conformance with the specification requires that there is no deviation. This does not prohibit the use of alternative approaches or methods for implementing the specification so long as the requirement is fulfilled. (ANSI)
Should: denotes a guideline or recommendation whenever noncompliance with the specification is permissible. (ANSI)
Spike: a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery efficiency or for other quality control purposes. (NELAC)

Standard: the document describing the elements of laboratory accreditation that has been developed and established within the consensus principles of NELAC and meets the approval requirements of NELAC procedures and policies. (ASQC)
A substance or material with properties believed to be known with sufficient accuracy to permit its use to evaluate the same property of another. In chemical measurements, it often describes a solution or substance commonly prepared by the analyst to establish a calibration curve or the analytical response function of an instrument. (AIHA LQAP)
Standard Administrative Procedure (SAP): a written procedure that details administrative operations that thoroughly prescribes actions to be taken
Standard Operating Procedures (SOPs): a written document which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed and which is accepted as the method for performing certain routine or repetitive tasks. (QAMS)
A written document that details the procedures of an operation; an analysis or action whose techniques and procedures are thoroughly prescribed, and which are accepted as the procedure for performing certain routine or repetitive tasks. (AIHA LQAP)
Standard Reference Material (SRM): a certified reference material produced by the U.S. National Institute of Standards and Technology or other equivalent organization and characterized for absolute content, independent of analytical method. (EPA-QAD)
A certified reference material produced by the U.S. National Institute of Standards and Technology (NIST) and characterized for absolute content independent of analytical method. It is accompanied by a certificate that reports the results of the characterization and the intended use of the material. (AIHA LQAP)
Standardization: The process of establishing the quantitative relationship between a known mass of target material and the measurement system (example, instrument response). See Calibration and Calibration curve. The term may also refer to activities that establish provisions for common and repeated use of accreditation policies to achieve an optimum level of conformity. (AIHA LQAP)
Statistical Minimum Significant Difference (SMSD): the minimum difference between the control and a test concentration that is statistically significant; a measure of test sensitivity or power. The power of a test depends in part on the number of replicates per concentration; the significance level selected, e.g., 0.05, and the type of statistical analysis. If the variability remains constant, the sensitivity of the test increases as the number of replicates is increased. (NELAC)
Stock Solution: A concentrated solution of analyte(s) or reagent(s) prepared and verified by prescribed procedure(s), and used for preparing calibration standards. See Calibration Standard. (AIHA LQAP)
Subsample: A representative portion of a sample; a subsample may be taken from any location or a field sample; in analytical chemistry, an “aliquot.” (AIHA LQAP)
Suggestion: Suggested activity or advice for improving laboratory performance often made during a site assessment. A recommendation is not a requirement. (AIHA LQAP)
Supervisor (however named): the individual(s) designated as being responsible for a particular area or category of scientific analysis. This responsibility includes direct day-to-day supervision of technical employees, supply and instrument adequacy and upkeep, quality assurance/quality control duties and ascertaining that technical employees have the required balance of education, training and experience to perform the required analyses. (NELAC)

Surrogate: a substance with properties that mimic the analyte of interest. It is unlikely to be found in environment samples and is added to them for quality control purposes. (QAMS)
Suspension: temporary removal of a laboratory's accreditation for a defined period of time, which shall not exceed six months, to allow the laboratory time to correct deficiencies or area of noncompliance with the NELAC standards. (NELAC)[4.4.2]
A temporary removal of the accredited status of a laboratory when it is found to be out of compliance with specific program requirements. (AIHA LQAP)
Technical Director: individual(s) who has overall responsibility for the technical operation of the environmental testing laboratory. (NELAC)
Technical Systems Audit: A thorough, systematic, onsite, qualitative evaluation of facilities, equipment, personnel, training, procedures, record keeping, data validation, data management and reporting aspects of a total quality system. (AIHA LQAP)
Technology: a specific arrangement of analytical instruments, detection systems, and/or preparation techniques.
Test: a technical operation that consists of the determination of one or more characteristics or performance of a given product, material, equipment, organism, physical phenomenon, process or service according to a specified procedure. The result of a test is normally recorded in a document sometimes called a test report or a test certificate. (ISO/IEC Guide 2-12.1, amended)
A technical operation that consists of determining one or more elements in a sample according to a specified procedure. (AIHA LQAP)
Test Method: an adoption of a scientific technique for a specific measurement problem, as documented in a laboratory SOP or published by a recognized authority. (NELAC)
Specified technical procedure for performing a test. See Standard Operating Procedure (AIHA LQAP)
Testing Laboratory: a laboratory that performs tests. (ISO/IEC Guide 2-12.4)
Test Sensitivity/Power: the minimum significant difference (MSD) between the control and test concentration that is statistically significant. It is dependent on the number of replicates per concentration, the selected significance level, and the type of statistical analysis (see Chapter 5, Appendix D, section 2.4.a). (NELAC)
Tolerance Chart: A chart in which the plotted quality control data is assessed via a tolerance level (e.g. +/- 10% of a mean) based on the precision level judged acceptable to meet overall quality/data use requirements instead of a statistical acceptance criteria (e.g. +/- 3 sigma) (applies to radiobioassay laboratories). (ANSI)
Toxic Substances Control Act (TSCA): the enabling legislation in 15 USC 2601 *et seq.*, (1976), that provides for testing, regulating, and screening all chemicals produced or imported into the United States for possible toxic effects prior to commercial manufacture. (NELAC)
Traceability: the property of a result of a measurement whereby it can be related to appropriate standards, generally international or national standards, through an unbroken chain of comparisons. (VIM-6.12)
The process of documenting the value of a reference material or standard as related to NIST standards or equivalent through an unbroken chain of comparisons with stated uncertainties. (AIHA LQAP)
Uncertainty of Measurement: Result of the evaluation aimed at characterizing the range within which the true value of a test result is estimated to lie, generally within a given likelihood. (AIHA LQAP)

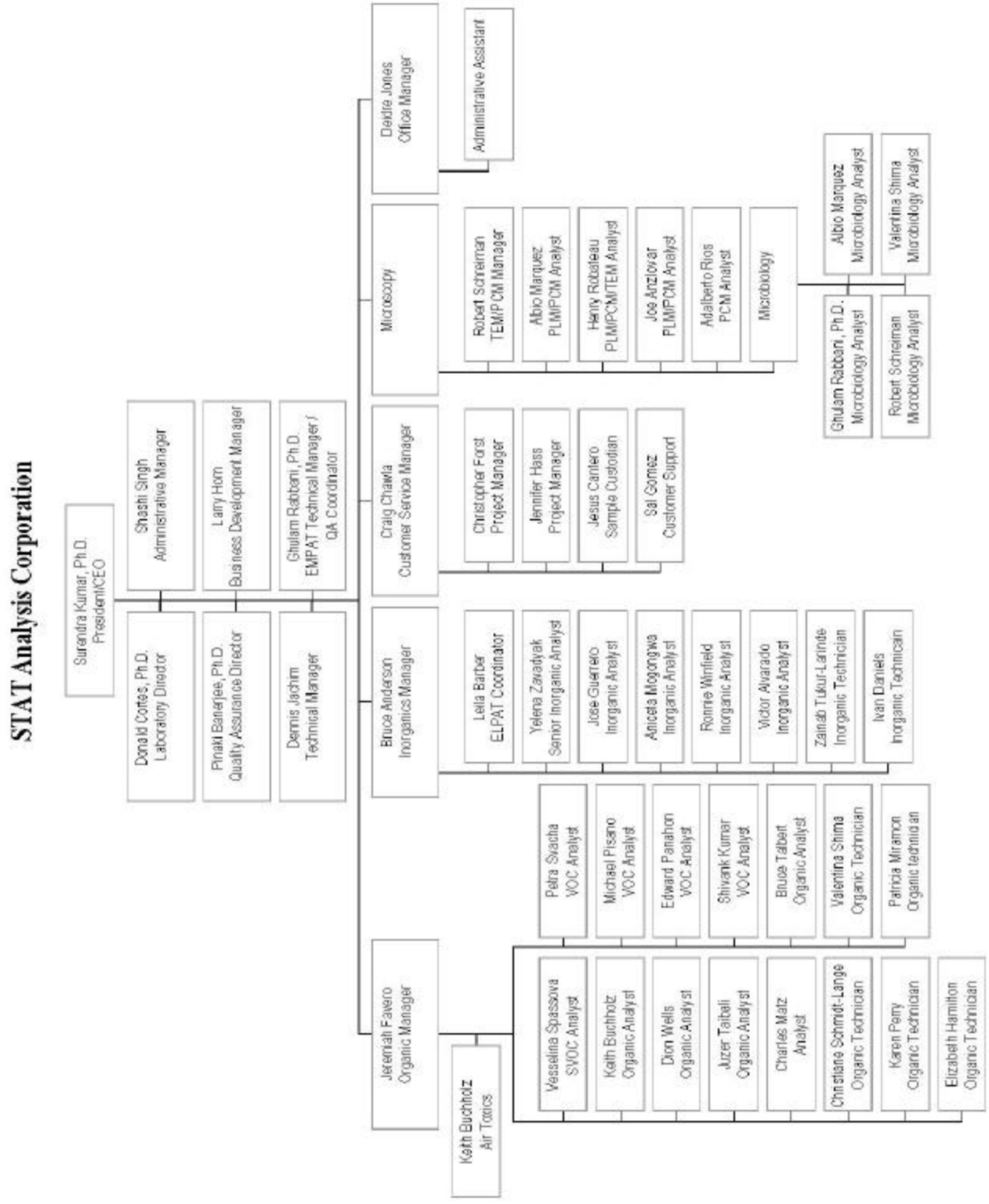
United States Environmental Protection Agency (EPA): the federal governmental agency with responsibility for protecting public health and safeguarding and improving the natural environment (i.e., the air, water, and land) upon which human life depends. (US-EPA)
Validation: the process of substantiating specified performance criteria. (EPA-QAD)
The process of confirming specified method performance criteria. (AIHA LQAP)
Verification: confirmation by examination and provision of evidence that specified requirements have been met. (NELAC)
NOTE: In connection with the management of measuring equipment, verification provides a means for checking that the deviations between values indicated by a measuring instrument and corresponding known values of a measured quantity are consistently smaller than the maximum allowable error defined in a standard, regulation or specification peculiar to the management of the measuring equipment.
The result of verification leads to a decision either to restore in service, to perform adjustment, to repair, to downgrade, or to declare obsolete. In all cases, it is required that a written trace of the verification performed shall be kept on the measuring instrument's individual record.
Confirmation by examination and provision of evidence that specified requirements have been met. (AIHA LQAP)
Voting Member: officials in the employ of the Government of the United States, and the States, the Territories, the Possessions of the United States, or the District of Columbia and who are actively engaged in environmental regulatory programs or accreditation of environmental laboratories. (NELAC)
Work Cell: a well-defined group of analysts that together perform the method analysis. The members of the group and their specific functions within the work cell must be fully documented. (NELAC)

Appendix 1

Summary of Changes from Rev 06

- The policy statement was revised to add that STAT management is committed to comply with ISO/IEC 17025 requirements. Also, that the laboratory management is committed to good professional practice and to the quality of its environmental testing in servicing its clients. All personnel involved with environmental testing activities within the laboratory must review this quality manual.
- Section 2 was revised to delete the old address and provide STAT's new address. Section 2 was also revised to add duties and qualifications of the EMPAT Technical Manager and the EMPAT Quality Assurance Coordinator.
- Section 3 was revised to refer to Appendix 3, where a revised Document Master List was provided that included excel spreadsheets and reporting templates, instrument operating software, equipment instruction manuals, and guidance documents.
- Section 4.2 was revised to add laboratory apparatus and instruments specific to the Microbiology Laboratory.
- Section 4.5 was added that discussed Selection and purchasing of Services and Supplies.
- Section 5 was revised to add EMLAP specific performance evaluation. Section 5.6 was revised to add that Quality control data are evaluated on a continuous basis.
- Section 7 was revised to delete information regarding old facilities and to add information regarding the new facility.
- Section 7 was also revised to add background contamination check procedures followed in microbiology, lead, and asbestos laboratories.
- Section 8.1 was revised to delete most of the text. Reference to Appendix 6 was provided.
- Section 10 was revised to add Preventive Actions.
- Section 17, Data Agreement was added
- References, provided previously as Section 20, were included within Appendix 3 as Guidance Documents.

APPENDIX 2: Organizational Chart



APPENDIX 3: DOCUMENT MASTER LIST
ADMINISTRATIVE SOPs

SOP Number	STAT SOP
ADMINISTRATIVE PROCEDURES	
005	SOP 005 Document Control
006	SOP 006 Management Review of Quality System
100	SOP 100 SOP on SOPs
230	SOP QA 230 Corrective Action
240	SOP 240 Archiving
1000	SOP 1000 Control and Use of Laboratory Notebooks
1010	SOP 1010 Analytical Standards and Reagents Receipt and Preparation
1020	SOP QA 1020 Laboratory Glassware Cleaning
1040	SOP 1040 General Laboratory Practices
1210	SOP 1210 Method Detection Limits
1220	SOP 1220 Internal Quality Assurance Audit
1230	SOP 1230 Training
1250	SOP 1250 Data Review
1255	SOP 1255 Manual Integration
1270	SOP 1270 Uncertainty
SAFETY DEPARTMENT	
003	SOP QA 003 Chemical Hygiene Plan
1130	SOP 1130 Waste Disposal
CUSTOMER SERVICE DEPARTMENT	
220	SOP 220 Customer Service
300	SOP 300 Sample Receiving and Login Procedures
1330	SOP 1330 Purchasing
INFORMATION TECHNOLOGY DEPARTMENT	
1400	SOP 1400 LIMS
1500	SOP 1500 Computer Network

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)
NELAC APPROVED TEST METHODS

Laboratory Test Method	STAT SOP
SW846 9095A	SOP 2010 Paint Filter Liquids Test by EPA Method 9095A
SW846 1311	SOP 2125 Leaching Procedures (Toxicity Characteristic Leaching Procedure (EPA Method 1311))
SW846 1312	SOP 2125 Leaching Procedures (Synthetic Precipitation Leaching Procedure (EPA Method 1312))
SW846 3005A	SOP 3005 SW848 3005 Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by FLAA, ICP, or ICP-MS
SW846 3620B	SOP 3060 Florisil Clean up for PCBs and Pesticides (EPA Method 3620B)
SW846 3660B	SOP 3070 Sulfur & Sulfuric Acid/Permanganate Cleanup for PCBs and Pesticides (EPA Method 3660B & 3665A)
SW846 3665A	SOP 3070 Sulfur & Sulfuric Acid/Permanganate Cleanup for PCBs and Pesticides (EPA Method 3660B & 3665A)
SW846 3050B	SOP 3110 SW846 3050B Acid Digestion of Sediment, Sludges, and Soils for Metals Analysis by FLAA, ICP, or ICP-MS
SW846 3050B	SOP 3115 Extraction of High Volume Filters
SW846 3630C	SOP 3330 Silica Gel Cleanup for Semi-Volatile Organics (EPA Method 3630C)
SW846 3510C	SOP 3500 Extractions of Samples for Semi-Volatile Organic Analyses (EPA Methods 3510C, 3520C, 3550B, 3580A, 8151A)

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)
NELAC APPROVED TEST METHODS

Laboratory Test Method	STAT SOP
SW846 3550B	SOP 3500 Extractions of Samples for Semi-Volatile Organic Analyses (EPA Methods 3510C, 3520C, 3550B, 3580A, 8151A)
SW846 3580A	SOP 3500 Extractions of Samples for Semi-Volatile Organic Analyses (EPA Methods 3510C, 3520C, 3550B, 3580A, 8151A)
SW846 8151A	SOP 3500 Extractions of Samples for Semi-Volatile Organic Analyses (EPA Methods 3510C, 3520C, 3550B, 3580A, 8151A)
SW846 9012A	SOP 3610 Total and Amenable Cyanide: Distillation by EPA 9012A
SW846 Ch. 7	SOP 36154 Reactive Cyanide and Sulfide: Distillation by SW 846, Chapter 7.
SW846 9065	Phenolics: Distillation by EPA 9065.
SW846 8260B	SOP 4000 Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (EPA Methods 5030B/5035/ 8260B)
SW846 8270C	SOP 4020 Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (EPA Method 8270C)
SW846 8081A	SOP 4050 Organochlorine Pesticides & PolyChlorinated Biphenyl by Gas Chromatography/Electron Capture Detector (EPA Methods 8081A/8082)
SW846 8082	SOP 4050 Organochlorine Pesticides & PolyChlorinated Biphenyl by Gas Chromatography/Electron Capture Detector (EPA Methods 8081A/8082)
ASTM Method D-4059	SOP 4051 PolyChlorinated Biphenyl by Gas Chromatography/Electron Capture Detector (ASTM Method D-4059)

SW846 8321A	SOP 4080 ChloroPhenoxy Herbicides by HPLC (EPA Method 8321A)
SW846 8015M	SOP 4090 Total Petroleum Hydrocarbons by GC/FID
SW846 1010	SOP 4105 Ignitibility by EPA 1010/ ASTM D93-02 Pensky-Martens Closed Cup and ASTM D1310 Tag Open Cup- DRAFT
SW846 9040B	SOP 4210 pH of Aqueous, Soil and Waste Samples by EPA Method 9040B, 9045C, 150.1
SW846 9045C	SOP 4210 pH of Aqueous, Soil and Waste Samples by EPA Method 9040B, 9045C, 150.1
SW846 8270C SIM	SOP 4500 Polynuclear Aromatic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) with Selective Ion Monitoring (SIM) (EPA Method 8270C SIM)
SW846 6020	SOP 4510 Metals Analysis by Inductively Coupled Plasma- Mass Spectrometry (EPA Method 6020 and EPA Method IO-3.5)
SW846 7470A	SOP 4530 Mercury in Water, Solid or Semisolid Water (Manual Digestion/Automated Analysis Cold-Vapor Technique (EPA Method 7470A & 7471A)
SW846 7471A	SOP 4530 Mercury in Water, Solid or Semisolid Water (Manual Digestion/Automated Analysis Cold-Vapor Technique (EPA Method 7470A & 7471A)
SW846 3060A	SOP 4600 Automated Hexavalent Chromium Analysis by EPA Method 7196A and 3060A
SW846 7196A	SOP 4600 Automated Hexavalent Chromium Analysis by EPA Method 7196A and 3060A
SW846 9012A	SOP 4610 Total and Amenable Cyanide: Distillation by 9012A
SW846 Chapter 7.3.3.2	SOP 4615 Reactive Cyanide and Sulfide: Distillation by SW846 Chapter 7
SW846 9065	SOP 4620 Phenolics 4AAP: Distillation by EPA 9065

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)
NELAC APPROVED TEST METHODS

Laboratory Test Method	STAT SOP
EPA 415.1	SOP 4630 Total Organic Carbon By EPA 415.1
SW846 9012A	SOP 4710 Automated Cyanide Analysis by EPA 9012A
SW846 9066	SOP 4715 Automated Phenols – Analysis by EPA 9066
846 9034	SOP 4725 Automated Sulfide Analysis by EPA 376.2 and EPA 9034
EPA 410.4	SOP 4260 Chemical Oxygen Demand by EPA 410.4
SW846 9023	TOX, EOX in Soils and Waters by SW846 9023 and 9020-Draft

APPENDIX 3: DOCUMENT MASTER LIST (cont'd)
AIHA TEST METHODS

Laboratory Test Method	STAT SOP
NIOSH 7300	SOP 4515 Elements by ICP-MS by NIOSH 7300 -DRAFT
NIOSH 6009	SOP 4535 Mercury in Air Monitoring Cartridges by - NIOSH 6009
NIOSH 7082	SOP 4550 Lead Analysis of Lead by Atomic Absorption Direct Aspiration (NIOSH 7082, EPA IO-3.2, and EPA 7420)
OSHA 07, NIOSH (5515, 1400, 1501, 1500, 2000, 5503)	SOP 4700 Organic Vapors in Air Monitoring Cartridges by Gas Chromatography –
NIOSH 7400	SOP 5100 Asbestos and Other Fibers by PCM
NIOSH 5515	SOP 4701 Polynuclear Aromatic Hydrocarbon in Air Monitoring Cartridges by GC/MS with Selective Ion Monitoring
OSHA 0500, 0600	SOP 4040 Sampling And Analysis of Ambient Air for Total Suspended Particulate Matter (SPM) And PM_{10} Using High Volume (HV) Sampler
SOP 6110	SOP 6110 Analysis of Non-Viable Microbiological Air Samples
SOP 6120	SOP 6120 Analysis of Viable Microbiological Air Samples
SOP 6210	SOP 6210 Analysis of Non-Viable Microbiological Samples by Direct Examination
SOP 6220	SOP 6220 Analysis of Viable Microbiological Swab and Bulk Samples
SOP 6310	SOP 6310 Preparation of Media
SOP 6410	SOP 6410 Microscope Alignment and Adjustment

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)
AMBIENT AIR TEST METHODS (ORDEQ/NELAC)

Laboratory Test Method	STAT SOP
EPA IO-3.1	SOP 3115 Extraction of High Volume Filters
SW846 3510, 3550B, 3580A	SOP 3500 Extractions of Samples for Semi-Volatile Organic Analyses (EPA Methods 3510C, 3520C, 3550B, 3580A, 8151A)
EPA TO-14A/15	SOP 4010 Volatile Organic Compounds in Ambient Air by 2-Stage Thermal Desorption/Gas Chromatography/Mass Spectrometry (GC/MS) (EPA Method TO-14A/TO-15)
EPA TO-14A/15	SOP 4011 Flow Calibration of Passive Air Sampling Equipment
EPA TO-13A	SOP 4030 Determination of Polycyclic Aromatic Hydrocarbons in Ambient Air Using Gas Chromatography/ Mass Spectrometry by EPA TO-13A
EPA IO-3.1	SOP 4040 Sampling And Analysis of Ambient Air for Total Suspended Particulate Matter (SPM) And PM_{10} Using High Volume (HV) Sampler
EPA IO-3.5	SOP 4510 Metals Analysis by Inductively Coupled Plasma- Mass Spectrometry (EPA Method 6020 AND EPA Method IO-3.5)
IO-3.2, EPA 7420	SOP 4550 Analysis of Lead by Atomic Absorption Direct Aspiration (NIOSH 7082, EPA IO-3.2, and EPA 7420)

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)
OTHER TEST METHODS

Laboratory Test Method	STAT SOP
ASTM E1664	SOP 2000 Total Recoverable Oil & Grease by ASTM E1664 and EPA 9071B - DRAFT
SW846 9071B	SOP 2000 Total Recoverable Oil & Grease by ASTM E1664 and EPA 9071B - DRAFT
ATSM D4979	SOP 2040 Color, Order, Physical Description by ASTM D4979 - DRAFT
ASTM 5058-90	SOP 2080 Compatibility of Screening Analysis - DRAFT
ASTM 3987-85	SOP 2125 Leaching Procedures (ASTM D3987-85 Leaching Procedure)
EPA350.1	SOP 3250 Ammonia Distillation by EPA 350.1 - DRAFT
ASTM D93-80	SOP 4105 Ignitibility by EPA 1010 Pensky-Martens Closed Cup and ASTM D93-80 Open Cup – DRAFT
SW846 9050A	SOP 4200 Conductivity (Specific Conductance)
EPA 150.1	SOP 4210 pH of Aqueous, Soil and Waste Samples (EPA Method 9040B, 9045C, 150.1)
EPA 310.1	SOP 4230 Acidity and Alkalinity of Aqueous, Soil and Waste Samples by EPA 310.1 and ASTM M2310 B - DRAFT
ASTM M2310 B	SOP 4230 Acidity and Alkalinity of Aqueous, Soil and Waste Samples by EPA 310.1 and ASTM M2310 B - DRAFT
EPA 350.1	SOP 4250 Ammonia as N in Soil and Water by EPA 350.1 DRAFT
EPA 410.4	SOP 4260 Chemical Oxygen Demand by EPA 410.4
EPA 325.2	SOP 4280 Chloride in Soil and Water by EPA 325.2 - DRAFT

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)
OTHER TEST METHODS

Laboratory Test Method	STAT SOP
EPA 340.2	SOP 4290 Fluoride in Soil and Water by EPA 340.2 - DRAFT
ASTM D2937	SOP 4300 Density and Specific Gravity for Solids and Liquids by ASTM D2937 and D854 - DRAFT
ASTM D854	SOP 4300 Density and Specific Gravity for Solids and Liquids by ASTM D2937 and D854 - DRAFT
EPA 353.1	SOP 4400 Nitrates and Nitrites in Soils and Water by EPA 353.1, EPA 353.2 and EPA 354.1 - DRAFT
EPA 353.2	SOP 4400 Nitrates and Nitrites in Soils and Water by EPA 353.1, EPA 353.2 and EPA 354.1 - DRAFT
EPA 354.1	SOP 4400 Nitrates and Nitrites in Soils and Water by EPA 353.1, EPA 353.2 and EPA 354.1 - DRAFT
EPA 365.2	SOP 4450 Ortho-phosphate in Soils and Waters by EPA 365.2 - DRAFT
EPA 160.4	SOP 4480 % Ash, FOC, % Solids and % Moisture by EPA 160.4, ASTM D2974, and ASTM D2216 - DRAFT
ASTM D2974	SOP 4480 % Ash, FOC, % Solids and % Moisture by EPA 160.4, ASTM D2974, and ASTM D2216 - DRAFT
ASTM D2216	SOP 4480 % Ash, FOC, % Solids and % Moisture by EPA 160.4, ASTM D2974, and ASTM D2216 - DRAFT
EPA 160.1	SOP 4490 Total Dissolved, Total Settleable Solids, and Total Solids by EPA 160.1 and EPA 160.2 - DRAFT
EPA 160.2	SOP 4490 Total Dissolved, Total Settleable Solids, and Total Solids by EPA 160.1 and EPA 160.2 – DRAFT
EPA 376.2	SOP 4725 Automated Sulfide Analysis by EPA 376.2 and EPA 9034

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

SOFTWARES

Semivolatile - Compact Discs
3Com EtherCD Version 5.1
3Com Fast EtherLink Server Adapter Software Release 2.0 Customized for Dell
Agilent 5973N MSD Maintenance Collection Rev. A.00.00
Agilent 6890 GC/ALS Service Information
Agilent 6890 Series GC Service Information
Agilent 6890N Series GC User Information
Agilent 7683B Automatic Liquid Sampler User Information
Agilent G1701DA User Information
Agilent HW User Info Kit 5975
Agilent LC ChemStation Spectral S/W Module Rev. A.09.01
Agilent MSD ChemStaion Software User Information
Agilent MSD ChemStation MNL Kit Rev. D.02.00
Agilent MSD Productivity Chemsta SW Core Rev. D.02.00
Agilent MSD Productivity ChemStation Revision D.01.02
Agilent MSD Productivity ChemStation Revision D.02.00 SP1
Agilent MSD Productivity ChemStation Software Rev. C.00.00
Agilent MSD Productivity ChemStation Software Rev. C.00.01
Agilent MSD Reference Collection
Agilent MSD Reference Collection Rev D.00.00
Agilent Technologies ALS Controller Software Utility
Agilent Technologies Recovery CD-ROM for HP Compaq DC7100 Windows XP SP2
Dell Dimension ResourceCD
Dell E770s Color Monitor Quick Setup
Dionex Consumables/Instrumentation Manuals and Literature
Dionex Reference Library: Manuals, Technical Documents, Applications
D-Link DFE-530TX+ Driver version 2.02 User's Manual
D-Link DFE-530TX+ Fast Ethernet Adapter Driver Program MAY.10.2000
D-Link DFE-530TX+ Fast Ethernet Adapter Driver Program OCT.01.2000
Gateway System CD Information Guide
Gateway System Restoration CD Version 9.9
Government Institutes CFRs Environmental, Health and Safety
HP 5973 Mass Selective Detector Reference Collection Rev. A.00.00

APPENDIX 3: DOCUMENT MASTER LIST (Contd)

HP 6890 Plus Service Information November 1997
HP Analytical HP-IB Drivers for 82341C
HP Analytical MSD Productivity ChemStation Software A.03.01 Update
HP Analytical MSD Productivity ChemStation Software A.03.02
HP Analytical MSD Productivity ChemStation Software Rev. A.03.00
HP Analytical MSD Productivity ChemStation Software Rev. B.00.01
HP Analytical MSD Productivity ChemStation Software Rev. B.01.00
HP CD-Writer Installation Software
HP Chemstation for Windows 95 Revision A.06.03
HP Chemstation G1034 Version C.03.00
HP ChemStation Plus Family Rev. A.07.01
HP ChemStation System Emergency Boot Floppy Windows NT 4.0
HP ChemStation System Emergency Recovery CD
HP ChemStation Update Revision A.06.03 to A.06.04
HP Compaq Business Desktop Documentation CD
HP Flat Panel Monitor Software and reference library
HP G1033A NIST1998 MS Library Rev. D.00.00
HP I/O and Security software and documentation
HP Kayak XA PC Workstation Drivers and Utilities
HP Kayak XA PC Workstation HP ConfigTailor 1.2
HP Kayak XA PC Workstation HP ConfigTailor 1.2
HP LaserJet 2400 series
HP LaserJet 4000 series Printing System & Utilities
HP MusicMatch, cd-labeller II, ACID Xpress, ArcSoft
HP Operating System CD Microsoft Windows XP PRO SP2
HP Windows NT 4.0 Emergency Repair Disk
Localized Language CD-ROM for the MSD Productivity ChemStation
Microsoft Internet Explorer Starter Kit
Microsoft MSDN Windows 95 versions, Add-ons for Windows 95
Microsoft Office 2000 Professional
Microsoft Office 2000 Small Business
Microsoft Windows 98
Microsoft Windows 98 Second Edition
Microsoft Windows NT 4.0 Debug/Check Build
Microsoft Windows NT Service Packs
Microsoft Windows NT WorkStation 4.0
Microsoft Windows NT WorkStation Certificate of Authenticity
Microsoft Works Suite 2000
MSDSonline MSDS Advantage v4.5
Restek Compendium of Methods for the Determination of Toxic Organic Compounds
Roxio Easy CD & DVD Creator Basic Edition
Roxio Easy Media Creator Basic Edition

APPENDIX 3: DOCUMENT MASTER LIST(Contd)

Symantec Norton Ghost 9.0
TurboLinux Server 6.0 Lite
Agilent 6890N Series GC Service Information
Agilent 6890N Series GC User Information
Teledyne Instruments Tekmar AutoCan TekLink v.1.10 Rev A
Teledyne Instruments Tekmar Velocity Manual Rev. B
Teledyne Instruments Tekmar VOC TekLink 2.4 Rev. B

NETWORK SOFTWARES

Excel spread sheet for Microbiology: Rev. 00; My Network/STAT Server/Micro
Excel spread sheet for PCM: Rev.00;My Network/STAT Server/PCM
GC-FID:ChemStation Model G1701AA Version A.03.00
GC (PCB-PEST 1):ChemStation Model G1701CA Version C.00.00
GC (PCB-PEST 2):ChemStation Model G1701CA Version C.00.00
SVOC 1 GCMS: ChemStation Model G 1034C Version C.03.00
SVOC 3 GCMS:ChemStation Model G1701CA Version C.00.00
SVOC 3 GCMS:ChemStation Model G1701CA Version C.00.00
GC (PCB-PEST 3):ChemStation G1710DA D.02.00
SVOC 5 GCMS:ChemStation G1710DA D.02.00
HPLC 1 LC:ChemStation for LC G2180AA A.09.03
VOA 1 GCMS:ChemStation G1701BA Version B.00.00
VOA 2 GCMS:ChemStation G1701AA Version A.03.00
VOA 3 GCMS:ChemStation G1701CA Version C.00.00
VOA 4 GCMS:ChemStation G1701CA Version C.00.00
VOA 5 GCMS:ChemStation G1701DA 0.01.02
ChemStation Data Analysis, G1710DA D.01.02
Mercury Analyzer:Cetec Tech M 6000; Version 1.5.2.7
Perkin-Elmer AA:Version 3
ICPMS 1 and 2:Chem Station Model G1834A Version A01.07
Auto sampler Cetec Version A01.00
Spreadsheet, //HARRISON/D/STAT Files/Methods/AIHA/AIHA-PAT-Rounds.xls
Spreadsheet, //HARRISON/D/STAT Files/Methods/AIHA/AIHA-Workorders-Rounds.xls

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

GUIDANCE DOCUMENTS

40CFR Part 136

AIHA Analytical Accreditation Board (AAB)

AIHA LQAP Policy Document, current revision.

American Society for Quality Control (ASQC), Definitions of Environmental Quality Assurance Terms, 1996

American Society for Testing and Materials, Annual Book of ASTM Standards, Part 31, 1987; Water: Atmospheric Analysis, ASTM, Philadelphia, PA

American National Standards Institute (ANSI), Style Manual for Preparation of Proposed American National Standards, Eighth Edition, March 1991

ANSI/ASQC E4, 1994

ANSI N42.23-1995, Measurement and Associated Instrument Quality Assurance for Radiobioassay Laboratories

Compendium Method IO-3.5 Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air: Determination of Metals in Ambient Particulate Matter Using Inductively Coupled Plasma/ Mass Spectrometry (ICP/MS), U.S. EPA, June 1999.

ISO/IEC 17025: 2005 General requirements for the competence of testing and calibration laboratories

International Vocabulary of Basic and General Terms in Metrology (VIM): 1984. Issued by BIPM, IEC,

Manufacturers' Equipment Instruction Manuals---Various

National Environmental Laboratory Accreditation Conference (NELAC), Current version at date of signing, USEPA Office of Research and Development, Washington, DC EPA600/R-99-068

NIOSH Method 6009 Mercury, NIOSH Manual of Analytical Methods (NMAM), Fourth Edition, 8/15/94

NIOSH Method 7082 "LEAD by FAAS" Issue 2 August 15, 1994.

NIOSH Manual of Analytical Methods (NMAM), Fourth Edition, 8/15/1994

NIOSH Method 1501 Hydrocarbons, Aromatic

NIOSH Method 5503 Polychlorobiphenyls

NIOSH Method 1400 Alcohols

NIOSH Method 2000 Methanol

NIOSH Method 1500 Hydrocarbons, 36 – 126 °C BP

NIOSH Method 7400 "Asbestos and Other Fibers by PCM" Issue 2: August 15, 1994

OSHA Method #007 Organic Vapors

State of Illinois Title 35: Environmental Protection Subtitle A: General Provisions Chapter II: Environmental Protection Agency Part 186: Accreditation of Laboratories for Drinking Water, Waste Water and Hazardous Waste Analyses

U.S. EPA SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" Update III, December 1996

U.S. EPA 747-R-95-001 Residential Sampling for Lead: Protocols for Dust and Soil Sampling, March 1995 USEPA Pollution Prevention and Toxics (7404)

U.S. EPA Contract Laboratory Program Statement of Work for Organic Analysis" Revision OLM04.2 May 1999, US. Environmental Protection Agency. Office of Solid Waste, Washington DC 20460.

U.S. EPA IO 3.2 Determination of Metals in Ambient Particulate Matter Using Atomic Absorption (AA) Spectroscopy, June 1999.

US EPA Quality Assurance Management Section (QAMS), Glossary of Terms of Quality Assurance Terms, 8/31/92 and 12/6/95

US EPA Quality Assurance Division (QAD)

Webster's New World Dictionary of the American Language

Note: External source documents are kept on shelves in individual laboratories. Some of the documents are also accessed through the world wide web.

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

REFERENCE TEXT (MICROBIOLOGY)

Title:	Ed.:	Author/Editor:	Publisher:	City/State:
A Laboratory Guide to Common Penicillium Species		Pitt, John I.	Food Science Australia	
Applications in General Microbiology: A Laboratory Manual	6th Ed.	Kerr and McHale	Hunter Textbooks, Inc.	
Atlas of Clinical Fungi	2nd Ed.	de Hoog, G.S, et al.	Centraalbureau voor Schimmelcultures	Utrecht, The Netherlan
Dermatiaceous Hyphomycetes		Ellis, M.B.	Commonwealth Mycological Institute	Kew, Surrey, England
Fungi and Food Spoilage	2nd Ed.	Pitt, JI and Hocking, AD	Aspen Publishers, Inc.	Gaithersburg, Marylan
Guidelines on Assessment and Remediation of Fungi in Indoor Environments		New York City Dept. of Health		
Identification of Common Aspergillus Species		Klich, Maren	Centraalbureau voor Schimmelcultures	Utrecht, The Netherlan
Identifying Filamentous Fungi: A Clinical Laboratory Handbook		St-Germain, Guy	Star Publishing Company	
Indoor Environmental Quality Guidance and Reference Manual		Martin, James	Martin Consulting	
Introduction to Food- And Airborne Fungi	6th Ed.	Samson, Robert A. and Hoekstra, Ellen S.	Centraalbureau voor Schimmelcultures	Utrecht, The Netherlan
Introduction to Microbiology and the Clinical Microbiology Laboratory		Engelkirk, Paul	Hunter Textbooks, Inc.	
Medically Important Fungi: A Guide to Identification	3rd Ed.	Larone, Davise	ASM Press	Washington, DC
Microbiological Aspects of Biofilms and Drinking Water		Percival, Steven et al.	CRC Press	
Microbiological Examination of Water and Wastewater		Csuros, Maria and Csaba	Lewis Publishers	
Microbiological Methods for Monitoring The Environment: Water and Wastes		EPA	EPA Doc# EPA-600/8-78-017	
Microbiology	4th Ed.	Prescott, Harley, and Klein	WCB McGraw-Hill	
Study Guide to Accompany Microbiology	4th Ed.	Rascati, Ralph	WCB McGraw-Hill	
Mold Remediation in Schools and Commercial Buildings		USEPA	EPA Doc# EPA 402-K-01-001	
Moulds: Isolation, Cultivation, Identification		Malloch, David		
Myxomycetes: A Handbook of Slime Molds		Stephenson, Steven and Stempen, Henry	Timber Press	Portland, Oregon
Pictorial Atlas of Soil and Seed Fungi	2nd Ed.	Watanabe, Tsuneo	CRC Press	
Field Guide for the Determination of Biological Contaminants in Environmental Samples		Dillon, Heinsohn, and Miller	AIHA Press	Fairfax, VA
Compendium of Soil Fungi	Vol.I	Domsch, KH, and W. Gams	IHW-Verlag	
Compendium of Soil Fungi	Vol. II	Domsch, KH, and W. Gams	IHW-Verlag	
Bioaerosols: Assessment and Control		Macher, Janet	ACGIH	Cincinnati, OH
How to Identify Mushrooms to Genus III: Microscopic Features		Largent, David	Mad River Press Inc.	Eureka, CA
Fungal Contamination in Public Buildings: A Guided to Recognition and Management		Federal-Provincial Committee on Environmental and Occupational Health		Ottawa, Ontario
The Preservation and Maintenance of Living Fungi	2nd Ed.	D. Smith and A.H.S. Onions	CAB International	UK

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

EQUIPMENT INSTRUCTION MANUALS

Inorganic Manuals

Name		Location
Agilent 7500 ICPMS		
	Option Instruction Manual IM	under Cetac
	Chemstation Operators Manual OM	under Cetac
	Integrated Sample Intro System	under Cetac
	Customer Maintenance Parts List	under Cetac
	Installation Guide	under Cetac
	Operator's Manual	under Cetac
	Application Handbook	Inorganic Manager's Office
	Manual EM Voltage and Discriminator Adjustment	Inorganic Manager's Office
Beckman 300Series pH/mV/ISE OM		by pH meter
Flash tester	Hotplate OM series 237	Wet Chem Folder
Cole Palmer pH Meter	pH/mV/degrees C	Wet Chem Folder
Adjustable Vol Repipet Jr. Dispenser		Wet Chem Folder
Bausch and Lomb Spec 20	old copy	Wet Chem Folder
	new spec 20 copy	Wet Chem Folder
Beckman Refillable Electrodes		Wet Chem Folder
Midi-Stil Distillation OM		Wet Chem Folder
Conductivity OM/Cert.of Cal		Wet Chem Folder
ZHE OM		Wet Chem Folder
Hach COD Reactor	45600/49100	Wet Chem Folder
Lachat QuIckChem 8000		
	Installation and Tutorial Manual	under Lachat
	ASX-500 Autosampler 510 OM	under Lachat
	ASX-500 Autosampler	under Lachat
	QuickCHem Methods Manual	under Lachat
	Hardware Installation and System OM	under Lachat
Hach Water Analysis Handbook		under Lachat

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

Cetec Mercury Analyzer		under Cetec
	ASX-500 Autosampler	under Cetec
	M-6000 A Mercury Analyzer Catalog	under Cetec
	ASX-500 Autosampler 510 OM	under Cetec
	M-6000A Mercury Analyzer OM	under Cetec
	M-6000A Mercury Analyzer Software Manual	under Cetec
Modblock Instruction Manual		under Cetec
Perkin Elmer AA		
	AS-90 Autosampler Installation Giude	under AA monitor
	Analytical Methods Manual	under AA monitor
	Installing AA WinLab on Windows 95	under AA monitor
	Concepts, Instrumentation and Techniques in AA	under AA monitor
	Guide to AA100/300 AA spectrometers	under AA monitor

Asbestos Manuals

Plasma Asher Manual	Asbestos laboratory
High Vacuum Evaporator Manual	Asbestos laboratory
Jeol Manual	Asbestos laboratory
Hood	With the Hood

Note: Asbestos manuals are in the asbestos Laboratory

Organic Manuals-General

Barnstead International Repipet II Dispensers
Barnstead International Variable Speed Extraction Mixer Model:6000-1
Barnstead/Thermolyne Repipet Jr. Dispensers
Beckman Instruments Futura Refillable Combination Electrodes
Beckman pH Meter
Branson Ultrasonics Model 250/450 Sonifer Instruction Manual
Clay Adams Compact II Centrifuge Model Nos: 420225 & 420227
Coleman Cordless Drills
Concoa Regulators
Dehumidifier Use & Care Guide

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

High Velocity Air Circulator
HP LaserJet 4050 & 4050N Printers
Internal/External Digital Thermometer
Lindberg/BlueM 1100 C Box Furnace Model:BF51800
Mettler PM100, PM200, PM300, PM400, PM600, PM2000, PM4000
Mettler Toledo BD Balances
Millipore Dispensing Pressure Vessels
Millipore OM100 Operation & Maintenance Instructions
Millipore Rotary Agitator
NitroVap-1LV & NitroVap-2LV Nitrogen Generators
Pensky Martens Flash Testers 74537MAN
RapidVap Vacuum & N2 Evaporation Systems
VWR Scientific Water Baths Models: 1200,1201,1202,1203,1204,1205
VWR Vanlab Heat Block
Wheaton Science Hand Operated Crimpers
Wheaton Science Hand Operated Decapper

Note: General Organic manuals are kept in the Semivolatile Laboratory

Organic Manuals -SVOC

Agilent 1100 Series Fluorescence Detector
Agilent 1100 Series Quaternary Pump
Agilent 1100 Series Standard, Micro and Preparative Autosamplers
Agilent 1100 Series Thermostatted Column Compartment
Agilent 1100 Series Vacuum Degasser
Agilent 1100 Series Variable Wavelength Detector
Agilent 5973N MSD 6890 Series GC Quick Reference
Agilent 5973Network Mass Selective Detector Hardware Installation Manual
Agilent 5973Network Mass Selective Detector Hardware Manual
Agilent 6890 Series GC Operating Manual Volume 1 - General Information
Agilent 6890 Series GC Operating Manual Volume 2 - Detectors
Agilent 6890 Series GC Operating Manual Volume 2 - Inlets
Agilent 6890 Series GC Site Prep and Installation
Agilent Custom Reports Software Getting Started
Agilent Environmental Analysis Software Getting Started
Agilent G1701CA MSD Productivity ChemStation Software Installation Manual
Agilent G1701DA GC/MSD ChemStation Drug Analysis Software Getting Started
Agilent G1701DA GC/MSD ChemStation Getting Started
Agilent G1701DA MSD ChemStation 5973 MSD Quick Reference
Agilent G1701DA MSD ChemStation Drug Analysis Software Getting Started
Agilent G1701DA MSD Productivity ChemStation Software Ver. D.01.00 or later
Agilent G1701DA MSD Productivity ChemStation Software Ver. D.02.xx
Agilent MS Operation Software Revision A.03.00
Agilent MSD ChemStation Mnl Kit Rev. D.03.00

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

Agilent MSD Data Analysis ChemSta Core SW Rev. D.03.00
Applications for diode-array detection in HPLC
Dell Dimension L Series Reference and Troubleshooting Guide
Dell Dimension Systems Setup Guide
Dell E770s Color Monitor Quick Setup Guide
Dell Getting Started Microsoft Windows 98
Hewlett Packard HP 5971A MSD Hardward Manual
Hewlett Packard Understanding Your HP Chemstation
HP 5973 MSD HP 6890 Series GC Quick Reference
HP 6890 Module Installing Your GC ChemStation
HP 6890 Series GC Operating Manual Volume 2. Inlets
HP 6890 Series GC Operating Manual Volume 3. Detectors
HP 6890 Series GC Site Preparation and Installation Manual
HP 7683 Automatic Liquid Sampler Installation Guide
HP 7683 Automatic Liquid Sampler Operation Guide
HP Automatic Liquid Samplers Sampling Techniques Handbook
HP Custom Reports Software Getting Started
HP Electron Capture Detectors Information for General Licensees
HP Environmental Software Getting Started
HP G1032C EnviroQuant Software
HP G1034C MS ChemStation Software Using and Writing Macros
HP G1701AA MSD ChemStation Software Installation Manual
HP Hydrogen Carrier Gas Safety Guide
HP Kayak XA PC Workstation User's Guide
HP The Micro-Cell Electron Capture Detector Operating Manual
HP Using an HP ChemStation in Windows 95
HPLC - Agilent 1100

Note: SVOC manuals are kept in the Semivolatile Laboratory

ORGANIC MANUALS - Volatiles

Agilent 5973N & 5973Inert Mass Selective Detector
Agilent 5973N MSD 6890 Series GC Quick Reference
Agilent 5973N MSD Local Control Panel (LCP) Quick Reference
Agilent 5973Network Mass Selective Detector – Hardware Installation Manual
Agilent 5973Network Mass Selective Detector – Hardware Manual
Agilent 5973Network Mass Selective Detector Site Preparation Manual
Agilent 6890 Series GC Operating Manual Volume 1 - General Information
Agilent 6890 Series GC Operating Manual Volume 2 - Inlets
Agilent 6890 Series GC Operating Manual Volume 3 - Detectors
Agilent 6890 Series GC Site Prep and Installation
Agilent Custom Reports Software Getting Started
Agilent Environmental Analysis Software Getting Started
Agilent G1701CA MSD Productivity Software Installation Manual

APPENDIX 3: DOCUMENT MASTER LIST (cont.'d)

Agilent HP G1032C EnviroQuant Software EnviroForms User's Guide
Branson UltraSonic Cleaners, Models 1510, 2510, 3510, 5510, 8510
Gow-Mac Model 21-070 & 21-072 Mini Gas Leak Detector
Granville-Phillips 59864A & 59864B Ionization Gauge Controller Instruction Manual
HP 02842A, 02842W 19-inch color monitor
HP 1090 Series II/L Liquid Chromatographs Using Your HP1090
HP 5973 Mass Selective Detector hardware manual
HP 5973 MSD HP 6890 Series GC Quick Reference
HP 6890 Series GC Operating Manual 1. General Information
HP 6890 Series GC Operating Manual 2. Inlets
HP 6890 Series GC Operating Manual 3. Detectors
HP 6890 Series GC Site Preparation and Installation Manual
HP Custom Reports Software Getting Started
HP Environmental Data Analysis User's Guide
HP Environmental Software Getting Started
HP G1032C EnviroQuant Software - EnviroForms User's Guide
HP G1701BA Productivity ChemStation Software Installation Manual
HP Hydrogen Carrier Gas Safety Guide
HP Kayak XA PC WorkStation User's Guide
HP LaserJet 4000 and 4000N Printers Getting Started Guide
HP LaserJet 4000, 4000T, 4000N & 4000TN Printers User's Guide
HP Procurve Switch 408
HP Using an HP ChemStation in Windows NT
HP5890 Series II GC Operating Manual Cool On-column Inlet Manual
Tekmar 2016/2032 Purge & Trap Autosampler User Manual
Tekmar 3000 Purge and Trap Concentrator User Manual
Tekmar 3100 Purge & Trap Concentrator User Manual
Tekmar ALS 2016/ALS 2032 User Manual
Tekmar LSC 2000 User Manual
Teledyne Velocity XPT Samp le Concentrator
Varian Archon Purge & Trap Autosampler System Operation Manual
Varian Archon Purge & Trap Autosampler System Operator's Manual

Note: Volatile manuals are kept in the Volatiles Laboratory

APPENDIX 4: INSTRUMENTATION

Equipment	Manufacturer	Model #	Serial #	Dept.
GC/MS (SVOC-1)	Hewlett Packard	5890 Series II GC	2950A27820	SVOC
		5971U MSD	3050A01584	
		6890 AS	3409A34948-3	
GC/MS (SVOC-2)	Agilent	6890N GC	US00033560	SVOC
		5973N MSD	US9014004	
		7683N AS	US95310985	
GC/MS (SVOC-3)	Agilent	6890N GC	US00037515	SVOC
		5973N MSD	US03340461	
		7683N AS	US01012145	
GC/MS (SVOC-4)	Agilent	6890N GC	US00042823	SVOC
		5973N MSD	US10440761	
		7683N AS	US11618674	
GC/MS (SVOC-5)	Agilent	6890N GC	CN52734690	SVOC
		5975N MSD	US52430277	
		7683N AS	CN5272615	
GC/FID	Hewlett Packard	5890 Series II GC	3140A39325	SVOC
		6890 AS	3113G06781-3	
GC/ECD PCB1	Agilent	6890N GC 7683N AS	US00034720 US00411387	PCB
GC/ECD PCB2	Agilent	6890N GC 7683N AS	CN10445022 CN44731379	PCB
GC/ECD PCB3	Agilent	6890N GC 7683 AS	CN10606009 CN62239870	PCB
GC/MS (VOC-1)	Hewlett Packard	6890 GC	US00023185	VOC
		5973 MSD	US82311186	
GC/MS (VOC-2)	Hewlett Packard	5890 Series Plus GC	2939A08878	VOC
		5971 MSD	3050A01916	
GC/MS (VOC-3)	Agilent	6890N GC	US00033670	VOC
		5973N MSD	US03340480	
GC/MS (VOC-4)	Agilent	6890N GC	US00042820	VOC
		5973N MSD	US10440768	
GC/MS (VOC-5)	Agilent	6890 GC	CN10516053	Air Toxics
	Agilent	5973 MS	US44621448	
	Tekmar	14-ACAN-000 AS	US05130007	
HPLC Pump	Agilent 1100	G1311A	DE14917955	SVOC

APPENDIX 4: INSTRUMENTATION

Equipment	Manufacturer	Model #	Serial #	Dept.
Autosampler		G1313A	DE14918512	
Degasser		G1322A	DE14918512	
Column Heater		G1316A	DE14926164	
VWD		G1314A	JP11616431	
Fluorescence Det.		G1321A	DE14904016	
Hot Plate	VWR	Dynatherm	33918	ASB
Purified HEPA Filter Enclosure	Labconoco	3730000	02022032A-31	ASB
Sonicator	Branson	2510	RLA1203942170	ASB
Top Loading Balance	Mettler Toledo	B303	1114032438	ASB
Analytical Balance	Mettler	AE160	B81560	LEAD
Autosampler	Perkin-Elmer	AS90	507910 (8621)	LEAD
Block Digestors	CPI	05 C0530	293	LEAD
FLAA	Perkin-Elmer	PE Analyst 300	041S9110115	LEAD
Hot plate	Thermolyne	Cimarec-3	TC8794-031	LEAD
Hot plate	Thermolyne	Cimarec-3	TC8794-029	LEAD
Pyromultimagnestir	Labline	1268	058950057	LEAD
Analytical Balance	Mettler	AE 50	L88569	METALS
Autosampler on ICP-MS1	CETAC	ASX510	090007A5X5	METALS
Autosampler on ICP-MS2	Cetac	ASX510	020230ASX	METALS
Block Digestors	CPI Int.	-	A	METALS
Block Digestors	CPI Int.	-	B	METALS
Chiller on ICP-MS1	Neslab	M75	102025049	METALS
Chiller on ICP-MS2	Neslab	CFT-100	100175035	METALS
High Vacuum Pump	Edwards	E2M5	17915F	METALS
ICP-MS-1	Agilent	7500i	JP93200201	METALS
ICP-MS-2	Agilent	7500i	JP13200437	METALS
Mercury Analyzer	CETAC	M-6000A	060003MAS	METALS
Water Bath	VWR	1204	23005	METALS
Class Safety Enclosure	Labconoco	3730001	020220239A	MICRO
Colony Counter	Leica	3327	0002411463YPO003	MICRO

APPENDIX 4: INSTRUMENTATION

Equipment	Manufacturer	Model #	Serial #	Dept.
Conductivity Meter	VWR	61161-362	230355432	MICRO
Crystal Panel Viewer	Becken-Dickison	BD-BBL	050604-1499	MICRO
Fluorescence Analysis Chamber	Spectriline	CM-10	147858	MICRO
Fluorescence Analysis Chamber	UVP	CC-10	95-00724	MICRO
Fume Enclosure	Mystaire	100		MICRO
Fume Enclosure	Mystaire	FE100		MICRO
Furnace	Thermolyne	48000	480911020760	MICRO
Hot plate	VWR	Dynatherm	0687	MICRO
Hot plate	VWR	Dynatherm	0686	MICRO
Hot Plate/ Stirrer	VWR	371	2258	MICRO
Incubator (I-1)	VWR	1510E	120060-2	MICRO
Incubator (I-2)	VWR	1516E	04070804	MICRO
Microscope	Olympus	CX31	RBSFA 2M03757	MICRO
Microscope	Olympus	CH2	7L0064	MICRO
Microscope	Olympus	BH-2	223905	MICRO
Microscope	Olympus	BH-2	221905	MICRO
Microscope	Olympus	BH-2	217318	MICRO
Mini Vortex	VWR	945300	14263	MICRO
pH /Temp. Meter 340	Beckman	511210	4585	MICRO
Refrigerator 15	Kenmore	253.6072101	WA32201606	MICRO
Sealer Index	Quanti-Tray	89-10894-02	3510R	MICRO
Smart Cycler II	Cephid	900-0057	200306	MICRO
Refrigerator #10	Jordan	AB-4-6	PR52858-99H	RECEIVE
Refrigerator #6	Jordan	AB-4-6	PR52857-99H	RECEIVE
Refrigerator #8	Jordan	AB-4-6	PR5381-00A	RECEIVE
Autosampler	Varian	8200	8200-09311	STORAGE
Autosampler	Varian	SPS-5	95061148	STORAGE
Autosampler (VOC1)	Varian	Archon	13037	STORAGE
FLAA	Varian	SpectrAA 200	31-100838-00	STORAGE
Hot plate	Thermolyne	Cimarec-3	66196070461	STORAGE
HPLC Pump	Hewlett Packard	1050		STORAGE

APPENDIX 4: INSTRUMENTATION

Equipment	Manufacturer	Model #	Serial #	Dept.
Power Pack	Varian	SIPS/PP1	94111272	STORAGE
Purge & Trap (VOC4)	Tekmar	3100	US01107021	STORAGE
Sample introduction pump system	Varian	SIPS 1	95021096	STORAGE
Sonicator	Branson	450	BI0009670	STORAGE
Spect 20	Baush & Lomb	33.31.72	1152868	STORAGE
TCLP tumblers	Millipore	Agitator 10	455VS4045	STORAGE
TCLP tumblers	Millipore	Agitator 10	455VS4049	STORAGE
Water Bath	Precision Scientific	180	26AX-6	STORAGE
Desktop Centrifuge	Becton-Dickinson	Compact II	31000253	SVOC
Fume enclosure	Labconco	69000	020697466M	SVOC
Fume enclosure	Labconco	69000	020697440M	SVOC
GC/ECD	Varian	3600	3600-02846	SVOC
Heaters	Glas Col	TM106	158714a to 29A	SVOC
Mini Vortex	VWR	1945300	23007	SVOC
N2 Solvent Concentrator	Labconco	79100-00	991292324C	SVOC
N2 Solvent Concentrator	Labconco	79100-00	000593233D	SVOC
N2 Solvent Concentrator	Labconco	79100-00	000893763E	SVOC
N2 Solvent Concentrator	Labconco	79100-00	000893764E	SVOC
Refrigerator #11	Kenmore	253.611121	4A30721853	SVOC
Refrigerator #78	GE	TAX4DNCAWH	32373	SVOC
Refrigerator 13	Kenmore	253.6072101	WA2001629	SVOC
Sonicator	Branson	450	BI120061	SVOC
Sonicator	Branson	450	BI30158	SVOC
Sonicator	Branson	450	BI99063085	SVOC
Top Loading Balance	Mettler Toledo	PM300/49	F64687	SVOC
Air server	Unity	MCS-08	B-10101	VOC
Autosampler (VOC2)	Varian	Archon	12917	VOC
Autosampler (VOC3)	Varian	Archon	13383	VOC
Autosampler (VOC4)	Varian	Archon	13553	VOC
Flow Meter	Agilent	1000	US04J26321	VOC

APPENDIX 4: INSTRUMENTATION

Equipment	Manufacturer	Model #	Serial #	Dept.
Freezer #0	GE	FUM5SAARWH	H2115897	VOC
Freezer #12	Kenmore	253.234.24101	WB32231534	VOC
Freezer #9	GE	FUM5SAARWH	V21100784	VOC
Fume enclosure	Labconco	69000	020697465M	VOC
Fume enclosure	Labconco	6900000	020697464M	VOC
Purge & Trap (VOC1)	Tekmar	3000	98019001	VOC
Purge & Trap (VOC3)	Tekmar	3100	241003	VOC
Purge & Trap (VOC4)	HP	1909	3432 A 10143	VOC
Refrigerator #14	Kenmore	56491601100	30200594	VOC
Refrigerator #7	Jordan	AB-4-6	PR5282699H	VOC
Sonicator	Branson	2510	RLA070151006D	VOC
Test Pressure Gauge	Wika (Cole Palmer)	342.11	Z7007DO	VOC
Thermal Desorption System	Unity	UNITY	U-10362	VOC
Top Loading Balance	Mettler Toledo	B303	1114032440	VOC
Vacuum Pump	Edwards	RV12	046120334	VOC
Dessicator (D-1)	Nalgene	5317-0180	Cat. 24987-056	WET
Analytical Balance	Mettler-Toledo	AB304-S	1125191416	WET
Box Furnace	Lindberg Blue	BF51828C-1	009L-516875-OL	WET
COD Reactor	Hach	4500	0107000022043	WET
Conductivity Meter	VWR	61161-362	230109686	WET
Digital Hygrometer/Thermometer	Control Company	35519-049	240130982	WET
Digital Hygrometer/Thermometer	Control Company	35519-049	240160719	WET
Environ Chamber	Environmental Chamber Company	Tenney TH Jr	11863-528	WET
Flash Point	Precision	74537	S03198	WET
Hot Plate/ Stirrer	VWR	325	0868	WET
Hot Plate/ Stirrer	VWR	325	0869	WET
Magnetic stirrer	VWR	VWR 200	58940-158	WET
Mini-Cyanide Distillation System	RGW Instruments	R-3166MS-100	2	WET

APPENDIX 4: INSTRUMENTATION

Equipment	Manufacturer	Model #	Serial #	Dept.
pH/mV/Temp Meter Series 20	Cole Palmer	570002-30	EP20/18094	WET
Phi240 pH/Temp Meter	Beckman	Phi-340	3532	WET
QuickChem FIA	Lachat	8000	A83000-1663	WET
Refrigerator #1	Frigidaire	MRT188BSCW6	BA009009793	WET
Refrigerator #2	Frigidaire	MRT188BSCW6	BA91700637	WET
Refrigerator #3	Frigidaire	FPDA181PLO	BA13108023	WET
Spect 20	Baush & Lomb	33.31.72	0115280	WET
Stirrer	VWR	205	7251	WET
Stirrer	VWR	941006	6090	WET
Stirrer	VWR	941006	6096	WET
Stirrer	VWR	941006	6097	WET
Stirrer	VWR	941006	6085	WET
Stirrer	VWR	941006	6093	WET
Stirrer	VWR	941006	6094	WET
TCLP tumblers	Analytical Technologies	42RBFC1-E3	0685CPF0018	WET
TCLP tumblers	Millipore	Agitator 10	455RY4029	WET
TOC/TOX	Euroglass	TOC 1200	2000.137	WET
Top Loading Balance	Mettler	BD1201	10719AC	WET
Top Loading Balance	Mettler	BD202	4846	WET
Top Loading Balance	Mettler	PB602	1113242526	WET
Top Loading Balance	Mettler-Toledo	AB304S	112519146	WET
Transite Oven	Blue M	11TA	S3585	WET
XYZ Autosampler	Lachat	ASX 500	020122 ASX	WET

APPENDIX 5
Sample Bottles and Preservation

WATER

METALS

Parameter	Container	Preservative	Holding Time
General, dissolved	Plastic	Filtered on site, HNO_3 to pH<2	6 months
General, total	Plastic	HNO_3 to pH<2	6 months
Chromium, hexavalent	Plastic	Cool 4°C	24 hours
Mercury	Plastic	HNO_3 to pH<2	28 days

CONVENTIONAL PARAMETERS

Parameter	Container	Preservative	Holding Time
Acidity	Plastic	Cool 4°C	14 days
Alkalinity	Plastic	Cool 4°C	14 days
Ammonia	Plastic	H_2SO_4 to pH<2, Cool 4°C	28 days
BOD	Plastic	Cool 4°C	48 hours
Bromide	Plastic	None	28 days
Chloride	Plastic	None	28 days
Chlorine	Plastic	Cool 4°C	Analyze Immediately
Chromium, Hexavalent	Plastic	Cool 4°C	24 hours
COD	Plastic	H_2SO_4 to pH<2, Cool 4°C	28 days

APPENDIX 5 (cont'd)
Sample Bottles and Preservation

CONVENTIONAL PARAMETERS

Parameter	Container	Preservative	Holding Time
Color	Plastic	Cool 4°C	48 hours
Conductivity	Plastic	Cool 4°C	28 days
Cyanide, Total or Amenable	Plastic	NaOH to pH>12, Cool 4°C	14 days
Cyanide, Reactive	Plastic	NaOH to pH>12, Cool 4°C	14 days
Fluoride	Plastic	None	28 days
Hardness, Total	Plastic	$HN0_3$ to pH<2	6 months
Nitrate/Nitrite	Plastic	H_2S0_4 to pH<2, Cool 4°C	28 days
Nitrate	Plastic	Cool, 4°C	48 hours
Nitrite	Plastic	Cool, 4°C	48 hours
Oil & Grease	Glass	H_2SO_4 to pH<2, Cool 4°C	28 days
pH	Plastic	None	Analyze Immediately
Phenols	Glass	H_2S0_4 to pH<2, Cool 4°C	28 days
Phosphorus, Ortho	Plastic	Cool 4°C	48 hours
Phosphorus, Total	Plastic	H_2S0_4 to pH<2, Cool 4°C	28 days
Silica	Plastic	Cool 4°C	28 days
Solids, Dissolved	Plastic	Cool 4°C	7 days
Solids, Suspended	Plastic	Cool 4°C	7 days
Solids, Total	Plastic	Cool 4°C	7 days
Solids, Settleable	Plastic	Cool 4°C	48 hours

APPENDIX 5 (cont'd)
Sample Bottles and Preservation

CONVENTIONAL PARAMETERS

Parameter	Container	Preservative	Holding Time
Solids, Volatile	Plastic	Cool 4°C	7 days
Sulfate	Plastic	Cool 4°C	28 days
Sulfide	Plastic	NaOH to pH>9, Cool 4°C	7 days
Sulfide, Reactive	Plastic	NaOH to pH>9, Cool 4°C	7 days
Sulfite	Plastic	None	Analyze Immediately
Surfactants, MBAS	Plastic	Cool 4°C	48 hours
Turbidity	Plastic	Cool 4°C	48 hours
Total Organic Carbon (TOC)	Plastic	H_2S0_4 to pH<2, Cool 4°C	28 days
Total Organic Halogens (TOX)	Glass	H_2S0_4 to pH<2, Cool 4°C	28 days

ORGANICS

Parameter	Container	Preservative	Holding Time
HPLC Pesticides (Aldicarb / Carbonfuran)	Glass vial	1.2 mL Chloroacetic acid Cool 4°C	28 Days
EDB/DBCP	Glass vial	Cool 4°C	28 Days
Endothall	Glass	Cool 4°C	7 days extraction 1-day analysis
Pesticides and PCBs	Glass	Cool 4°C	7 days extraction 40 days analysis
Petroleum Hydrocarbons	Glass	H_2S0_4 to pH<2, Cool 4°C	28 days

APPENDIX 5 (cont'd)
Sample Bottles and Preservation

ORGANICS

Parameter	Container	Preservative	Holding Time
Phenoxyacid Herbicides	Glass	Cool 4°C	7 days extraction 40 days analysis
Phthalate Esters	Glass	Cool 4°C	7 days extraction 40 days analysis
Polynuclear Aromatic Hydrocarbons	Glass	Cool 4°C	7 days extraction 40 days analysis
GC/MS Semivolatiles	Glass	Cool 4°C	7 days extraction 40 days analysis
Total Petroleum Hydrocarbons	Glass	Cool 4°C	7 days extraction 40 days analysis
Volatile Organics	40 ml Glass	HCl to pH<2	14 days

SOIL

ALL PARAMETERS

Parameter	Container	Preservative	Holding Time
All except VOA	2, 4, 8 or 32 oz Glass	Cool 4°C	See individual SOP
Volatile Organics	ENCORE*	Cool 4°C	48 Hours
Volatile Organics	$NaHSO_4$/ Methanol	Cool 4°C	14 Days

*Or equivalent

APPENDIX 5 (cont'd)
Sample Bottles and Preservation

AMBIENT AIR

ALL PARAMETERS

Parameter	Container	Preservative	Holding Time
Metals, Lead	Filters (glass or quartz)	None	180 days
PAHs, PCBs, Pesticides, or Halogenated Dioxins and Furans	Cartridge: PUF Cartridge: XAD-2 Cartridge: PUF/XAD-2 sandwich	None	7 days extraction 40 days analysis
Aldehydes/Ketones	Cartridge: DNPH	None	14 days extraction 30 days analysis
Volatile Organics	Canisters	None	30 days
	Sorbent Tubes	None	30 days
	Tedlar Bags	None	30 days, but recommend in 24 hrs.
Phosgene, Phenols or Cresols	Impinger Tubes	None	7 days extraction 40 days analysis

Appendix 6: STAT Analysis Sample Acceptance Policy

Chain of Custody Requirements: All samples must be submitted with a completed Chain-of-Custody (COC) form filled out in ink. Please print legibly. The following information should be included:

1) Client Information: Company name and contact information.
2) Client Project Name or Number
3) Sampler's name.
4) Sample identification or location.
5) Date and Time of collection.
6) Matrix type.
7) Preservation type: Including chemical preservation as well as thermal preservation. Environmental samples require thermal preservation and the temperature requirement for shipment/storage is 0.1-6ºC.
8) Total number of containers.
9) Requested analyses or reference to quote or other documentation specifying analysis.
10) Turn Around Time.
11) Special remarks: Includes any additional sample analysis requirements such as reporting limits, if the samples are considered hazardous or contaminated, etc.
12) Signatures including date/time of all persons who have handled or possessed the samples.
13) If applicable, Purchase Order number, quote or other billing information.

Sampling/Container Requirements:

1) All samples must be labeled properly with unique identification in indelible ink, on water-resistant labels and correspond with the information on the COC. Date and time of sampling and preservation type should also be present on the label. Deviations between the sample number on the COC and sample containers will be noted on the sample receipt checklist.
2) All samples must be received in appropriate containers required by the analytical test methods and be received in good condition without any signs of damage or contamination.
3) Containers must have sufficient sample volume for analysis, with proper preservation. If QC is required (MS/MSD), additional sample must be submitted. Chemical preservation (pH) is checked at log in or by the analyst. Insufficient volume and improper preservation will be noted on the sample receipt checklist. Please see attachment for container and volume requirements.
4) All samples should be received within the analytical test method specified holding times. Hold time violations will be noted in the analytical report. For analysis with short hold time, please submit the sample with adequate time for analysis and notify your project manager when the sample will be arriving.

NOTE: Sample containers provided by STAT Analysis may contain small amounts of chemical preservatives as required by the analytical test method and labeled as such. Please take necessary precautions when using these sample bottles. Be sure to cap bottles tightly before shipment.

When shipping samples to STAT Analysis:

1) Enclose completed COC form in sealed zip-lock bag in order to prevent water damage from melting ice.
2) Ensure that the sample cooler is sealed properly with tape to avoid opening while in transit.
3) Ensure that there is enough ice or cooling material (ice is preferred over 'Blue Ice') in order to maintain required temperature preservation (0.1-6ºC). Samples received out of temperature compliance will be noted on the COC or sample receipt checklist.
4) Ensure that there is enough packing material in cooler to prevent damage to sample containers while in transit. Fill empty space in the cooler with bubble wrap or other packing material.
5) Be sure that samples containers are properly sealed so that water from melting ice does not enter the sample container. Shipping sample containers in sealed zip-lock bags can help prevent this.
6) Use extra packing material when shipping water samples. It is best to individually wrap glass water containers with bubble wrap or packing paper and then place in zip-lock bags.

NOTE: Samples that do not meet the above criteria will be flagged in an unambiguous manner defining the nature and substance of the variation. This will be noted on the final report.

Appendix 7
Ethics Policy and Data Integrity Agreement

Ethics Policy and Data Integrity Agreement

It is STAT Analysis Corporation's responsibility to produce data that is scientifically valid, defensible, and of known and documented quality in accordance with all applicable federal, State, and local laws and regulations consistent with accepted professional and analytical practices in a manner that justifies the public trust. STAT Analysis Corporation conducts all business with integrity and in an ethical manner. It is the responsibility of each staff member, manager, director, and owner to perform their duties with the highest ethical standards and professional conduct to ensure compliance with this Quality Manual and related documentation.

The STAT Analysis Corporation laboratory has a Quality Assurance Manual designed to insure that work performed in the laboratory is accurate, precise, complete, comprehensive, reproducible and reflects the need of the customer/client while satisfying the requirements of appropriate State and Federal regulations. STAT Analysis Corporation will not offer any analysis for which we cannot demonstrate consistent quality and defensible analyses.

Any allegation of misconduct will be promptly investigated in an unbiased and confidential manner by an investigative team designated by the President/CEO. The investigation including any supporting documentation, actions and resolution will be recorded and archived by the QA Manager.

I. I understand the high standards of integrity required of me with regard to the duties I perform and the data I report in connection with my employment at STAT Analysis Corporation.

II. I state that I am free from any commercial, financial or other pressures and do not have any conflicts of interests, which might adversely affect my duties at STAT Analysis Corporation. Laboratory analysts will not have any direct client contact except with the approval of laboratory management, this includes but is not limited to telephone calls, emails, facsimiles, audits, etc.

III. I agree that in the performance of my duties at STAT Analysis Corporation:
   a. I agree to read, understand, sign and comply with all the policies and procedures detailed in the latest revisions of the Quality Assurance Plan and SOPs at all times;
   b. I will not intentionally report data that are not the actual values obtained without collaborating data acceptable to the laboratory's Standard Operating Procedures. All modifications will be properly documented;
   c. I will not invent data (dry lab) this includes raw data, support equipment calibrations; quantitative reports, LIMS etc.
   d. I will not adjust the area of a peak in chromatography to bypass QC criteria (peak shaving or adding);
   e. I shall not intentionally report the dates and times of data analyses that are not the actual dates and times of data analyses (time traveling);
   f. I shall not intentionally represent another individual's work as my own;
   g. I understand that if my job includes supervisory responsibilities, I shall not instruct, request, or direct any subordinate to perform any laboratory practice, which is unethical or improper.

IV. I will not compare or disclose results for any Performance Testing (PT) sample, or other similar QA or QC requirements, with any employee of any other laboratory, prior to the required submission date of the results to the person, organization, or entity supplying the PT sample.

V. I will not divulge client names or their results outside of the company except to those parties designated as an approved client representative.

VI. I agree to inform STAT Analysis Corporation of any accidental or intentional reporting of non-authentic data by other employees or by myself in a timely manner. I understand that if any manager or representative of management instructs, requests, or directs me to perform any of the aforementioned improper laboratory practices (I – V), or if I am in doubt or uncertain as to whether or not such laboratory practices are proper, I will not comply, but I must immediately report such event to all appropriate members of management including my manager, the Laboratory Director, the QA Manager and President/CEO, excluding such individuals who participated in such perceived improper instruction, request, or directive.

I understand that failure to follow company policies and procedures, and failure to follow federal, State and local law, may result in discipline, up to and including termination. If I have knowledge of a non-compliant incident and do not report it, I will be subject to disciplinary measures up to and including termination. If I retaliate or in any way punished another employee for reporting a violation, I will be subject to discipline, up to and including termination.

_____

(Employee's Signature) (Dated)

_____

(Print Name)

_____

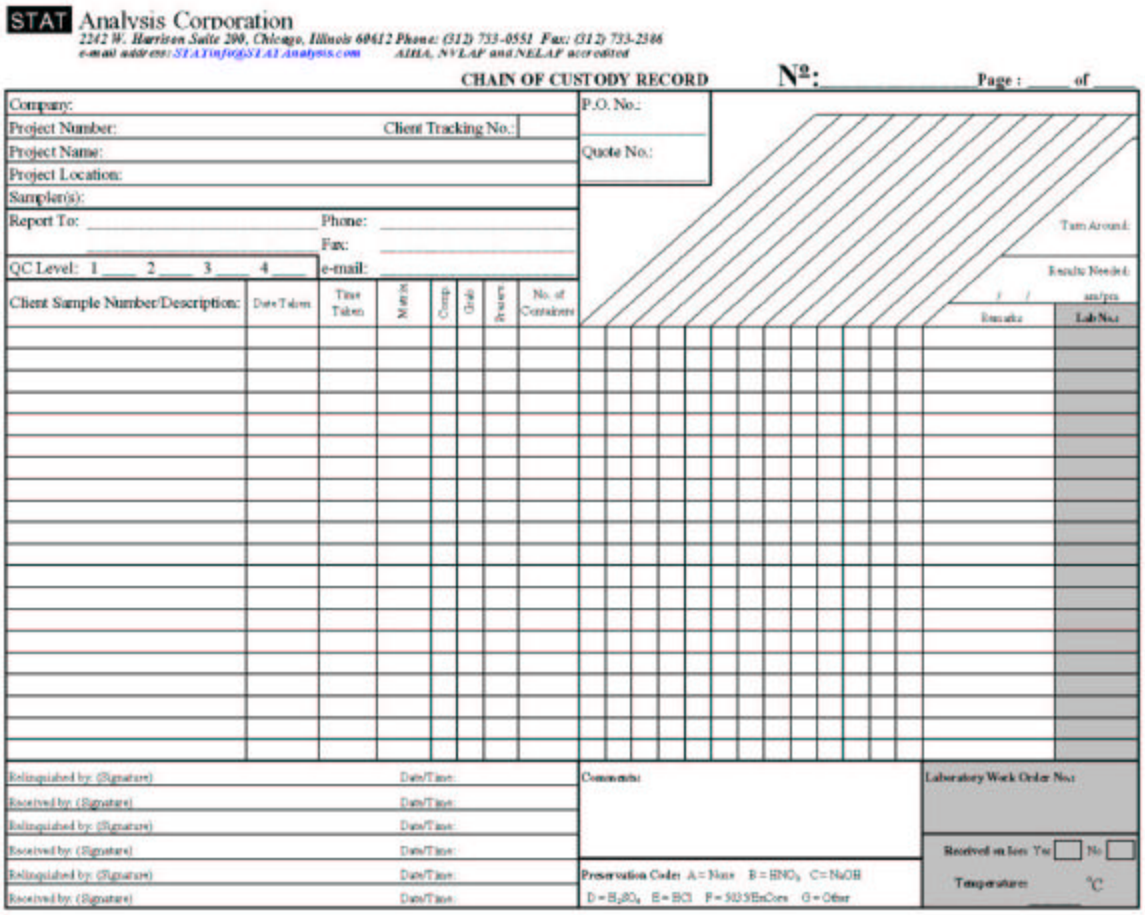
(Witness Signature) (Dated)

_____

(Print Name)

NOTE: This Ethics Policy/Data Integrity Agreement must be signed at the time of hire and re-signed between January 1 and January 15 of every year. Such signature is a condition of continued employment and failure to sign will result in immediate termination of employment.

ATTACHMENT 1
Example Chain of Custody for NELAC Samples



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e-mail address: STATinfo@STATAnalysis.com AIHA, NVLAP and NELAP accredited

CHAIN OF CUSTODY RECORD Nº: Page : of

Company:
Project Number: Client Tracking No.:
Project Name:
Project Location:
Sampler(s):
Report To: Phone:
Fax:
QC Level: 1 2 3 4 e-mail:
P.O. No.:
Quote No.:
Turn Around
Results Needed
/ / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp	Grab	Preserv	No. of Containers	Remarks	Lab No.:

Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

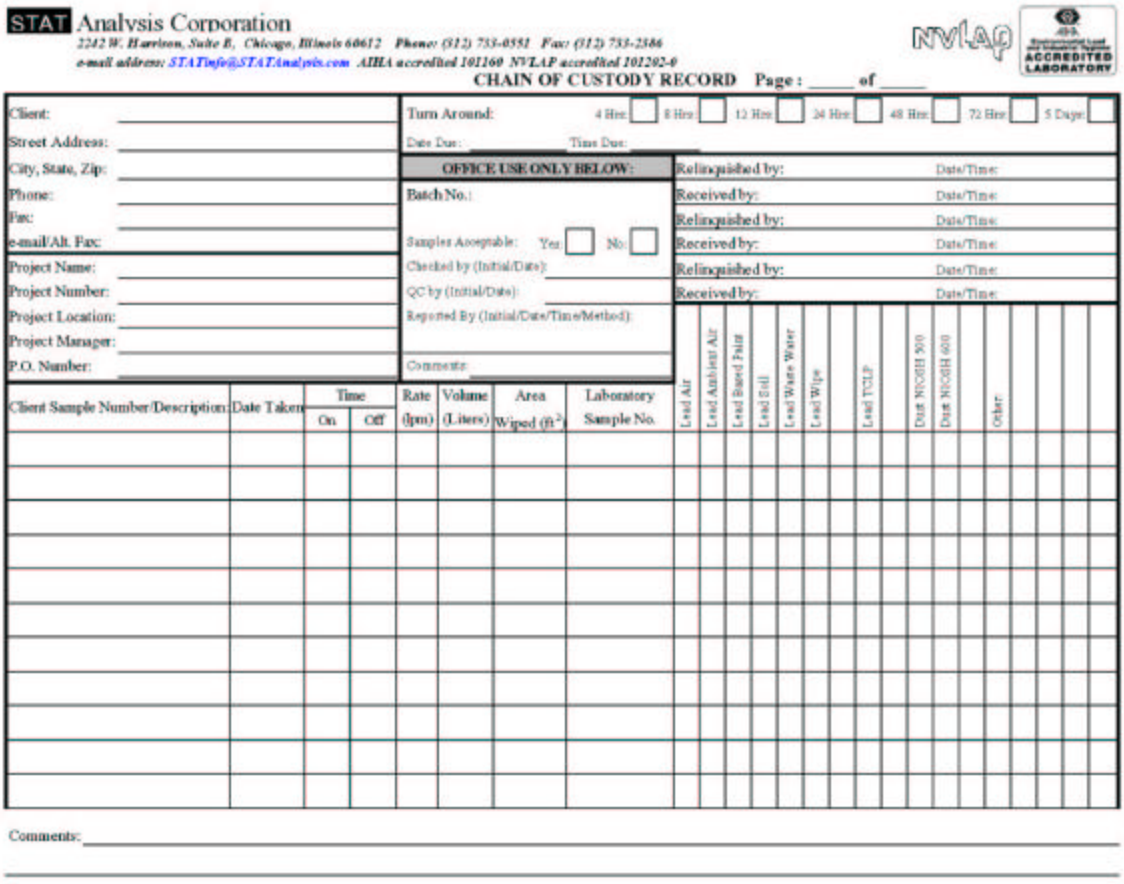
Comments:

Preservation Codes A = None B = HNO_3 C = NaOH
D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.:

Received on Ice: Yes No
Temperature: °C

ATTACHMENT 2
Example Chain of Custody for Pb AIHA Samples



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e-mail address: STATinfo@STATAnalysis.com AIHA accredited 101160 NVLAP accredited 101202-0

CHAIN OF CUSTODY RECORD Page : ____ of ____

Client:
Street Address:
City, State, Zip:
Phone:
Fax:
e-mail/Alt. Fax:
Project Name:
Project Number:
Project Location:
Project Manager:
P.O. Number:

Turn Around: 4 Hrs ☐ 8 Hrs ☐ 12 Hrs ☐ 24 Hrs ☐ 48 Hrs ☐ 72 Hrs ☐ 5 Days ☐
Date Due: Time Due:

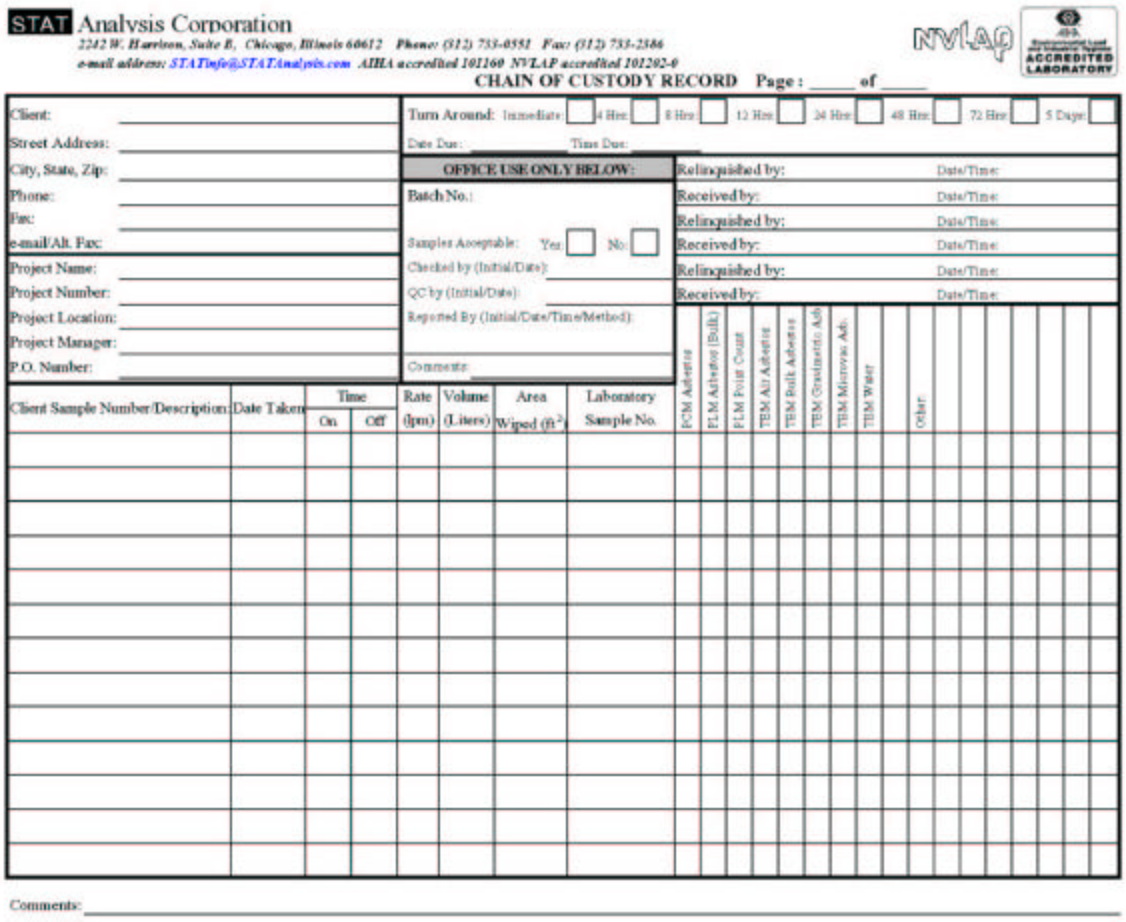
OFFICE USE ONLY BELOW:
Batch No.:
Samples Acceptable: Yes ☐ No ☐
Checked by (Initial/Date):
QC by (Initial/Date):
Reported By (Initial/Date/Time/Method):
Comments:

Relinquished by: Date/Time:
Received by: Date/Time:
Relinquished by: Date/Time:
Received by: Date/Time:
Relinquished by: Date/Time:
Received by: Date/Time:

Client Sample Number/Description	Date Taken	Time On	Time Off	Rate (lpm)	Volume (Liters)	Area Wiped (ft^2)	Laboratory Sample No.	Lead Air	Lead Ambient Air	Lead Based Paint	Lead Soil	Lead Waste Water	Lead Wipe	Lead TCLP		Dust NIOSH 500	Dust NIOSH 600		Other				

Comments:

ATTACHMENT 3
Example Chain of Custody for Asbestos AIHA Samples



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CHAIN OF CUSTODY RECORD Page: _____ of _____

Client:
Street Address:
City, State, Zip:
Phone:
Fax:
e-mail/Alt. Fax:
Project Name:
Project Number:
Project Location:
Project Manager:
P.O. Number:

Turn Around: Immediate ☐ 4 Hrs ☐ 8 Hrs ☐ 12 Hrs ☐ 24 Hrs ☐ 48 Hrs ☐ 72 Hrs ☐ 5 Days ☐
Date Due: Time Due:

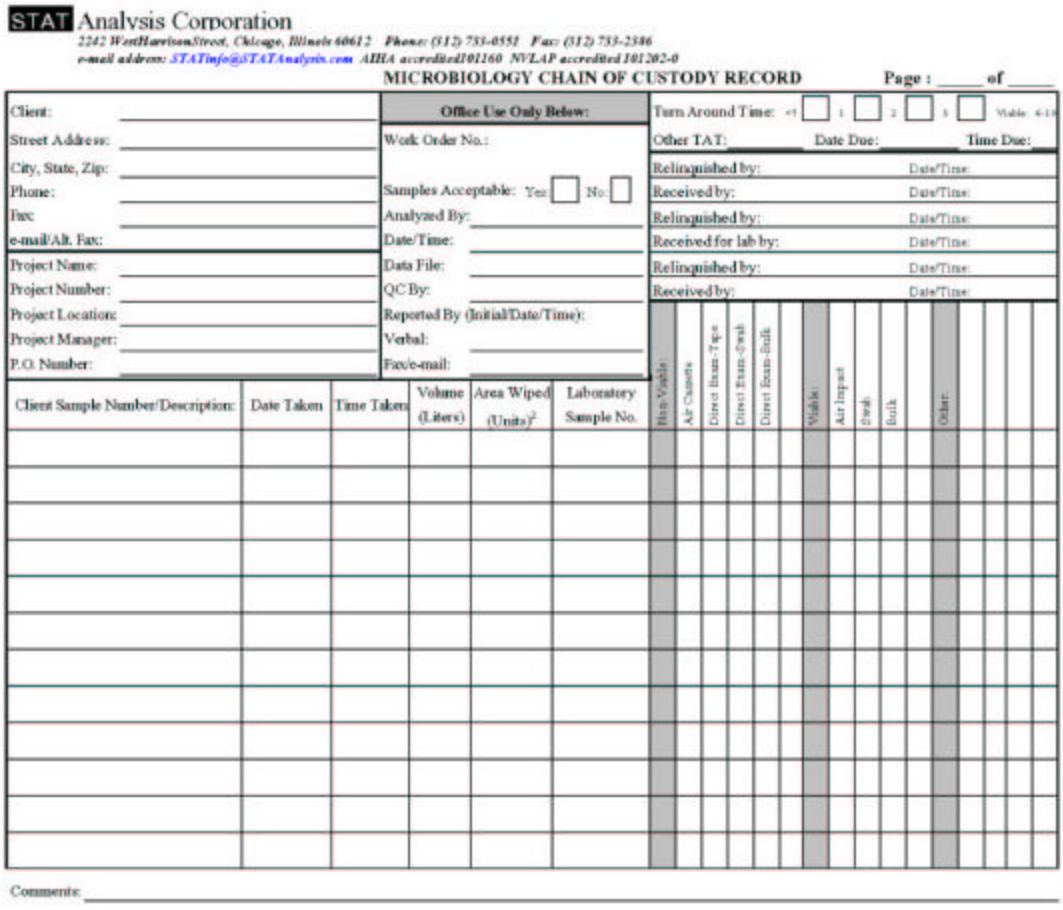
OFFICE USE ONLY BELOW:
Batch No.:
Samples Acceptable: Yes ☐ No ☐
Checked by (Initial/Date):
QC by (Initial/Date):
Reported By (Initial/Date/Time/Method):
Comments:

Relinquished by: Date/Time:
Received by: Date/Time:
Relinquished by: Date/Time:
Received by: Date/Time:
Relinquished by: Date/Time:
Received by: Date/Time:

Client Sample Number/Description	Date Taken	Time On	Time Off	Rate (lpm)	Volume (Liters)	Area Wiped (ft^2)	Laboratory Sample No.	PCM Asbestos	PLM Asbestos (Bulk)	PLM Point Count	TEM Air Asbestos	TEM Bulk Asbestos	TEM Gravimetric Ash	TEM Microvac Ash	TEM Wipe	TEM Water	Other								

Comments:

ATTACHMENT 4
Microbiology Chain of Custody



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e-mail address: STATinfo@STATAnalysis.com AIHA accredited101160 NVLAP accredited 101202-0

MICROBIOLOGY CHAIN OF CUSTODY RECORD Page : _____ of _____

Client:
Street Address:
City, State, Zip:
Phone:
Fax:
e-mail/Alt. Fax:
Project Name:
Project Number:
Project Location:
Project Manager:
P.O. Number:

Office Use Only Below:
Work Order No.:
Samples Acceptable: Yes ☐ No ☐
Analyzed By:
Date/Time:
Data File:
QC By:
Reported By (Initial/Date/Time):
Verbal:
Fax/e-mail:

Turn Around Time: <1 ☐ 1 ☐ 2 ☐ 3 ☐ Visible 4-10
Other TAT: Date Due: Time Due:
Relinquished by: Date/Time:
Received by: Date/Time:
Relinquished by: Date/Time:
Received for lab by: Date/Time:
Relinquished by: Date/Time:
Received by: Date/Time:

Client Sample Number/Description:	Date Taken	Time Taken	Volume (Liters)	Area Wiped (Units)^2	Laboratory Sample No.	Non-Viable:	Air Cassette	Direct Exam-Tape	Direct Exam-Swab	Direct Exam-Bulk	Viable:	Air Impact	Swab	Bulk		Other:				

Comments:

Attachment 5
Example of Notice of Confidentiality for E-mail

Craig

From: "Craig Chawla" <CChawla@STATAnalysis.com>
To: <CChawla@STATAnalysis.com>
Sent: Thursday, September 18, 2003 3:41 PM
Subject: Confidentiality Statement

Craig Chawla
STAT Analysis Corporation
(312) 563-0371

9/18/2003

Attachment 6
Example of Notice of Confidentiality for Facsimiles

STAT Analysis Corporation:
2201 West Campbell Park Drive, Chicago, Illinois 60612-3547
Tel: 312.733.0551; Fax: 312.733.2386; e-mail address: STATinfo@STATAnalysis.com

NVLAP ACCREDITED LABORATORY

Fax Cover Sheet

DATE: **TIME:**

TO: **PHONE:**
FAX:

COMPANY:

FROM: Craig Chawla **PHONE:** (312) 563-0371
FAX: (312) 733-2386

RE:

No. of Pages Including This Page:

NOTICE OF CONFIDENTIALITY

The information contained in this facsimile message is intended only for the confidential use of the designated recipient(s) named above. This message may contain proprietary information, and / or may be a consultant / client communication, and as such is privileged and confidential. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error, and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this note in error, please notify us immediately and return the original message to us by mail at our expense.