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Prepared by	Kimberly LaPlante		
Reviewed and Approved by (name/date)	June O'Connor, 10/25/16		
Reviewed and Approved by (name/date)	Nicole Leja, 10/25/16		

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11 Almgren Drive, Agawam, MA

- Sample Department
- Health and Safety
- Wet Chemistry/ Microbiology Department
- Semi-volatile Department
- Inorganic Department

830 Silver Street, Agawam, MA

- VOLATILE ORGANIC DEPARTMENT
- AIR DEPARTMENT
- ADMINISTRATIVE OFFICES
- QUALITY ASSURANCE DEPARTMENT

REVIEW AND APPROVAL

This Comprehensive Quality Assurance Manual is designed for use by Eurofins Spectrum Analytical's in-house guidance and will be furnished to the client upon request. It is not intended for use or distribution to the public.

Modifications and revisions of this manual will be subject to review by the Quality Assurance Manager, Team Managers and final review and approval by the President and Laboratory Director. The dated signature of the President will be the effective date of this version of the Quality Assurance Manual.

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Digitally signed by Nicole Leja
DN: cn=Nicole Leja, o=Eurofins Spectrum Analytical, Inc., ou=ESAI, email=nicoleleja@eurofinsus.com, c=US
Date: 2016.10.25 13:30:38 -04'00'

Nicole Leja
President

Digitally signed by June OConnor
DN: cn=June OConnor, o=Eurofins Spectrum Analytical Inc., ou, email=juneoconnor@eurofinsus.com, c=US
Date: 2016.10.25 15:53:26 -04'00'

June O'Connor
Laboratory Director

Digitally signed by Kimberly LaPlante
DN: cn=Kimberly LaPlante, o=Eurofins Spectrum Analytical, Inc., ou=QA Department, email=KimberlyLaPlante@EurofinsUS.com, c=US
Date: 2016.10.25 14:05:37 -04'00'

Kimberly LaPlante
Quality Assurance Manager

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1.0 POLICY STATEMENT

Introduction

Eurofins Spectrum Analytical, Inc. (ESA-MA) is an environmental testing laboratory in the Greater Springfield area in Agawam, Massachusetts and staffs over 80 employees. Since its inception in 1990, Eurofins Spectrum Analytical's objective is to provide quality analytical testing services to consulting firms, industries, municipalities and the private sector in a timely manner. ESA-MA specializes in the performance of organic, inorganic, wet chemistry and microbiology analyses in various matrices including air.

A separate building within the same industrial park, located at 830 Silver Street, Agawam, MA, houses our volatile organics and air laboratories as well as our administrative offices. The laboratory facilities have more than 22,000 square feet of office and laboratory space combined. The designs and layouts of the laboratories were chosen to provide efficient sample processing, alleviate possible cross contamination issues and to provide a safe work environment.

Eurofins Spectrum Analytical has provided quality service and technical support to consultants, industries and the public sector since 1990. First certified in its home state of Massachusetts, in 1993 we expanded our certification throughout New England, New York, New Jersey, Pennsylvania and Florida. Additionally, our quality data is accepted in the states of Michigan, Delaware, Georgia, Maryland, and Virginia. ESA-MA is in compliance with all applicable TNI Standards. New York State is the primary accrediting authority, with secondary accreditation through New Hampshire, New Jersey, Pennsylvania and Florida. ESA-MA has also been granted certification by the American Association for Laboratory Accreditation (A2LA) to perform work under the Department of Defense Quality Systems Manual for Environmental Laboratories. A full listing of our currently accredited test methods is available on our website at www.EurofinsUS.com/Spectrum

ESA-MA exhibits a strong business philosophy that consists of professionalism, communication and leadership. This is continually demonstrated through our commitment to provide its clients with both technical expertise and business experience and has created a unique style, which has enabled this laboratory to achieve a higher level of performance. ESA-MA is committed to meet current environmental strategy and comply with EPA and other state agency regulations. ESA-MA bases its internal quality systems on the NELAC standards.

1.1 Mission Statement

Eurofins Spectrum Analytical is dedicated to servicing the needs of our customers in a consistently dependable manner with high quality, cost effective, and safety based environmental analytical laboratory services. As part of the Eurofins network we have the stability and structure of an established corporation to support overhead functions while retaining the personal aspects and services of the laboratory that was established in the

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early 1990s. Our team remains committed to our clients, our quality, and each other as we focus on future growth and opportunities.

1.2 Quality Policy Statement

We strive to provide the highest quality data achievable by:

- Following all documentation requirements; describing clearly and accurately all activities performed; documenting "real time" as the task is carried out; understanding that it is never acceptable to "back date" entries and should additional information be required at a later date, the actual date and by whom the notation is made must be documented.

- Providing accountability and traceability for each sample analyzed through proper sample handling, labeling, preparation, instrument calibration/qualification/validation, analysis, and reporting; establishing an audit trail that identifies date, time, analyst, instrument used, instrument conditions, quality control samples (where appropriate and/or required by the method), and associated standard material.

- Emphasizing a total quality management process which provides accuracy, and strict compliance with agency regulations and client requirements, giving the highest degree of confidence; understanding that meeting the requirements of the next employee in the work flow process is just as important as meeting the needs of the external client.

- Providing thorough documentation and explanation to qualify reported data that may not meet all requirements and specifications, but is still of use to the client; understanding this occurs only after discussion with the client on the data limitations and acceptability of this approach.

- Responding immediately to indications of questionable data, out-of-specification occurrences, equipment malfunctions, and other types of laboratory problems, with investigation and applicable corrective action; documenting these activities completely, including the reasons for the decisions made.

- Providing a work environment that ensures accessibility to all levels of management and encourages questions and expression of concerns on quality issues to management.

- We each take personal responsibility to provide this quality product while meeting the company's high standards of integrity and ethics, understanding that improprieties, such as failure to conduct the required test, manipulation of test procedures or data, or inaccurate documentation will not be tolerated.

- Intentional misrepresentation of the activities performed is considered fraud and is grounds for termination.

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1.2.1 Internal Employee Support

Eurofins Spectrum Analytical's commitment extends not only externally to its clients and community, but also internally to support its employees. This commitment focuses on communication and has resulted in the formation of policies of performance and resources for its employees. These policies also enforce the implementation of the quality assurance plan and will correct deficiencies that may develop without jeopardizing the quality of services. This commitment ensures that employees of ESA-MA may perform their job functions without pressures that may adversely affect the quality of their work**.**

1.2.2 Client Support

ESA-MA is committed to providing its clients with prompt, reliable results at competitive prices. The commitment to support our clients can be demonstrated through the services provided; many at no additional charge. These services include:

a. Rush Service – Eurofins Spectrum Analytical's standard turn around time for routine analytical parameters is 7-10 business days from sample receipt at the laboratory. Rush service is always available and may be coordinated through the use of our Rush Analysis Request Form. Please ensure that a rush analysis request be sent in advance of sample submittal. This communication will help us prepare for your samples and assure you of the turn around time. Requests may be submitted online via our eServices web page. The availability of rush service is a function of the workload within the laboratory at any given time. Therefore requests for rush services are to be approved by the laboratory prior to sampling. Emergency response services will be handled on a case-by-case basis. Please note that rush service may be subject to a reasonable surcharge. Contact our Quality Services Department for details.

b. Special Pricing – through the use of Eurofins Spectrum Analytical's Request for Price Quotation Form (available on our eServices web page). This form allows for further price reductions for particular projects that have more cost-effective requirements.

c. Electronic data deliverable (EDD) - All laboratory reports are posted online and will be securely accessible 24/7 through our eServices web page in pdf format and other EDD formats as requested. These files are automatically generated by our LIMS, and can be used to import into your own software and data

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management applications. There are several EDD formats available.

d. Sample Containers - Pre-cleaned, pre-preserved sample containers are supplied at no cost provided they return for laboratory analyses. Please allow a minimum of 48 business hours notice to prepare and process your request. Requisitions may be completed online through our web site. Eurofins Spectrum Analytical will ship sample containers to your office at no additional charge provided sufficient notice is given for sample kit preparation and ground shipping or delivery. Additional notice is required for certified low-level air media.

Reliability of any sample data is measured in terms of precision in executing methodologies and accuracy of surrogate and method spike recoveries. Data generated by Eurofins Spectrum Analytical must pass all method-specific and regulatory criteria established under NELAP, the Environmental Protection Agency (EPA) and by each state in which certifications are held. In situations where no criterion has been established, ESA-MA may choose to develop in-house data quality objectives to ensure that reliable data is reported.

Prior to accepting new bid proposals, the Director and the QA Department review the scope of work provided by the client to ensure all specifications can be met by Eurofins Spectrum Analytical. The client is informed at this time if a sub-contract laboratory will be needed to meet scope of work criteria.

The primary QA/QC objective is to develop, implement, improve and maintain procedures for sample receipt, sample preparation, laboratory analysis, data validation and reporting that provides scientifically valid, legally defensible data. Eurofins Spectrum Analytical supports this objective through QA/QC procedures within the laboratory, including all ancillary departments.

1.2.3 Team Alliance Strategy and Community Support

In conjunction with, and as a result of, the quality services mentioned above, a team alliance strategy has been developed which includes a specific client base that further facilitates confident-client relationships. This alliance enables Eurofins Spectrum Analytical the opportunity to offer the following:

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a. Special research programs that will financially support both our cities and towns in maintaining a healthy environment for their residents.

b. Internships with universities (namely, University of Massachusetts in Amherst, MA) that allow students the benefit of acquiring scientific experience and the self-confidence needed in their future endeavors. Also part of Eurofins Spectrum Analytical's commitment to education is research assistance and financial support to students in their quest in obtaining their educational degrees.

1.2.4 Advertising Policy

It is the intention of Eurofins Spectrum Analytical to accurately represent its accreditations and certifications and in a manner that does not imply accreditation in areas that are outside the actual scope of current accreditation. The laboratory's accreditation certificate and scope of accreditation issued by NELAP, A2LA or other Federal or State agencies will be posted on the laboratory website. It is not anticipated that additional advertising with respect to A2LA accreditation status of the laboratory will be required. If management determines that additional advertising is necessary, the laboratory will follow the current A2LA Advertising Policy with respect to the activities under the scope of accreditation and use of the A2LA symbol.

Use of the NELAC Accredited logo is allowable with adherence to the following:

a. Where the NELAC logo is used it shall always be accompanied by Eurofins Spectrum Analytical's accreditation number.

b. The NELAC logo may be generated electronically provided that the prescribed formats and forms are retained.

c. When promoting or providing proof of accreditation, accredited laboratories should use the scope(s) of accreditation, as this document details the specific tests which are accredited. The certificate should be used for display purposes and should also accompany the scope.

d. When the NELAC logo is used on a business solicitation document such as a proposal or quotation form, the laboratory has the responsibility to distinguish between those proposed tests that fall within the laboratory's scope of accreditation and those that do not.

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This is done by attaching a copy of the current Scope of Accreditation sheet and/or a link to Eurofins Spectrum Analytical's Quality webpage were this information is posted or by noting which tests or calibration is non-accredited.

e. Upon suspension or termination of accreditation, the laboratory will immediately inform affected clients and remove or update certification on the Eurofins Spectrum Analytical website.

1.3 Complaints

1.3.1 Internal

1.3.1.1 Operational Related within Department

Department Managers are available to express department-related disputes, ideas and/or concerns. If an issue deserves research, Laboratory Director attention, or is not resolved immediately, the employee(s) must express the concern in writing in memorandum form to the department manager. (See Standard Operating Procedure for Resolution of Complaints for further information, available upon request)

1.3.1.2 Operational Related Outside the Department

The Technical Director and/or QA Manager are available to express laboratory-related disputes, ideas and/or concerns. If an issue deserves research, Laboratory Director attention, or is not resolved immediately, the employee(s) must express concern in writing in memorandum form to the Laboratory Director. The Laboratory Director will respond within 48 hours of written notification.

1.3.1.3 Personnel Issues

The Department Manager is available to express non-operational related disputes, ideas and/or concerns. If an issue deserves research, Laboratory Director attention, or is not resolved immediately, the employee(s) must express concern in writing in memorandum form to the Department Manager or corporate HR. (See Standard Operating Procedure for Resolution of Complaints for further information, available upon request.) All parties will follow company policy set forth in the Eurofins Employee Handbook.

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1.3.2 External Complaints

Eurofins Spectrum Analytical puts client support as one of its highest priorities. If a client expresses a complaint or concern it is acted upon immediately. (See Standard Operating Procedure for Resolution of Complaints for further information, available upon request.)

1.3.2.1 Service

When a client call is received concerning the services provided by Eurofins Spectrum Analytical it is the responsibility of the person receiving the call to notify the Laboratory President immediately.

1.3.2.2 Quality of Data

When a client calls concerning data results the call is forwarded to the Laboratory Director, QA Manager or Technical Director (refer to SOP). The matter is looked into upon receipt and if the complaint investigation reveals a laboratory error due to non-compliance with internal procedures, the client is notified within three business days or sooner from discovering the error.

1.4 Corporate and Individual Ethics

Eurofins Spectrum Analytical depends upon the quality of the data and services produced and the integrity of the people who generate them. We recognize the need for and have responded with an ethics program that is designed to establish a meaningful context within the environmental laboratory. Our objective is to provide an effective ethics program that involves training, managerial leadership and active dialogue between our staff. All new employees are trained within the first two weeks of employment and signed documentation is attached to the new employee training form, filed with their onsite personnel folder. Eurofins Spectrum Analytical also provides employees with the ability to anonymously report instances of unethical or improper laboratory practices. The QA Manager or their designee will investigate any suspected instances of ethics violations or improper procedures. Continued employee and managerial training will occur once a year in conjunction with the mandatory Annual Company Meeting, for which all attendance is recorded. Periodic monitoring of data integrity is conducted through departmental management validation against the raw data uploaded by the analyst. Additional validation procedures to ensure data integrity are located in Section 9 of this Quality Assurance Manual. Any employee who displays unethical behavior or intentionally jeopardizes data integrity will be subject to discipline up to and including termination.

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We, at Eurofins Spectrum Analytical believe that we share common goals and values. These goals and values include protection of the environment, quality of product and personal integrity.

- We strive to be honest when we interact with each other and our clients.
- We work to achieve high standards in our procedures and with our final product.
- We will continue to create an environment for personal and professional growth that provides employees with an opportunity to grow, excel and develop new skills and challenges.
- We will continue to enhance our internal procedures that provide a well-defined background that is both educational and supportive to both our employees and our clients.
- We encourage through our internal programs and by example, responsible procedures that address laboratory wastes and health and safety for all our employees and for our environment. Our laboratory waste program has become a training tool to involve our employees in the ethical disposal of chemical and laboratory wastes.
- We strive to respect one another for our variety and our similarities.
- We strive to respect one another for our origins and our beliefs, our looks and our gender.
- Eurofins Spectrum Analytical and its leadership support the maintenance of the facility, the equipment and instrumentation and, by example demonstrate a willingness to invest in new instrumentation.

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While it is the goal of Eurofins Spectrum Analytical to lead and teach by example, it is also true that ethics are guidelines within each individual that are supported by company structure. While most individuals strive to attain a high degree of integrity, there are some actions that occur in laboratories that are considered unethical and can result in penalties or punishments to include legal and civil actions. The following are examples of unethical behaviors with their own nicknames that are unique to laboratories.

- Peak shaving – The practice of manually integrating a peak from a point within the chromatogram that will decrease the true value of the analytical contaminant. If the manual integration does not begin and end in a valley, the deviation is considered peak shaving.

- Dry Labbing – Creating data for an analysis that was not performed.

- Time Travel – Changing the time of an extraction, analysis or sampling to make it appear that the analytical procedure performed was done with in the analytical holding time.

Other actions defined as unethical include forging another's name or initials, signing that data review has been performed when it was not, spiking a "little extra" to improve recoveries or knowingly condoning unethical observed behavior of others. See Appendix B for typical ethical and data integrity issues.

1.5 Confidentiality/Security

The protection of confidential business information and trade secrets is vital to the interest and success of this organization and its clientele. Confidentiality is an absolute condition of employment with Eurofins Spectrum Analytical. At all times and occasions, it is imperative that all employees maintain confidentiality of all information concerning business practices.

Security includes the use of telephones, computers, facsimiles, and any other electronic media systems. Passwords are assigned to each user and the use of all systems can be monitored. Each employee must agree to the terms set forth and sign an acknowledgement form.

- Vendors, clients, site locations, and analytical results even though some such information may become a matter of public record, are considered confidential. Listed below is the protocol initiated in order to maintain and support this confidentiality.

- The Client Services Department in coordination with the QA Department is the only authorized representative at Eurofins Spectrum Analytical who may release analytical data after final approval by the Laboratory Director.

- Anyone requesting a copy of an analytical report or invoice who is not listed on the original Chain of Custody must:

  (1) Submit a written request with specific details for the reason for the request;

  (2) Obtain written approval from the individual and/or company who are the client of record on the original Chain of Custody.

- Eurofins Spectrum Analytical is protected by a security system, which is only accessible by employees who are issued a current security code. No one other than authorized employees can gain access to this system.

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- All employees receive Computer Security Training upon hiring and participate in a refresher course annually. Training included the use and protection of individual passwords, the requirement to change LIMS passwords annually and the safe use of individual and group computers.

- The storage of analytical data and accompanying invoices are accessible only to the Accounting, Client Services, and QA Departments. No one other than authorized employees can access this documentation.

- The Chains of Custody records are accessible by the Sample and Accounting, Client Services, and QA Departments. Only authorized employees can access this documentation.

- Any request for quotation and/or client correspondence is considered confidential documentation and will only be accessible to the Client Services Department and authorized personnel. No other operational department will have access to this documentation.

If a request for quotation is submitted by more than one company for the identical public bid, without any question of deviations, Eurofins Spectrum Analytical has an obligation to provide an equal low discounted price for this project.

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2.0 Organization and Responsibilities

Eurofins Spectrum Analytical employs a team of professionals that possess a high-level of training along with at least five years or more technical experience in their related field. Our staff utilizes their scientific and technical expertise to service the analytical and informational needs of our clients and allows us the ability to customize and develop certain scientific procedures that are not part of the existing EPA standard methodologies. These staff diversities enable ESA-MA to produce high-quality data while maintaining our efficiency, quality assurance and effective deliverables and profitability. ESA-MA encourages its staff to revise and develop procedures that will improve the overall function. Present staff qualifications and work experience are on file and can be furnished to a client upon request.

2.1 Organizational Structure

The organizational structure and responsibilities are outlined below and illustrated in Figure 2.1 located in Appendix C for the Massachusetts Laboratories.

President (resume attached in Appendix C)

- Responsible for assisting with preparation of budget and meeting those goals for each calendar year. Responsible for profits and losses associated with business performance and ensuring operations meet internal and external expectations.

Laboratory Director (resume attached in Appendix C)

- Final review and approval of Microbiology data;
- The Laboratory Director is responsible for overall supervision of laboratory operations, overseeing all technical and administrative policies and procedures, as well as the enforcement and adherence to said policies by laboratory staff
- Is responsible for final data validation and approval of laboratory reports for data generated by both the 11 Almgren Dr and 830 Silver St facilities;
- Provide technical support and onsite supervision of the operational departments located at 830 Silver St;
- Supervise the revision of and final approval of protocols and methodologies;
- Ensuring proper data deliverable and client services;
- Using information collected from all departments and client feedback, the laboratory director must conduct a review of the laboratory's quality system and testing activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements. Prepare an annual Management Review with these findings and ensure they are assigned and carried out in an agreed upon timeframe.
- The President will provide back-up in the absence of the Laboratory Director. If the Lab Director is absent for more than 35 calendar days, the primary AB must be notified.

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Technical Director

- Provide technical support and onsite supervision of the operational departments;
- Guide, teach and support staff management and staff in all aspects of their positions. This includes, but is not limited to, backlog management, method development, staff supervision, instrument maintenance, quality control, data package production, staffing schedules, laboratory cleanliness and safety.
- Assist with data validation of Inorganic, Microbiology, and Wet Chemistry data;
- Use tools and processes for performance measurement and benchmarking (KPIs);
- Assist management and staff with development of cost calculation models (using activity-based costing methodology) such as APPC and capacity modeling;
- Communicate with the President, Laboratory Director, Operational Department Managers, Quality Service Department and the Quality Assurance Department;
- Perform QA/QC evaluation;
- Method knowledge;
- Inventory/equipment management (secondary to Operational Support Manager), maintenance of department protocol and procedures;
- Oversee safety;
- Oversee method development
- The Laboratory Director will provide back-up in the absence of the Technical Director.

Operational Support Manager

- Provide technical support and onsite supervision to Air, VOC, and SVOC departments;
- Guide, teach and support the staff management and staff in all aspects of instrument maintenance and repairs. This includes, but is not limited to, scheduling service calls, review of service contracts, and in-house training sessions.
- Assist with data validation of Organic data as needed;
- Inventory/equipment management (primary with Technical Director secondary), assist with maintenance of department protocol and procedures;
- Oversee safety;
- Assist method development
- Determine and use tools and processes for performance measurement and benchmarking (KPIs) to include TAT, productivity, scheduling of staff, and optimization of staff and resources;

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- Standardize operational performance reporting (with a clear focus on laboratories production performance);
- Lead management and staff through development of cost calculation models (using activity-based costing methodology) such as APPC and capacity modeling;
- Develop, implement, and use of laboratory benchmarking methodologies (e.g. financials calculation, productivity measure, production cost analysis);
- Communicate with the President, Laboratory Director, Operational Department Managers, Quality Service Department and the Quality Assurance Department.

Quality Assurance Manager

- Fulfill the role of laboratory Quality Assurance Officer;
- Implement, maintain and improve upon the overall laboratory quality assurance;
- Ensure all lab personnel understand their contribution to the quality assurance plan;
- Conduct initial and annual Ethics and Data Integrity Training;
- Conduct initial Computer Security Training for new hires:
- Ensure communication takes place at all levels of the laboratory regarding the quality assurance plan;
- Evaluate the effectiveness of training;
- Data validation;
- Conduct annual internal laboratory audits to assure compliance with all aspects of the quality assurance plan;
- Maintaining the QA/QC database and QA/QC files;
- Ongoing review and update of QC procedures, QC databases, and protocols;
- Oversee all aspects of Proficiency Testing including orders, dispersal to the laboratory, ensure operational managers rotate PT analysts, upload results to providers, DMR QA reporting, monitor PT history and corrective actions;
- Document Control;
- Maintains Certifications;
- Oversee and delegate tasks to Quality Assurance Department staff;
- All responsibilities are conducted in communication with the Laboratory Director and President.
- The QA Assistant will provide back-up in the absence of the QA Manager.

Lean Project Manager

- Responsible for on time completion of milestones
- Distribute and review tasks, owners and deadlines
- Responsible for the long term Continuous Improvement
- Present results to BU and corporate Lean Coordinator
- Complete analysis and document outcomes

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- Continue to gain knowledge of lean tools

Quality Services Department
- Overall client service management;
- Preparation of bids and price quotations;
- Development of flyers, ads, etc.
- Data reporting;
- Invoice preparation;
- Scheduling of courier service via client contact;
- Publish laboratory data reports;
- Communicate with clients regarding data deliverable;
- Maintain laboratory report files;
- Manager to support Operational Department in manager's absence;
- Manager will have a link to Marketing Department.
- The Client Services Manager will provide back-up in the absence of the Quality Services Section Team Leader.

Accounting Department
- Track all incoming vendor invoices and outgoing client invoices;
- Track all payables;

Courier Service Department
- Coordinates daily pick up schedule;
- Oversees sample container inventory;
- Oversees preparation of sample kits for client deliveries;
- Communicates with Laboratory Director regarding courier service schedule and all incoming samples;
- Oversees all shipping from facility.
- The Quality Services Section Team Leader will provide back-up in the absence of the Courier Manager.

Operational Departments
- Manager - Oversees overall data management;
- Manager - Provides technical support;
- Manager - Coordinates operational issues to Laboratory Director;
- Manager - Provides validation support to QA Department as secondary validator.
- Manager – Supervision of personnel including hiring and training;
- Performing sample preparation and analysis in accordance with all applicable methodology and internal SOPs;
- Processing data generated by laboratory instrumentation;
- Performing daily QA/QC checks on each instrument;
- Maintaining communication with QA Department regarding quality issues

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and data deliverable;

- Adherence to Health and Safety and Chemical Hygiene Plans; Maintain and implement all the department functions stated above with specific responsibilities listed for each position;
- Review all logbooks within prescribed frequency;
- Review and implement QA/QC samples and standards as stated in the methods performed on a daily basis;
- Review the daily backlog for due date, holding time, etc. and assign work order to each analyst;
- Ensure PT samples are rotated among all trained analysts;
- Conduct a brief daily meeting with assistants in order to meet daily objectives.
- The Organic Section Team Leader or Technical Director will provide back-up in the absence of the Operational Department Manager.

Air Department

- Method development;
- Marketing air division;
- Provide technical support such as air presentations;
- Perform various air analyses; such as TO15 and APH along with customized analyses as requested.

Sample Department

- Verifies the integrity of all samples received and inspects incoming Chains of Custody for completeness;
- Ensure all inter-company communication regarding incoming expedited TAT samples;
- Ensure data entry accuracy from Chain of Custody into Laboratory Information Management System (LIMS) database;
- Communicate with clients regarding any COC deviations as defined under NELAC protocol and our Comprehensive Quality Assurance Manual;
- Identify incoming samples with their unique identification provided by the LIMS database;
- Preparation of samples for subcontracting laboratory when applicable.
- The Quality Services Section Team Leader will provide back-up in the absence of the Sample Department Manager.

Health and Safety Department

- Implementation of Eurofins Spectrum Analytical's Chemical Hygiene Plan and enforcement of laboratory safety rules;
- Coordination of safety related staff training;
- Sample/waste disposal and storage.
- The Courier Coordinator will provide back-up in the absence of the H&S Manager.

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Information Systems Department

- Maintenance of all internal network functions;
- Program development;
- Assists with marketing strategies.
- Eurofins NSC will provide back-up in the absence of onsite IT.

2.2 Training

Eurofins Spectrum Analytical's training program applies to all employees. All job functions are fully described in a formal job description, which is kept on file in the lab. To be hired or promoted, an employee must meet all job description requirements. All hiring and subsequent changes in personnel are documented in the individual's permanent personnel file. Various training programs are provided for new employees or employees transferred to a new position. Additionally, certain positions require auxiliary training, including training videotapes, on-site training classes, or off-site attendance of specialized training or certification courses. Each analyst hired must perform an Initial Demonstration of Capability (see Appendix C) before processing and reporting data. This study is used to demonstrate the precision and accuracy of the individual analyst.

All hiring, training and position changes follow the policies and procedures set forth in the Eurofins Employee Handbook. Training is arranged and planned by the operational department, reviewed by the Quality Assurance Department and approved by the Laboratory Director. Before commencing employment with Eurofins Spectrum Analytical, all potential staff members are informed of their ethical and legal responsibilities. This includes client confidentiality, health and safety procedures, and communication within the laboratory. The employee must review and sign the Eurofins Employee Handbook before starting as an employee. This handbook details all company policies and penalties for not complying with the procedures and policies. Along with the Handbook, each employee is required to review the laboratory's Comprehensive Quality Assurance Manual, specifically the sections that are pertinent to their job responsibilities. Once this section has been reviewed, the employee will sign the training form stating that he/she has read and understands the information provided. Upon completion of a revised QA Manual, all personnel are assigned the updated revision in the online SOP program. They must read and electronically sign off on the updated QA Manual, acknowledging they have read and understand the most recent revision.

2.3 Quality Assurance Managerial Organization

The managerial team under the direct supervision of the Laboratory President and QA Manager will enforce the implementation of the Comprehensive Quality Assurance Manual. Listed below are routine quality organization functions:

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a. Daily communications between Directors and Section Team Leaders involves the following personnel and their responsibilities:

(1) Laboratory Director kept up to date regularly throughout the day for any immediate executive decisions.
(2) Technical Director (communicates client technical service issues)
(3) Accounting Department (communicates invoicing questions on incoming Chains of Custody)
(4) Quality Services Section Team Leader (communicates status of morning data and rushes through the Daily Rush program; pertinent areas of discussion of previous work day; documents any information needing immediate action; reviews courier pick up schedule and glassware delivery requests)
(5) Operational Support Manager (communicates data deliverable information and any technical or instrument issues for the Organic Sections)
(6) Technical Director (communicates data deliverable information and any technical or instrument issues for the Microbiology and Inorganic Sections)

b. Monthly Team Manager Meeting - this meeting is held on a monthly basis (or as needed) and is under the direct supervision of the Laboratory Director. Section Team Leaders and managers for all departments attend this meeting.

c. Department Evaluation Meeting: this meeting is under the direct supervision of the Laboratory Director and each operational manager in order to evaluate the operational plans developed by each department and their efficiency at meeting goals during the year.

d. Quarterly Operational Meeting: the operational department manager and the employees within the respective department conduct this meeting to evaluate the operational plan and other activities such as personnel, quality control, etc.

e. General Meeting - a general meeting of all Eurofins Spectrum Analytical employees is conducted yearly. This meeting assesses the previous year's performance and forecasts the plans and method developments for the upcoming fiscal year.

f. Employee Performance Evaluation - all employees are evaluated on a yearly basis by the department managers and the Laboratory Director.

2.4 List of Key Personnel and Positions

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Employee Name	Position Held
Nicole Leja	President
June O'Connor	Laboratory Director
Christina White	Technical Director
Dulce Litchfield	Deputy Director of Quality Services
Kimberly LaPlante	Quality Assurance Manager
Kevin White	Lean Project Manager
Wes Bryon	Operational Support Manager
Rebecca Merz	Quality Services Manager
Emily Kinney	Air & Volatile Organic Manager
Sandra Mateega	Semi-Volatile Organic Manager
Jackie Clement	Metals Manager
Raquel Thomas	Wet Chemistry Manager
John Miller	Health & Safety Manager
Joel Navaroli	Information Technology
Kathryn Wilkinson	Sample Receiving Manager

2.5 Housekeeping Policies

The laboratory follows stringent housekeeping procedures both utilizing internal policies performed by employees and contracting with an external cleaning group.

Internally, all employees are responsible for the cleanliness of their own area. This includes reagents, cleaning and placement of glassware, etc. The Laboratory Director routinely oversees all procedures.

The Health and Safety Manager performs an internal audit of the entire laboratory on a monthly basis and reports his findings to the Laboratory Director with suggested comments.

In addition, a cleaning company has been contracted who performs a thorough cleaning for both facilities three times per week or on an "as needed" basis following the necessary precautions as to not interfere with the efficiency of the laboratory.

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3.0 Quality Assurance Objectives

Eurofins Spectrum Analytical follows the well-defined EPA standards for validation and data accuracy as the foundation of our QA/QC effort. The primary QA/QC objective is to develop, implement and maintain procedures for sample receiving, sample preparation, laboratory analysis, data validation and reporting that provide scientifically valid, legally defensible data. ESA-MA supports this objective through QA/QC procedures throughout the laboratory, including all ancillary departments.

Clients are encouraged to submit a blind duplicate sample at no additional charge, which will be tested as part of the routine samples. Testing the blind sample enables ESA-MA to check the accuracy and consistency of our procedures and gives our clients the utmost possible degree of confidence in the data.

ESA-MA is so confident in its accuracy that when applying for certification renewals, the required proficiency tests are run on a rush basis. This is done because 70% of our projects require an expedited turnaround time; therefore if we can run and pass the all-important proficiency tests using our rush procedures, we have further proven the accuracy of our ongoing technique.

Our use of reliable and technically sound instrumentation, the experience of our chemists, and our well-trained support staff are additional components to our QA/QC program.

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3.1 Data Quality Objectives

Data quality objectives (DQOs) are quantitative and qualitative statements specifying the quality of the environmental data required to support the decision-making process. DQOs define the total uncertainty in the data that is acceptable for each specific activity during sample analysis. This uncertainty includes both sampling error and analytical error.

The parameters that are used to specify data quality requirements and to evaluate the analytical system performance are precision, accuracy, representativeness, completeness, and comparability (PARCC). Definitions for these parameters are presented below:

- Precision: a measure of the reproducibility of measurements under a given set of conditions.
- Accuracy: a measure of the bias that exists in a measurement system.
- Representativeness: the degree to which sample data accurately and precisely represent selected characteristics.

- Completeness: a measure of the amount of the valid data obtained from the measurement system compared to the amount that is required.

- Comparability: a measure of confidence with which one data set can be compared with another.

3.2 Quality Assurance Communication Procedure

ESA-MA has instituted a Quality Assurance Communication Procedure (QACP) in order to strengthen the quality organization within the laboratory. The effectiveness of this procedure enables a timely response to problem situations and the creation of innovate concepts, enhancing the quality of both the analyses and the services provided by ESA-MA.

The following outlines specific quality assurance communication activities.

- Managerial communication is conducted between the Laboratory Director and the team leaders: (Operational Departments, Quality Assurance, Quality Service, Sample, Courier, Technical Service Departments, and Air Division) to handle the overall daily laboratory functions (see Section 2.0 – Organization Structure and Responsibilities).

- Data deliverable communication deadlines: all operational departments report to the Laboratory Director regarding the status of their data deliverable no later than 11:30 AM via the daily rush program.

- Data validation communication updates: the validation team is in constant communication with the Operational Departments regarding data quality issues that may require immediate action. The Laboratory Director will immediately be notified.

- Departmental communication update: the department manager must meet with his/her assistant and/or coordinator on a daily basis to discuss various actions such as: daily workload, quality control issues, instrumentation issues, personnel and others.

3.3 Quality Assurance/Quality Control Review

It is necessary to continually review and evaluate all laboratory procedures to ensure compliance with state and federal regulations. This includes procedures for data validation, daily laboratory operation, and corrective actions. The Laboratory Director, along with the QA Department and Directors, meet frequently to discuss if procedures need to be changed in order to meet compliance. If any procedure is changed a written memorandum is sent to all

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pertinent laboratory personnel. These memorandums are issued a control document number, stored on the network and backed up regularly.

The Laboratory President, Director and QA Department meet at the end of each calendar year to discuss the quality systems in place. The Department Managers are evaluated on the quality systems within the laboratory during the end of the year performance review. If necessary, managers meet with the Director and QA Manager more frequently to address quality issues.

3.4 Quality Control Acceptance/Rejection Criteria

Acceptance and rejection criteria are based on methodology and instrumentation. Eurofins Spectrum Analytical will use method guidelines for criteria levels. Quality control samples are charted periodically to determine upper and lower acceptance levels for in-house method acceptance and rejection criteria. The Laboratory Director is responsible for final decisions regarding data acceptability.

3.5 Stoppage of Non-Conforming Work

When quality control data falls outside of the laboratory's acceptance criteria, the Laboratory Director, Validation Team, Section Team Leaders and department managers have the authority to halt the analysis of samples. QA Department staff has the authority to halt work if any compliance issues are found with a laboratory method or process. Before any work can resume, laboratory personnel must identify the non-conformity. Once the issue has been identified, the client must be contacted to inform them of the non-conformity and how their data may be affected. After a thorough investigation, the data may be narrated or, if deemed appropriate, a corrective action may be enacted. Once satisfied that the non-conformity has been sufficiently addressed, the Laboratory Director, QA staff, Validation Team, Section Team Leaders or department managers may authorize work to resume.

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3.6 Preventative Action

All employees are empowered and encouraged to use the concept of Preventive Action to avoid a problematic situation. The company supports, embraces and drives the process for continuous quality improvement by several means, such as: Ethics Hotline, open door policy for suggestions and training classes that include Ethics and "Essential Technical Training for Laboratory Personnel". If an employee identifies a potential problem or an area of concern or it should be brought to the attention of his/her supervisor, Human Resources, QA Director or the Ethics Hotline.

The laboratory also utilizes a formal program to encourage preventive action through development of lean processes. The goal of this program is to optimize

processes to ensure efficiency and operational improvements while maintaining compliance. The efficiency gains are inherently coupled with minimizing errors and rework. Teams of employees learn the tools and techniques to evaluate a process, identify potential sources of errors, delays or problems in an operation, determine system changes that will minimize these and work to implement the improvements. Each project includes thorough documentation of the evaluation, measurement, and implementation phases. The process is continually monitored to ensure that the anticipated results are sustained.

Employees are also encouraged to communicate to their supervisor any area(s) or operation(s) that they believe could be streamlined, make their job easier, would provide a quality improvement, or could provide a cost savings to the company.

Described below are some of the systems available to employees to assist with building quality and efficiency into their daily jobs. They stress a proactive approach/environment to problem solving and to review quality systems and operational efficiencies.

- Ethics Training is a seminar required for all employees to teach the laboratory's Statement of Values by examining how it translates to our everyday jobs and ethical decision making. Topics discussed include: Statement of Values, ethical paradigms, and ethical decision making. Mandatory ethics training refresher seminars are offered on an annual basis.

- The laboratory has contracted with an Ethics Hotline to provide an anonymous means of reporting ethics concerns or issues. The issue is forwarded by the service to the QA Director who will communicate internally with those who need to address the issue. All communication and actions are documented in a secure web interface managed by the hotline service company.

- The QA staff prepares monthly program status reports for management. The reports include a variety of metrics which are used to evaluate trends in laboratory performance across all quality and compliance areas. Management responds to any negative trends by developing a corrective action plan.

- QA staff undergoes intensive training including how to perform internal audits, review internal investigations for thorough root cause analysis and corrective action and Eurofins seminars "Follow the Yellow Brick Road to Quality Management" and "Top 10 Suggestions For Being A Better QAO". Eurofins encourages collaboration between all US QAOs to share experience and best practices to improve laboratory quality and efficiency.

- Operational Departments continuously monitor control charts to look for trends and out-of-control situations. When an adverse trend or out-of-control

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condition is indicated on a control chart, the nature of the condition is used to determine the type and extent of corrective action (if required). Corrective actions can include, but are not limited to, instrument maintenance, replacing a degrading standard or recalibrating an instrument that is showing repeated problem.

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4.0 Specialized Analytical Methods

4.1 Microbiology Analysis

There are several critical elements for analysis of microbiological samples. The department supervisor must have completed at minimum one college-level course in which environmental microbiology was covered. Academic transcripts and resumes are available upon request for the supervisor and analysts.

The operational room for microbiological analyses has sufficient storage and bench-top space and is equipped with fluorescent lighting. It is separated from other operational work areas and authorized personnel only are permitted in the laboratory area.

4.1.1 Standard Operating Procedures

Necessary equipment is available to perform the analyses. This includes pH meter, balance, an incubator unit, hot air oven, colony counter, conductivity meter, and an autoclave for disposal of microbiological samples. Support equipment is also available, such as culture dishes, pipettes, culture tubes and closures, inoculating equipment, membrane filtration equipment, sample containers and glassware, and an ultraviolet lamp. Specific care and maintenance of this equipment is detailed in the Standard Operating Procedures (SOPs) for methods performed.

4.1.2 Record Maintenance

Record maintenance follows the normal procedures of Eurofins Spectrum Analytical Refer to Sections 9.3 and 11.5 of this manual.

4.1.3 Temperature Records

Daily records of the incubator are maintained for each day of use. The temperature for the incubator is recorded from a thermometer immersed in liquid and placed on a shelf. The temperature is recorded twice a day with a minimum of four hours between each reading.

Refrigerators used to store samples, media and reagents are maintained at a temperature range of 1°C to 5°.

4.1.3.1 Autoclave

The date, time, temperature and duration for each sterilization cycle are recorded. A list of materials

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sterilized is maintained and initialed by the analyst who has performed the work.

4.1.3.2 Incubators

The temperature of each incubator is recorded twice daily with a minimum of four hours between each reading. The temperature is documented in the appropriate logbook.

4.1.4 Laboratory Reagents and Chemicals

Analytical reagent grade chemicals are used for all analyses performed. Procedures for receipt at the laboratory, labeling reagent bottles and preparation of standards is detailed in Section 11 and the corresponding SOP.

4.1.5 Laboratory Water

Distilled water is prepared in the operational laboratory room and meets the requirements for Type II water as defined by the ASTM. Water quality is verified daily for conductivity and monthly and annually for suitability according to method requirements. This is also referenced in the method SOP. Reagent-grade water quality is monitored in accordance with Standard Method 9020 B Inter-laboratory Quality Control Guidelines.

4.1.6 Laboratory Glassware

Sterile sample containers are commercially prepared. Glassware used within the operational laboratory is cleaned according to method requirements. Specific details can be found in the SOP.

4.1.7 Maintenance of Laboratory Instrumentation and Equipment - Please refer to Section 11.3 and method specific SOPs.

4.1.8 Instrument Calibration Requirements - Please refer to Section 6.0 and method specific SOPs.

4.1.9 Sample Collection, Preservation and Handling - Please refer to Section 5.0 and method specific SOPs.

4.1.10 Analytical Methodology – Methods performed are accepted and approved by the EPA for the matrices and analytes of interest. These methods are referenced in laboratory SOPs.

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4.1.11 Sterility of Rinse/Dilution Water and Sample Bottles

Preparation of sterile rinse water is detailed in the SOP. Sterilization is checked using Tryptic Soy Broth. Each lot of sample containers received for microbiology analyses is checked for sterility by selecting one container. Containers are not used until satisfactory results are obtained from the tested bottle.

4.1.12 Residue Testing of Glassware

4.1.12.1 Inhibitory Residue Test

The cleaning process of glassware using a detergent or similar product is checked to ensure it is free from toxic material after rinsing based on the use of the Inhibitory Residue Test as specified by Standard Method section 9020 B (3), Inter-laboratory Quality Control Guidelines, Laboratory Supplies.

4.1.12.2 Bromthymol Blue Test

Each batch of clean glassware is tested for residual alkaline or acid residue using bromthymol blue indicator. If the results of the indicator test are not acceptable corrective action is immediately taken. Refer to Section 13.0 and/or method SOP for corrective actions.

4.1.13 Microbiological Media – Quality Control Measures

Media is used in the order that it is received. The date, type, amounts, and date opened is recorded for each media received by the laboratory. Media is kept no longer than one year after opening and is stored in a dessicator.

The media dispensing apparatus is checked for accuracy before each sample batch analysis using a graduated cylinder. Accuracy is checked again with each change in volume or periodically throughout extended runs.

Documentation is kept for sterilization of all media, including analyst, lot number, date, sterilization time and temperature and the final pH.

Water sources with known contaminants shall be used on each new lot of medium to determine performance with previously acceptable medium.

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4.1.14 Miscellaneous Quality Control Measures

A minimum of one bottle per lot of sterilized sample containers supplied with sodium thiosulfate is checked for residual chlorine using standards at 5 mg/l and 15 mg/l. The sodium thiosulfate tablet must be able to remove both low and high levels of chlorine residual. If testing shows that sodium thiosulfate inadequately removes the chlorine, the vendor will be contacted and the lot will be rejected.

Heat sensitive tape is used along with a thermometer to verify stabilization temperatures in the autoclave.

Water baths are used to temper media. Please refer to SOP for cleaning procedures.

The optic and stage of the microscope is cleaned before each use.

4.1.15 Membrane Filter Procedure Quality Control Specifics

Documentation is kept to record lot numbers and date of receipt for all membrane filters.

A sterility media check for each filter unit is performed at the beginning and end of each sample analysis batch. If the control indicates contamination all data for affected samples is rejected and an immediate re-sample is requested.

Verification of Membrane Filter Colonies – see method SOPs. E-Coli bacteria are used for positive control and S. Epidermis is used for negative control.

Each analyst must prove method proficiency by analyzing quality control samples yearly for known and unknown performance samples. Duplicate analyses are performed once per month per analyst on positive samples.

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4.2 Air Analysis

Air analysis may be performed for various parameters using different methods and instrumentation. The parameters that may be tested include volatile organic compounds, air phase petroleum hydrocarbons, sulfur, fixed gases and metals. The Air Department is run under the supervision of a well-experienced chemist.

Sources of samples can vary from residential or commercial locations, factories, ambient air, stacks, soil vapor points, vapor extraction systems, landfills, and other location where contamination is suspected.

The volatile air laboratory instruments are comprised of two Agilent 5973 and two Agilent 5975 mass spectrometers interfaced with an Entech 7100 pre-concentrator and a 7016 autosampler. There is an inventory of over 200 passivated sampling canisters and 100 passivated flow regulators. Canisters are cleaned by an Entech 3100 sixteen position cleaner that heats the cans to 100 degrees C during the process.

Metals are analyzed using a ICP and a modified microwave digestion procedure.

The two prominent gases used extensively are helium, used as a carrier gas, and. liquid and vapor nitrogen, used frequently for instrument cool down, flushing systems and as a diluent gas. All gases are located in the storage garage of laboratory and plumbed into laboratory sections. The air laboratory also has a dedicated air handling system for AC and in laboratory air filtration.

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4.2.1 Standard Operating Procedures

All analytical procedures have documented Standard Operating Procedures (SOPs). The SOPs are written and updated as modifications to the methods are accepted and performed.

4.2.2 Record Maintenance

Record maintenance follows the procedures outlined in Sections 9.3 and 11.5 of this manual.

4.2.3 Laboratory Standards

Laboratory standards are purchased as certified standards at 1 PPMv. They are then diluted to lower concentration using the Dynamic Diluter. The most common dilution is the internal standard to 50 PPBv, the calibration gas to 50 PPBv and 10 PPBv and the quality control gas to 10 PPBv. Other standards for special analytical work such as formaldehyde or haloethane are made from neat standards using the static dilution (expansion flask) technique. It is then introduced into the sampling container using the dynamic diluter.

4.2.4 Sample Containers

Sample may be collected in either passivated stainless steel canisters or tedlar bags. Two size canisters are used; 3.2 liters and 6.0 liters. Both canister and tedlar bags can be attached to the auto sampler for analysis. Tedlar bags supplied by the laboratory are one-liter bags with a non-metal fitting. Other size bags with different fittings may also be analyzed.

Passivated stainless steel containers are coated with a polymer coating that allows for the most inert surface possible (Normal summa canisters are just stainless steel). The passivated process is either called Silcosteel or Silonite. All canisters have vacuum gages attached to their valves for monitoring the vacuum before, during and after sampling takes place.

Flow regulators, which attach to the canisters, can be set for sampling from 0.5 hour through to a 1-week timeframe. These have also undergone the passivating process.

All canisters are cleaned after analysis and before reuse. The can cleaner has sixteen positions and has the ability to heat the cans to 100 degrees C. The cans are attached to the cleaner, pressurized with N2 and heated. After about one hour the can cleaner will evacuate and pressurize the cans three times using a roughing pump. After the third cycle, a molecular drag pump is activated which will vacuum the can to < 50 militorr. It runs with the molecular drag pump overnight. After completion, the canister which had the most contamination detected during analysis is pressurized with N2 and analyzed. All analytes must be below the detection limit for a batch to be considered properly cleaned. If any analytes are above detection limit then the whole batch is re-cleaned.

All flow controllers are cleaned by flowing N2 through them at 2-5 psi for 10 Minutes.

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4.3 New Jersey Extractable Petroleum Hydrocarbon Method (NJ EPH)

The NJ EPH analysis is conducted in the Semi-Volatile Department. Soil samples are extracted by sonication utilizing method SW846 3545A and water samples are extracted by Separatory Funnel Extraction utilizing method SW846 3510C. Both soil and water samples are extracted using methylene chloride as the solvent and 1-chlorooctadecane and ortho-terphenyl as extraction surrogates. All water samples and soil samples known to contain #2 fuel oil (2FO) are then analyzed by GCFID. Soil samples of unknown contamination are solvent exchanged to hexane. Fractionation surrogate, 2-bromonaphthalene and 2-fluorobiphenyl, are added and the sample is fractionated through silica gel into aliphatic and aromatic portions. The aliphatic is analyzed by GCFID. The aromatic is analyzed by GCMS.

It is the clients' responsibility to inform the lab if there is known 2FO contamination in soil samples. If there is no communication, all soil samples will undergo fractionation.

4.3.1 Standard Operating Procedures

All analytical procedures have documented Standard Operating Procedures (SOPs). The SOPs are written and updated as modifications to the methods are accepted and performed.

4.3.2 Record Maintenance

Record maintenance follows the procedures outlined in Section 9.0 of this manual.

4.3.3 Laboratory Reagents and Chemicals

Analytical reagent grade chemicals are used for all analyses performed. Procedures for receipt at the laboratory, labeling reagent bottles and preparation of standards are detailed in Section 11 and the corresponding SOP.

4.3.4 Quality Control

Every NJ EPH batch contains (20 samples or less) contains the following lab QC samples:

- DFTPP every 12 hours
- 100ppb Continuing Calibration Check (CCC)
- Lab Solvent Extract Blank
- Lab Control Spike (LCS)
- Lab Control Spike Dup (LCSD)
- Silica-gel Fractionation Check
- Matrix Spike (Aqueous if provided enough sample volume)
- Duplicate (Aqueous if provided enough sample volume)

4.3.5 Laboratory Glassware

Glassware used within the operational laboratory is cleaned according to method requirements. Specific details can be found in the SOP.

4.3.6 Maintenance of Laboratory Instrumentation and Equipment - Please refer to Section 11.3 and method specific SOPs.

4.3.7 Instrument Calibration Requirements - Please refer to Section 6.0 and method specific SOPs.

4.3.8 Sample Collection, Preservation and Handling - Please refer to Section 5.0 and method specific SOPs.

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4.3.9 Analytical Methodology – NJ EPH Method performed is accepted and approved by the NJ Department of Environmental Protection for the matrices and analytes of interest. This method is referenced in laboratory SOP.

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5.0 Sample Handling

The validity of a sample analyzed is, at best, only as good as the techniques used when collecting and handling said samples. Proper sample collection, handling and preservation techniques are imperative in order to impede the biological and chemical transformations that occur once a sample is removed from its parent source. The following summarizes steps taken to maintain sample validity.

5.1 Sample Containers

Pre-cleaned "Class A" sample containers, as required by EPA and the TNI Standards, are provided by the laboratory at no charge to the client via Eurofins Spectrum Analytical's online system or Sample Container Request Form (see Appendix D). Each shipment has available a certificate of analysis documenting that the glassware is reagent free for target compounds of environmental analyses. The certificates of analysis are scanned, kept on file electronically and backed up by IT. Sample containers are purchased pre-preserved from the vendor or are preserved and tested by lot as needed by the laboratory before being delivered.

5.2 Sample Acceptance Policy

Eurofins Spectrum Analytical is committed to maintaining the integrity of all samples submitted for laboratory analyses. If there is any question or concern regarding the integrity of a sample, the Laboratory Director is notified and immediate action is taken.

All samples submitted must have durable labels attached to each container identifying the sample ID, site location, and/or project number and the collection date written in indelible ink. The ESA-MA employee receiving samples must review the information on the Chain of Custody for completeness and inspect all the sample containers to ensure proper labeling and sample integrity. Any corrections to COC information must be made by using a single horizontal line to strike through the incorrect entry and they must initial and date the correction. The COC is then signed and the date and time of possession are recorded. The duplicate copy of the COC is given to the client as documentation of receipt. Eurofins Spectrum Analytical retains the original COC for the final client report and laboratory files. Please see Appendix D for an example of the Chain of Custody, sample label and Custody Seal.

The acceptance of any sample is based on the following criteria:

- Full and complete documentation, including sample collector's name on the COC
- The identification of a sample container is not questionable or unidentifiable

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- The sample collection date is within the holding time of analysis specified
- There is sufficient sample
- The sample is properly preserved and it is in the appropriate container
- VOA vials do not contain air bubbles of sizes greater than 1% of the vial volume

Please refer to Eurofins Spectrum Analytical's website under Sampling for the "Table Recommended Containers, Preservation, Storage & Holding Times" for correct sample containers, preservation, and holding times.

The Sample Department will contact clients in regards to any samples considered to be of unsatisfactory condition. Documentation of this notification will be attached to the COC for record keeping purposes.

Analysis of any samples deemed unsatisfactory will be conducted only with client approval and will be documented in the following manner:

- The unsatisfactory condition will be noted on the COC and supporting documentation
- The condition of the samples as received in the laboratory will be noted on the final report.

5.3 Sample Receipt Protocols

The following checks are performed upon laboratory receipt of samples:

(1) Check the temperature of samples:

- ESA-MA determines the temperature of samples.
- A notation of the temperature reading will be recorded on the Chain of Custody record along with a notation of how the samples were received (e.g: on ice, refrigerated, ambient).

(2) Verify the integrity and condition of all sample containers:

- Check for leakage, cracked or broken closures or containers, evidence of grossly contaminated container exteriors or shipping cooling interiors, obvious odors, etc.
- The VOC department does a check for air headspace or bubbles in VOC containers and samples are qualified if detected.
- Were cooler custody seals present? Were custody seals intact?

Any compromised conditions will be noted on the COC and supporting Sample Integrity Form (See Appendix D).

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(3) Verify COC information for completeness:

- Clients name in the *Report To* section
- Site name and location
- Sample identification, collection date, and matrix
- Type and number of each sample container
- Sample preservation
- All requested analyses should be clearly indicated
- The COC is relinquished by the sampler

(4) Verify receipt of complete documentation on the label for each sample container:

- Sample identification
- Collection date and time
- Site name and/or client project number
- Verify that the sample information on the label corresponds to the sample information on the COC

(5) Verification of Sample Preservation

Field preservation of any sample must be clearly documented on the COC. Any preservation should be performed in accordance with the tables within this section. Any sample preservations that are inadequate or not performed by the sampler are corrected prior to assigning samples to laboratory departments with the exceptions noted below.

- In order to maintain sample integrity and alleviate possible volatile loss, samples for the determination of Volatile Organic Compounds will be checked for pH and chlorine residual (EPA 524.2) after the samples have been analyzed. The results will be documented in the appropriate logbook and the correct qualifier will be indicated on the final report.

- The pH will not be checked on any samples for microbiology testing. All bacteria sample bottles are tested to insure that adequate dechlorinating agents are present. This information is documented along with the sterility of the containers.

- The Inorganic Department will conduct any necessary pH adjustments of samples for the determination of Trace Elements by ICP or ICP/MS after sample filtration if necessary.

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- Samples submitted for the petroleum hydrocarbon analysis such as method 1664B will be checked by the analyst for pH. In the event that the sample contains noticeable hydrocarbons, the Pasteur pipette will be rinsed with the method solvent to insure that no hydrocarbons have been inadvertently removed.

The Log-In Analyst will conduct all other laboratory preservation of samples.

- An aliquot is tested against litmus paper by touching a disposable pipette to litmus paper to verify the sample pH. Litmus paper is never inserted into the sample.

(6) Evidentiary Samples

Samples received with a legal Chain of Custody are logged-in in the same manner as non-evidentiary samples, with the exception that they are stored in a secure location. Access is monitored by designated personnel. Sample movement is tracked by the LIMS. Eurofins Spectrum Analytical's sample disposal policy is not applicable to evidentiary samples; clients are notified prior to storage time expiration for direction to hold or dispose of remaining samples. Clients must notify the laboratory that a sample must be handled under legal COC procedures prior to receipt. See the SOP for Sample Documentation and Login for specific details.

(7) Sample Confirmation Email

Upon entry into the Laboratory Information Management System (LIMS), the sample receipt conditions are emailed to the client. Below is an example of information included in this notification.

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The following outlines the condition of samples for the attached Chain of Custody upon receipt.

Were cooler custody seals present?	Answered Yes or No
Were custody seals intact?	Answered Yes, No or N/A
Were samples received at a temperature of ≤ 6°C?	Answered Yes or No
Were samples cooled on ice upon custody transfer to laboratory representative?	Answered Yes or No
Were samples refrigerated upon custody transfer to laboratory representative?	Answered Yes or No
Were sample containers received intact?	Answered Yes or No

Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	Answered Yes or No
Were samples accompanied by a Chain of Custody document?	Answered Yes or No
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	Answered Yes or No
Did sample container labels agree with Chain of Custody document?	Answered Yes or No
Were samples received within method-specific holding times?	Answered Yes or No

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5.4 Sample Tracking

Upon receipt of samples, the information listed on the Chain of Custody is transferred into the Laboratory Information Management System (LIMS). The computer then assigns a unique, sequential laboratory identification number for each Chain of Custody with a unique identifier extension for each sample and container. In order to ensure that there may be no confusion regarding the identity of any sample, it is henceforth identified as this number. A sequential log is maintained for all samples received to assist in tracking purposes.

5.5 Storage Conditions

Samples are stored in the receiving area refrigerator or freezer until sample log in is complete. At this time, the Log-In analyst will properly label each sample container with the unique laboratory ID number and distribute them to the appropriate operational department(s) after verifying sample integrity and preservation. Security within the facility is maintained at all times so that only authorized personnel have access to samples. The facility is equipped with a state of the art alarm system. Important notes about storage are listed below:

- Laboratory refrigerator temperature is maintained at a temperature of $\leq$6°C and not frozen; freezers are maintained at $\leq$-10°C. Refrigerator and freezer temperature is monitored continuously with hourly readings by electronic probe to ensure compliance with this guideline. Two consecutive readings are taken at 6:00 AM and 6:30 AM and again at 7:00 PM and 7:30 PM. If the two consecutive readings are out of compliance, a temperature exceedance alert is generated and corrective action is taken.

- Sample fractions, extracts, eluates, leachates, digestates, etc. are stored in accordance to EPA guidelines as specified in the applicable method utilized to prepare or analyze the sample.

- Samples and all sub-samples, sample fractions, extracts, eluates, leachates, and digestates are stored separately from all standards, reagents, and cleaning supplies.

- Samples to be analyzed for VOCs are stored in a separate refrigerator specified for VOC samples only.

- Storage blanks are placed in all refrigerator and freezer units that hold VOC samples in both the sample login area and VOC lab. The blanks are appropriate to the type of samples being stored (e.g. Deionized Water blank held in the low level VOC freezer) and are stored in each unit for 14 days. At that point, they are removed, logged into the LIMS system and analyzed for VOCs and GRO in a batch with all necessary QC samples. The data is validated by the QA Department and evaluated for any potential laboratory contamination. Detections in a VOC storage blank may result in qualification of that analyte in affected samples, narration, client contact and/or maintenance action to eliminate the source of the contamination. The QA Department will notify the VOC department and Validation Team of detections as necessary to coordinate any corrective actions.

5.6 Sample Disposal

All samples are disposed of after 60 days unless otherwise specified for return to the client. Samples are kept refrigerated for 14 days. They are then removed from the refrigerators, boxed and labeled with the appropriate disposal date, and kept in the sample staging area for the remaining 46 days. Sample fractions, extracts, eluates, leachates, digestates, etc. are refrigerated for 40 days before being disposed of.

The Sample Disposal Technician, under the supervision of the Health & Safety manager, is responsible for all sample disposals. All samples and sub-samples are disposed of in a manner consistent with all applicable federal, state, and local regulations and in accordance with Eurofins Spectrum Analytical's Chemical Hygiene Plan, available upon request.

International soils are disposed of in accordance with the United States Department of Agriculture (USDA) soil permit requirements, as indicated in the Eurofins Spectrum Analytical's International Soil Disposal SOP. International soil samples are kept in a locked refrigerator for a minimum of 14 days. They are

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then removed under the supervision of the Health & Safety manager into a lock box located near the refrigerator. After 60 days from receipt, the soil samples are moved to a locked disposal storage cabinet for the Microbiology department to autoclave prior to disposal. When the samples are removed from the locked disposal storage cabinet, the analyst enters the IDs into a logbook identified as the International Soil Sterilization Record. This record includes the sample ID and the date and time of sterilization.

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6.0 Calibration Procedures and Frequency

Laboratory equipment and instrumentation must be calibrated at periodic intervals as outlined by governing agencies, applicable methodology, and/or by the manufacturer's recommendations. The nature and frequency of such checks are summarized in each applicable SOP. All calibrations are traceable to primary standards of measurement. Where the concept of traceability of measurement to primary standards is not applicable, the laboratory provides evidence of correlation or accuracy of test results. The laboratory maintains appropriate records of all calibrations, instrument tunes, and in-service checks of instruments and other equipment.

Each operational department keeps a maintenance logbook for each instrument to track routine maintenance due to instrument malfunction and/or troubleshooting. The Department Manager and the QA Department review these maintenance logbooks periodically.

6.1 Equipment Calibration Information

Measurement devices, such as balances and thermometers, are verified using standards whose calibrations are traceable to the National Institute of Standards Traceability (NIST). A certificate of the calibration is generated by the certifying agency and maintained on our network. Balance calibrations are verified daily using S-Grade, Ultra Class weights and independently on an annual basis through by an ISO accredited vendor. All refrigerator thermometers are substantiated annually against the laboratory's NIST certified thermometer. The NIST thermometer and reference weights are verified and certification is renewed on an annual basis by an ISO accredited vendor.

6.2 Instrument Calibration Information

General calibration information for laboratory instrumentation is listed in Tables 6.1-6.4 in Appendix E. For specific information regarding calibration procedures, please refer to laboratory SOPs.

6.3 Standard Traceability, Preparation and Handling

All standards used for calibrations are either ISO certified or certified by the supplier through analysis with EPA certified or NIST traceable weights and measurements.

The commercially prepared stock standards require dilution to the working concentration. Comparing the new working level concentration against the previously prepared lot checks the accuracy of the dilution. The preparation of working standards may be tracked through the LIMS and Standard Preparation Logbook by date of preparation and/or assigned ID. The analyst preparing the

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working standard records the weight/volume, concentration and vendor lot number of stock standards used, the type of solvent used, his or her initials, the date of preparation and the date of expiration. The vendor reference codes may be cross-referenced to a separate inventory logbook that lists all neat or stock standards received by the laboratory, the date of receipt, vendor, and lot number.

New volatile working standards are prepared from these stocks each week. Semi-volatile stock standards are prepared every seven weeks and working level standards are prepared every four to six weeks, depending on the laboratory consumption rate. Pesticide stock standards are prepared yearly; working level standards are prepared every two to four weeks, depending on the laboratory consumption rate. Alachlor standard stocks are also prepared yearly, with working level standards prepared approximately every two to three months, but not to exceed six months.

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7.0 Standard Operating Procedures and Test Methods

Standard Operating Procedures (SOPs) have been created in accordance with EPA approved methods and state developed methods, such as the MA DEP EPH/VPH and NJ TPH methodology. For procedures that do not have specific method references, Eurofins Spectrum Analytical has developed and tested the procedures followed and then created the corresponding SOP. Eurofins Spectrum Analytical reserves the right to designate select SOPs containing technical knowledge of methods and technology as proprietary information. Complete copies of proprietary SOPs are not provided outside of the lab. Copies of the cover page may be provided if clients require evidence an SOP is in place.

Standard Operating Procedures (SOPs) are in place within each department in the laboratory for each method and/or procedure performed. They are designed to outline the procedures to be followed for the applicable method or administrative function. The Master List of all SOPs is maintained and kept within the QA Department. A copy of the SOP Master List, current at the time of this revision of this QA Manual is located in Appendix F. An updated copy is available upon request.

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7.1 Standard Operating Procedure Development and Modification

It is the QA department's responsibility to initiate updates in SOPs due to change in protocols, EPA and state method modifications, state regulatory agency correspondence, method cancellations or new methods. Included in each SOP are references for the method performed. Each operational department reviews SOPs at the beginning of the calendar year for possible revision and on an as needed basis through the rest of the year. Comments on possible modification or revision are due to the QA Manager within one month. SOP revision consists of the following steps:

A. The Laboratory Director, QA Manager or Department Manager will assess the need to update, revise, or create a SOP. In all cases a standardized form must be completed stating the name of the SOP and the modifications that wish to be made or the reason for creating a new SOP. The form must also explain why this is occurring; i.e. method changes, internal procedure changes, or new instrumentation. This form is kept on file within the QA Department. See Appendix F for example of SOP Modification Form.

   If the form originates from the Laboratory Director or QA Manager, it is given to the Department Manager. The Manager must then modify or develop the applicable SOP and return it to the QA Manager for review within the designated timeframe.

   If the form originates from the Department Manager, it must be given to the QA Manager for evaluation. The QA Manager and Laboratory

Director will either approve or deny the request. When approved, the Department Manager must complete the modification or development within the designated timeframe and return the SOP to the QA Manager for approval. When denied, the form is kept on file by the QA Department.

B. The Laboratory Director will conduct the final review of the SOP revision for approval and implementation. The SOP must include the date of revision and be signed and dated by the analyst or manager that has created or modified the document, the Section Team Leader or QA Manager and the Laboratory Director. The date of implementation is the date the SOP is signed by the Laboratory Director.

Once finalized, a controlled copy is uploaded in the SOP program and assigned to the applicable analyst(s). All assigned personnel must immediately read and sign the updated SOP. The SOP program maintains a record in the Compliance Grid of who read each SOP revision and when. The QA Manager uploads and assigns the controlled copy and immediately inactivates the old revision. Old SOP revisions are archived electronically. The changes made to the SOP are documented in the Revisions section of each SOP.

Updates to Eurofins Spectrum Analytical Comprehensive Quality Assurance Manual are similarly performed. Changes are documented in the Revisions section. Once a new revision is finalized and signed by senior management, all laboratory personnel are notified that the QAM has been updated. The QAM is uploaded into the SOP program. All SAI personnel are instructed to read the sections that apply to them and sign-off in the SOP program attesting that they have read, understand and agree to abide by the requirements detailed in the QAM. This acknowledgment is retained within the SOP program.

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7.2 Documentation of SOPs

The QA department maintains the original SOPs electronically in a folder on the network with restricted access. The current revision is uploaded into the lab's SOP program and all applicable personnel are assigned the SOP to read. An automatic email is sent to the assigned personnel and the department management to alert them that an SOP has been assigned to them to read. An individual may review the SOP and acknowledge that they have read and understood the document through the program. In addition, the program maintains a record of who has or has not read an assigned SOP, if any pages from the SOP have been posted in the lab, the date of the last annual review and will notify the user when the next annual review is due. It is the responsibility of the QA department to update SOPs in the program when a new revision is

created and replace any posted pages with the updated version. Only the most current revision of each SOP is available to personnel at any time.

When modifications are made, the revision number must be changed to reflect this. SOPs are numbered sequentially.

SOPs must be kept within the laboratory unless the Laboratory Director gives permission for them to be taken off the premises.

SOPs are available to clients upon request and are marked as an 'Uncontrolled Copy'. The QA department is not responsible for collecting 'Uncontrolled Copies' when a revision is made.

All of the SOPs are copied onto a 4.7GB DVD. One copy is kept in fire-resistant safe and another copy is stored off-site. The DVD is updated with each new SOP or modification.

7.3 Test Methods

Experienced analysts perform test methods. The complete procedure, including standard preparation, extraction/digestion, sample preparation, instrumentation used, calculations, and data interpretation/validation is documented in Standard Operating Procedures (SOPs). An electronic copy of the current method is maintained on our network and the SOP Master List references the version currently used for each method. When a method version is changed, the out-dated copy is removed from the network by the QA department and replaced with the updated version. In this way, the departments will only have access to the current method revision.

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8.0 Internal Quality Control Checks

The analytical and quality control requirements for each sample are performed via the Laboratory Information Management System (LIMS). The LIMS is accessible from any workstation. A system of specific analysis codes is used to schedule the appropriate analytical procedures and the QC samples required to be processed with each batch of samples.

8.1 Laboratory Quality Control Samples

Various quality control (QC) procedures are associated with the methods run by the laboratory. These procedures are defined in the laboratory SOP for each method. The type and frequency of QC samples are specified by methods and detailed in each SOP. Such methods include CLP Organic and Inorganic SOW methods, Test Methods for the Evaluation of Solid Waste (SW-846, most current update), Standard Methods for the Examination of Water and Waste, ASTM or methodologies as listed in the Federal Register (40 CFR Part 136 and 141, most current update).

All quality control checks meet the minimum requirements outlined below.

A. The laboratory will follow the minimum quality control requirements specified by each method.

B. In the event that no quality control requirements are listed in the method, or if the method quality control requirements are less stringent than those listed below, the laboratory will follow the minimum guidelines:

1. method reagent blanks
2. matrix spikes
3. quality control check samples
4. quality control check standards
5. duplicates or matrix spike duplicates
6. surrogates

8.2 Method Detection Limits/Reporting Limits/LOD Verification/LOQ

Described here are ESA-MA's policies for the determination of MDLs, RLs, LOD and LOQ. For specific details, please refer to our SOP for MDL/LOD/LOQ and the analytical SOPs. These documents are available upon request. The Method Detection Limit (MDL) also known as the Limit of Detection (LOD) is defined as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero" and is determined from analysis of a minimum of seven prepared blank spikes. Method detection limits are determined according to procedures given in 40 CFR

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Part 136, Appendix B. http://www.ecfr.gov/cgi-bin/text-idx?SID=2bad19ea8d6db04e2c8f7666ddb00943&node=ap40.23.136_17.b&rgn=div9 MDL studies are performed during method validation studies to establish a base value. Updates to the MDL on all instruments/methods will be performed every twelve months by carrying out a new study or by completion of a Limit of Detection (LOD) Verification analysis. MDL updates are also done when new instruments are put on-line, if the configuration of the instrumentation is significantly changed, or if the sample preparation method is modified.

Limit of Detection (LOD) Verification is defined as an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD verification is analyte, matrix, extraction and instrument specific and may be laboratory dependent. ESA-MA uses the concentration of the Detection Check Standard (DCS) for the LOD verification. LOD verifications are analyzed either quarterly or annually, depending on the accrediting agency's requirements.

Limit of Quantitation (LOQ) is defined as the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence or the lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard. ESA-MA defines the LOQ = RL. LOQs are analyzed either quarterly or annually, depending on the accrediting agency's requirements.

For DOD projects, the requirement is that the LOQ be equal to or no greater than 3 times the LOD verification and that the lowest calibration standard determines the LOQ. In general, the lowest value ESA-MA may use, (for non-DOD) as a reporting limit is the method detection limit. However, because the MDL as defined above is known to allow the reporting of false negatives, ESA-MA generally uses a value that is greater than the MDL. For organic and general chemistry tests, a standard at the reporting limit is generally included in the initial calibration. For metals tests, the reporting limit is a set value greater than the MDL (ideally three to five times the MDL). If samples are analyzed for compliance with regulatory programs that have requirements for reporting limits that are greater than normal reporting limits, the reporting limit may be adjusted up to the regulatory limit. The MDL based on the above discussion, are dynamic values, which are expected to vary as a result of the periodic detection limit studies. The reporting limit is a static value (as a general rule) with the flexibility to be adjusted to meet project requirements provided that it is not lower than the most recently determined MDL. Although standard policies may be set for determination of normal report limits, the specific report limit for each target must be reconsidered for every sample by viewing the applicable analytical data.

Detection and reporting limits are adjusted to reflect dilutions, reductions in the initial aliquot of sample prepared (due to limited volume/mass of original sample

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or reduction in volume/mass prepared based on knowledge of the sample) or in the case of soil samples, moisture content (unless directed otherwise by the client, e.g., DoD). Dilutions are required to analyze samples within instrument or calibration constraints, and the presence of moisture in soil samples always results in increased limits.

8.3 Sample Dilution Policy

When possible, based on in-house screening results and physical characteristics of the sample/sample extract, samples are analyzed without dilution to achieve the lowest reporting limits feasible for the method requested. Data from in-house screening is not performed with all method required QA/QC and therefore is not reported. If screen data and/or physical characteristics note significant concentrations of target compounds may be present the original analytical run is performed at a dilution.

Additional runs are performed if over or under dilutions are initially performed on a client sample. The analytical run with the lowest reporting limit is included in the final report and multiple runs may be reported if target compounds exceed the instrument calibration range in the original run.

Samples containing target compounds that exceed the instrument calibration range generally cannot be analyzed with a lower dilution factor, however depending on the sample matrix, target compound and final concentration, and method requested additional runs can sometimes be attempted. Please contact your laboratory representative on the feasibility of this deviation for a specific project or sample location.

8.4 Selectivity

All data is thoroughly checked by the analyst and the manager for each department. Unusual or inconsistent results are confirmed either by running a duplicate or by other procedures specific to each method. These procedures are listed in the method SOPs. Also contained in the method SOPs are the acceptance criteria for calibration and mass spectral tuning.

8.5 Method Validation

Before using any method, an initial demonstration of capability must be completed successfully. This includes MDL/LOD studies, IDC studies, and any other procedures specific to each method.

8.6 Control Charts

Control charts are a useful tool when monitoring the quality system within the

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lab. Spike recoveries are plotted on quality control charts on a continuous basis as a means of ascertaining whether an out-of-control condition is a result of systematic or random (statistical) error. Eurofins Spectrum Analytical has a Control Chart program that automatically searches the LIMs for trending analytes. It emails the department when any analyte is trending ± 5% of the acceptance range. A minimum of 30 data points are used to generate the charts and also show standard deviation, the mean, 2S and 3S lower and upper limits for review. Data points will only be excluded when there is a scientifically valid reason to do so. Department managers, or their designee, will review the control chart for trending and out-of-control situations. When an out-of-control condition is indicated on a control chart, the nature of the condition is used to determine the type and extent of corrective action (if required). An explanation for each out-of-control data point will be documented into the control chart program. Corrective actions can include, but are not limited to, instrument maintenance, replacing a degrading standard or recalibrating an instrument that is showing repeated problem. Statistically based limits will only be applied when the control limit range is at least as tight as the appropriate regulated or EPA-approved method-specified range. See the analytical SOP for specific details.

Upper and Lower Control Warning Limits = 2 sigma
Upper and Lower Control Limits = 3 Sigma (used for in-house limits)

$$stdev = \sqrt{s^2} = \sqrt{\frac{\Sigma(y-\bar{y})^2}{n-1}}$$

Where: y = each individual value used to calculate the mean
$\bar{y}$ = the mean of n values
n = the total number of values

8.7 Estimation of Uncertainty

Estimation of Uncertainty consists of the sum (combining the components) of the uncertainties of the numerous steps of the analytical process, including, but not limited to: sample plan variability, spatial and temporal sample variation, sample heterogeneity, calibration/calibration check variability, extraction variability and weighing variability.

Estimation of Uncertainty in Measurements (Laboratory portion) shall be provided to clients upon request. Calculation of this uncertainty estimation may be done using the “Quality Control-based nested approach Uncertainty Spreadsheet” (DoD Navy Document). For those analyses that do not include all the QC types needed to use the nested approach (i.e. various Inorganic analyses), the standard deviation of 20 LCS points may be multiplied by a factor of 2 to achieve the uncertainty estimation.

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9.0 Data Reduction, Validation, Reporting and Records

9.1 Data Reduction and Validation

Data generated from the analyses of samples is reduced according to protocols outlined in each operational department's SOPs and the SOP for Departmental Validation Procedures. Each data reduction process for each laboratory is slightly different, but all follow a similar core procedure. The instrument operator first reviews the data generated at the instrument. This includes review of raw data and verification of all method and project specific QC requirements. In addition, the operator is responsible for adding data flag qualifiers and a notation on the bench sheet of any unusual situations or observations. The operator has a variety of data and format checker programs to aid in review. The data is uploaded automatically from the instrument to a Laboratory Information Management System (LIMS) for a secondary peer review/Manager review. A third review of the data by the Validation Team is done with an emphasis on overall quality. The final review is that of the laboratory director who signs off on the data. 100% of laboratory samples undergo this procedure. In addition, clients that request data deliverable packages are subject to the review detailed in section 10.3.

No results may be released in any form unless the work has undergone the validation procedures as described below up to and including the team validation step. The transmissions of any results subsequent to final validation are identified as a draft or are qualified by the following statement: *'Please Note: Data contained within this report has undergone primary validation but may be subject to change pending final validation and QC review.'*

Data validation occurs at each step during sample processing.

- Sample integrity is documented in Sample Reception (i.e. containers, preservation, and temperature). All criteria listed on the Sample Integrity Form is documented and initialed by Sample Department personnel.

- Once the information has been logged into the LIMS, another member of the Sample Department verifies the information entered into the LIMS against the Chain of Custody. This step insures that all information, including collection date and time, matrix, preservation, due dates and special instructions have been entered into the LIMS system correctly. The Quality Services Section Team Leader oversees this process.

- Each analyst verifies the information on the sample container against the bench sheet or applicable backlog. The analyst must initial the bench sheet,

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indicating that the sample information has been noted and is correct and that the method hold-times have been met. In addition, the analyst is indicating that method guidelines have been met and that quality control is within criteria. Other items checked include the data file upload, result accuracy, dilutions, surrogates, and, if applicable, sample qualifiers. Electronic signatures may be used to denote analyst review of raw data. Access to electronic employee signatures is controlled by employee ID and password. An electronic signature is considered equivalent to a hand-written signature. Once data is entered and reviewed in the LIMS the status is updated to analyst reviewed.

- The Department Manager or Assistant Manager will validate the batch for quality control/quality assurance, accuracy, data consistency and proper use of applicable data qualifiers. In addition the Manager will verify that only requested compounds are reportable and insure that the proper results have been selected. The Manager or Assistant Manager will sign the bench sheet indicating this review has been conducted and update the status of the samples to Manager Reviewed in the LIMS.

- The Validation Team will validate each work order. Each work order will be reviewed for quality control/quality assurance compliance, data consistency and data correlation. Each work order will be checked to ensure that regulatory limits have been met. Each work order will be reviewed to ensure that the proper sample and/or analyte qualifiers have been applied then updated to Validated.

- The Quality Service Department will check all information on the report for accuracy against the chain of custody. Once again, the data listed on the chain of custody will be compared to the information logged into the LIMS. All special requests (i.e. method detection limits, specific methods and special sample requirements) will be checked against the final report. In addition, the Quality Service Department will verify that all forms (i.e. state report forms, VPH, CAM or RCP forms) are accurately completed and attached to the final report.

- The Laboratory Director will review the final report for overall data quality and consistency. The Laboratory Director will sign all reports and pertinent forms. In the Laboratory Director's absence, authorized senior management will review and initial the report with the Laboratory Director's electronic signature. Higher management has access to only their own electronic signature on the network for signing electronic documents. Authorized senior management has access to the laboratory director's signature solely to sign lab reports in their absence. The status of the samples will then be updated in the LIMS to Reported.

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- Each step in the data reduction and validation procedure can be tracked through the audit trail in the LIMS.

9.2 Report Format and Contents

The results of each analysis are provided in a report and include all of the following information.

- Name and address of laboratory
- Each laboratory report is uniquely identified by the work order number, and the date and time of report issue. The pages of each laboratory report are identified as the number of the total report pages.
- Name and address of client, project name and contact person
- Identification of the samples including client sample identification
- Date and time of sample receipt, sample collection, and sample analysis (if needed for analysis with a holding time of 48 hours or less)
- Identification of test methods used
- Sample and/or analyte qualifiers
- Correct reporting units (i.e. ug/L, mg/Kg, mg/Kg dry, ppbv, etc.)
- Method MRL (adjusted for dilution factors and/or, if necessary, % solids)
- Identification of all analyses supplied by subcontracted laboratories
- A listing of current laboratory certification is maintained in the LIMS. This information is pulled through onto the laboratory report in the form of a checkmark in the certification column on the laboratory report. A checkmark denotes the laboratory was currently certified for the analysis/analyte at the time of analysis.
- The signature and title of the person accepting responsibility for the content of the laboratory report
- A statement that the laboratory report shall not be reproduced except in full, without the written approval of the laboratory

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The transmission of any tests results, in any form, including electronic, will be within the guidelines described within this section and section 1.2 to insure that confidentiality is preserved.

Amendments made to any analytical report after issue is made only in the form of a further document, which includes the statement "Revised Report".

Drinking water samples submitted for total coliform analyses that show a positive presence are confirmed for E.coli. Clients are notified immediately by both telephone and, if applicable, facsimile or e-mail, to notify them of the positive result. They are informed to not use water from the sample source until disinfection and confirmation for negative coliform has been performed.

Clients are also notified via facsimile or e-mail of all samples that exceed any EPA maximum contaminant level (MCL), maximum residual disinfectant level or reportable concentration within 24 hours of obtaining valid data. Laboratory reports for finished drinking water samples note the maximum contaminant level, maximum residual disinfectant level, secondary maximum contamination level and/or Massachusetts Office of Research and Standards Guidelines (ORSG). See www.mass.gov/eea/agencies/massdep/water/drinking/standards/standards-and-guidelines-for-drinking-water-contaminants.html for additional information.

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9.3 Records and Document Control

Chains of Custody forms and other original documentation are scanned and saved electronically. Electronic files are backed up by the IT department. Data that has been archived (i.e. no longer in direct possession of the applicable department) is controlled by the IT department. Laboratory personnel may view archived data via a searchable, read-only archive. Direct access to archived data that involves moving or restoring files is restricted to IT only and documented by an access log.

All sample data produced is written to the file server. This data backed up onto magnetic tape daily and remains on the file server for a two month time period. After which, the files are backed up onto 4.7 GB DVD-R discs monthly as defined in the SOP for Laboratory Computers.

One copy of each monthly backup disc is stored in the IT Department at the Silver Street facility. The other copy is stored in a fireproof cabinet by the Technical Director at the Almgren Drive facility. The discs are kept for a period of ten

years. The IT Manager is responsible for all data archiving, maintenance and retrieval.

All instructional materials posted within the laboratory space are subject to Eurofins Spectrum Analytical's document control system. A controlled copy of the document is issued by the Quality Assurance department and a record of the document name, any relevant page numbers, the issue date and its location is maintained. Posted instructions are reviewed by the applicable department on an annual basis for accuracy. Posted materials that are not instructional in nature are exempt from the document control policy. Examples of exempt materials include non-instructional posters, regulatory limits, notes regarding sample preparation status such as what time a step will be completed, reminders not related to an analysis such as to check that doors are closed, current lot numbers of reagents in use and instrument out-of-service signs. Postings of an instructional nature would include excerpts from SOPs, checklists, calculations, method criteria, reminders that apply to an analysis such as how long a leachate sample may rotate, logbooks and emails with directions how to handle a sample or project. ESA-MA personnel may consult the QA department with any questions if a document is instructional in nature.

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9.4 Transfer of Records

In the event Eurofins Spectrum Analytical (Agawam, MA Division) changes ownership or closes, the transfer of ownership of client records would be required.

If Eurofins Spectrum Analytical transfers the ownership of the laboratory to a new owner, ESA-MA would expect that record retention would be negotiated and made part of any purchase contract, and that the new company would maintain all required NELAP and other certifying agency documentation. The responsibility for maintenance, control, storage and eventual disposal at the end of the appropriate time period, of all records, including client data and QA/QC files, will transfer to the new owners. Since NELAP and other agency certification would likely be one of the attractive aspects of the laboratory to a purchaser, it is unlikely that a new owner would not want to maintain the appropriate records and certifications. In the event a new owner did not want to maintain past records, Eurofins Spectrum Analytical would notify all clients and make these records available to them for a reasonable fee. Clients would be given a minimum of 30 days to determine if documents are needed or not.

In the event Eurofins Spectrum Analytical decides to cease operations, clients will be notified prior to the cessation of operations and their files/records will be made available to them for a reasonable fee. Clients would be given a minimum of 30 days to determine if documents are needed or not. If the client determines they do not want to maintain the records, these will be disposed of properly.

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10.0 Performance and System Audits

Both the internal and external audits are conducted regularly to maintain the quality objectives of the laboratory, to develop analysts' proficiency and to evaluate management performance. Internal audits are conducted throughout the year and managed by the QA Manager. External audits are initiated by clients in the form of spiked samples or by other outside agencies through proficiency tests and on-site assessments.

10.1 External Performance Audits

Eurofins Spectrum Analytical performs all necessary external audits to meet NELAP, DoD and State certification requirements. On occasion external performance audits are in the form of Proficiency evaluation samples submitted by clients as regular samples. In addition we perform the following scheduled performance studies:

Air (AE), Water Supply (WS), Water Pollution (WP) and Soil/Hazardous waste studies are performed twice a year as indicated in the TNI Standards. In order that we may report multiple methods, Eurofins Spectrum Analytical uses an approved commercial vendor for all chemical PT studies.

Microbiological PT studies are performed for the New York Environmental Laboratory Approval Program. In addition, an approved commercial vendor is used to meet the criteria of the Massachusetts Department of Environmental Protection.

All PTs are treated in the same manner as client samples, including being logged into our LIMS, assigned to staff, analyzed and reported. PT reports are submitted to our various accrediting agencies within 21 days of the study closing. Any Unacceptable PT results are investigated for the cause and a detailed corrective action with root cause analysis is presented, as required by the TNI Standards and the DoD QSM. Upon completion of the follow-up audit and within 30 days of the final study report being issued, copies of all PT corrective action reports are forwarded to our accrediting agencies as required.

10.2 External System Audits

State certification officers, other laboratories, and potential clients regularly audit Eurofins Spectrum Analytical. Any state that ESA-MA holds certification in or is currently obtaining certification from is eligible to conduct an audit at any time during normal business hours. Notification of a scheduled audit is requested to ensure that staff is available.

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Each department manager and the QA Manager record deficiencies noted during an audit. Corrections are made to comply with the regulations. Upon receiving the results of any audit, a meeting of all department managers is arranged to discuss the results. Unsatisfactory results are addressed and corrective actions presented. Any modifications that were initiated due to the audit are finalized as part of the new QA/QC procedure and are included as a revision to the appropriate SOP. This ensures compliance with the agency-mandated regulations.

10.3 Internal Performance Audits

The QA Department conducts an annual Internal Audit according to a schedule issued at the beginning to the year. Any changes to the schedule must be documented along with the reason why. The Internal Audit reviews all aspects of our quality system from sample pick up through the entire analytical process. Audits are conducted in addition to the daily QA procedures. Audits reflect laboratory performance under normal operating conditions. This review may include the analysis of blind samples. Blind samples submitted for the audit are prepared by the QA Department, Technical Director or purchased through an approved vendor. The samples are logged in under a fictitious client. The Laboratory Director, Technical Director and the QA Department are the only personnel aware of the audit samples. The QA Department compiles all data and submits an audit report to the Laboratory Director. If requested, the Laboratory Director and/or the QA Manager will hold a meeting with the department managers to discuss the results and any corrective actions that may be necessary. The results and any necessary corrective action reports are then filed with the QA Department. The QA Department itself is audited by a third party to ensure impartiality. This audit covers documents control, corrective actions and their effectiveness, review of data packages for completeness and accuracy, and compliance with regulatory agencies and internal policies.

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In addition to the annual Internal Audit, Observational Audits are performed on a regular basis. Each month, the QA Department selects an analysis from each operational department for review. The auditor observes the analyst performing the analysis to ensure they are following all steps in accordance with the SOP and method. The results and any necessary corrective action reports are then filed with the QA Department.

In depth laboratory performance monitoring is also done on a continual basis by the review of data deliverable packages. ESA-MA routinely provides these packages to clients, which includes Sample Receipt Documentation, CLP-like summary forms, copies of instrument calibrations, raw Batch QC and sample data, standards preparation sheets, analytical run logs, laboratory bench sheets and a case narrative. At a minimum, 10% of all level 4 data deliverable packages are

thoroughly reviewed for technical completeness and accuracy. Packages are prepared by the analysts, reviewed by the departments and reviewed again by the QA manager or a designee from sample receipt to the final report. The Quality Assurance department monitors that method requirements are being strictly followed. Any QC failures, deviations or analysis issues are thoroughly documented in the case narrative and noted by the QA department.

A client question regarding their results will prompt an investigation by the QA department. Clients are informed of the results of the investigation and if their data is affected in any way. If a quality issue is detected, a corrective action is presented and the client is notified within three business days or sooner.

10.4 Internal System Audits

The Managerial Team conducts internal system audits a minimum of once per year to ensure that all departments are operating accurately and observing all QA requirements. The following items are verified during an internal system audit:

- Standard Operating Procedures being followed
- Computer system/network archival done on schedule
- LIMS is inspected to ensure the integrity of electronic data
- Chemical hygiene/safety practices being followed
- Sample handling/storage/disposal practices followed
- Logbooks recorded and stored in correct manner
- Gas storage and inventory kept according to internal policy

Department managers are apprised of any deficiencies in their department detected during the internal system audit. These are recorded and discussed at the next management team meeting. Corrective Action Reports issued for Internal Systems Audit deficiencies are documented and filed with the QA Department.

10.5 Management Review

Results of both internal and external audits are verified by the QA Manager and submitted to the Laboratory Director for final review. Any data that falls outside established acceptance criteria results in an investigation. The outcome of the investigation, along with suggested corrective actions, is documented and submitted to the Laboratory Director for review and final action. A follow-up

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audit is done afterwards to ensure that the corrective action has been implemented and is effective. A response indicating corrective actions to be taken may be required when errors or deviations are found in proficiency tests or during laboratory audits. Reports generated in response to external audits will address any problems found and the corrective actions to be taken. These will then be submitted to the agency conducting the audit, if applicable, and all appropriate laboratory departments for implementation.

On an annual basis all Standard Operating Procedures (SOPs) are reviewed by departmental management and modified as necessary for continuing suitability and effectiveness. Method SOPs are compared to the method being performed upon annual review. The outcome and corrective actions from all internal audits and assessments from external bodies are included in a Memo to the laboratory director. The resulting corrective actions are reviewed at a minimum annually to ensure they are being enforced. The following items are recorded and addressed weekly in the Section Team Leader Meeting: feedback from clients, complaints, changes in the volume & type of work undertaken, resources, staffing and training. All departmental managers are reviewed on the QA activities of their department within their annual performance review. The objective here is to continually improve the effectiveness of the management system.

The laboratory director in conjunction with the QA staff, taking the following factors into account, prepares an annual Management Review:

- Suitability of SOPs, policies and procedures;
- Reports from weekly Section Team Leader meetings, internal audits and departments manager's updates
- Clients feedback and complaints;
- Reports from external audits;
- Corrective Action Reports
- PT results;
- Changes in volume and type of work;
- Recommendations for improvement;
- Other relevant factors such as quality control activities, resources and staff training;

The Annual Management Review report will be discussed at a meeting with the Laboratory President, Director, QA manager, corporate President and corporate QA Director. Action items from the Management Review are recorded and addressed within an agreed upon time frame. If any actions are not completed within that time frame, the reason for an extension will be documented.

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11.0 Facilities, Equipment, Reagents, and Preventative Maintenance

ESA-MA utilizes two state-of-the-art facilities in Massachusetts that include high-tech instrumentation and data processing equipment for organic, inorganic, wet chemistry, microbiology and mixed waste. All electronic data is controlled by ESA-MA's Laboratory Information Management System (LIMS). Laboratory personnel access the LIMS database via individual usernames and passwords at computer terminals located throughout the facility.

After hours access to the building is restricted to authorized personnel only. The burglar and fire alarms are monitored by an outside security agency, which will contact the appropriate laboratory personnel and local agencies in the event of an emergency. Each employee has a personal identification code for after-hour entry and exit through the main entrance.

The heating and cooling environmental controls activate and deactivate automatically to maintain temperature control in each of the separate building zones. All temperature critical equipment, such as refrigerators, freezers, incubators, analytical instrumentation, and ovens are monitored regularly to ensure proper and consistent temperature. All refrigerators, freezers, incubators and select ovens are monitored by electronic probe thermometer 24 hours a day/7 days a week. Temperature readings are recorded hourly with two consecutive readings recorded at 6:00 & 6:30 AM and at 7:00 & 7:30 PM to monitor performance. If either of the two consecutive AM or PM readings are outside the acceptance limits, an email alert is sent to upper management to ensure that any needed service is conducted promptly. During unstaffed hours (evenings, weekends, holidays), temperature exceedances will trigger a phone alert system that texts assigned personnel who will come in to address any out of control situations. Readings are documented in the laboratory's Temperature Probe Program; specific details can be found in the laboratory's SOP. Electronic probes are calibrated quarterly against a NIST certified thermometer.

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Each operational department (volatile, semivolatile, inorganic, wet chemistry, microbiological) has separate rooms, which are equipped with fume hoods, chemical storage cabinets, and all required safety equipment.

Eurofins Spectrum Analytical's management team is dedicated to providing a healthy and safe working environment for all employees and visitors by taking all necessary measures to achieve and maintain compliance with Occupational Safety and Health Administration (OSHA) standards. The OSHA Hazard Communication SOP and a complete Health and Safety Plan is available upon request.

11.1 Laboratory Facilities

11.1.1 11 Almgren Drive – Agawam, MA

This building consists of approximately 12,000 square feet utilized by the Sample

Login, Semivolatile, Inorganic, Wet Chemistry and Microbiology Departments, in addition to a training center and cafeteria. For security reasons, floor plans may only be viewed onsite.

11.1.2 830 Silver Street – Agawam, MA

A 10,000 square-foot building, located at 830 Silver Street, Agawam, houses the following departments: all administrative offices to include: Laboratory Director, Marketing, Quality Service Department, Quality Assurance, Accounting, IT Departments and two state-of-the-art laboratories; namely the Volatile Organic Department and Air Division. This building is 1500 feet from our 11 Almgren Drive location. For security reasons, floor plans may only be viewed onsite. The following description indicates the square footage of the two operational departments at this location.

11.1.2.1 Volatile Organic (VOC) Department

An area consisting of 1,037 square feet houses a new state-of-the-art VOC Laboratory. This area has counter tops, hoods, proper ventilation and assigned cubicles for analyst's data processing.

11.1.2.2 Air Laboratory

An area consisting of 610 square feet houses a new state-of-the-art Air Laboratory. This area has counter tops, proper ventilation, explicit piping for the instrumentation and cubicles for analyst's data processing.

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11.2 Laboratory Reagent Storage

Laboratory reagents are stored according to the chemical hygiene plan (available upon request). All storage areas are properly ventilated and meet all safety guidelines. All reagents are labeled with the date received. See Table 11.1 in Appendix G.

11.3 Equipment and Reference Materials

Records are kept for each piece of equipment in the laboratory. Logbooks are kept for each instrument to document maintenance performed. Detailed records are kept by the administration, which include such information as serial numbers; dates received and date placed in service. All laboratory logbooks (both hardcopy and electronic) are peer reviewed for completeness, accuracy, proper format and documentation of corrections on a periodic basis.

Please refer to the specific analytical SOP for hardware maintenance and troubleshooting and the IT SOPs for software maintenance.

11.4 Documentation and Labeling of Standards and Reagents

Standards and reagents are entered into the LIMS and printed upon receipt. Recorded are vendor name, date of receipt, expiration date, and lot number. The standard pages can be retrieved from the LIMS. In addition all certificates of analysis received from vendors are scanned into the LIMS with the associated unique standard/reagent ID assigned by the LIMS. Reagents are kept in their original containers whenever possible. If transferred, they are put into clearly labeled containers and marked with name of reagent/standard, date received, date opened, lot number, concentration, and expiration date.

All standards and/or reagents used for calibration are either ISO certified or certified by the supplier through analysis with EPA certified or NIST traceable weights and measurements. The commercially prepared standards require dilution to the working concentration. Comparing the new working level concentration against the previously prepared lot checks the accuracy of the dilution. The preparation of working standards may be tracked through the Standard Preparation Logbook by date of preparation. The analyst preparing the working standard records the weights, volumes, concentrations, vendor lot number of neat standards, type of solvent used, initials, date of preparation and date of expiration. The vendor reference codes may be cross-referenced to the logbook/LIMS that lists receipt of all standards and reagents received into the laboratory.

Working level volatile standards are prepared weekly. Semi- volatile stock standards are prepared every seven weeks and working level standards are prepared every four to six weeks, as needed. Pesticide stock standards are prepared yearly and working level standards are prepared every two to four weeks, as needed. Alachlor stock standards are prepared yearly and working standards prepared approximately every two to three months.

11.5 Computers and Electronic Data Requirements

ESA-MA's data is managed by a laboratory information management system (LIMS) called Element DataSystem, produced by Promium. It manages the data for all samples being processed by the lab, and operates on a Microsoft SQL Server.

The LIMS is an all-inclusive data management system for the lab. Each sample is logged into the system upon receipt, and the LIMS tracks its progress as it travels throughout the lab. Backlog reports, QA/QC data reporting, data import from the

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instruments and final client reports is all possible using the LIMS. A detailed instruction manual on its use and operation is available in the IT Department. Clients would be notified of any software updates or changes to the LIMS configuration that could adversely affect their electronic data.

The LIMS also features configurable user rights and privileges, which protect data from accidental damage by an employee. Each employee is given only rights to the portions of the program that they need to complete their job. This ensures that no employee can change or manipulate data that they do not have the responsibility to change.

Internet access is made available exclusively to administrative personnel for research purposes. This research may consist of access to the DEP, other regulatory agencies, or instrument manufacturers. Internet access also allows for e-mail communication with clients, and allows ESA-MA to serve their website on an in-house server.

In addition to hard copies, clients with email access can receive final reports and Electronic Data Deliverable (EDDs) in a variety of electronic file formats. These include Microsoft Access, Excel, Word, PDF, and simple text. These files are automatically generated by the LIMS. Clients may request EDDs in customized formats. The IT Department reviews specialized EDD formats and tests the deliverables using data and format checkers to ensure accuracy. Example EDDs may be sent for client approval prior to implementation.

Raw data created by the instruments is organized by month and stored on the file server. Each month, the IT Department is responsible for archiving one month's worth of data as part of the backup procedure. All data produced within the last two months remains on the file server at any given time.

All vital computer data is backed up nightly to both onsite and removable media. This includes all data from the LIMS database, file server, accounting software database, and web server.

11.6 Preventive Maintenance

The operational condition of instruments is one of the keys to successful completion of analytical tasks. ESA-MA commitment to instrument maintenance assures clients that equipment will be available to generate the required data

Each department has their own contingency plan as well as backup instrumentation, which virtually eliminates downtime. In order to prevent any possible cross contamination, instruments that are dedicated to volatile compound detection are physically separated from all other laboratory departments.

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Preventive maintenance as well as major instrument repairs can be accomplished on site. An in-house stock of critical spare parts allows for complete and rapid repair. ESA-MA maintains service agreements with instrument manufacturers to further assure the operational viability of all in-house equipment. In case of major equipment failure approved subcontractor laboratories are available to perform analyses on short notice.

The hardware tunes and calibration of the instruments are documented in the instrument logbooks kept in each area. If an instrument fails tuning or calibration criteria, hardware adjustments and/or appropriate maintenance is performed and documented. The analyst repeats the tune and calibration attempt. If the second attempt is successful, this is noted in the sequence logbook and sample analysis may proceed. Sample analyses may not proceed without an acceptable calibration.

Qualified senior analysts perform routine preventive maintenance adeptly as part of the training program. A vendor-provided manual outlining the proper use of each instrument is maintained within the operational department. Included in these manuals are procedures for calibrating and performing preventive and routine maintenance.

Preventive maintenance checks and services required for all instrumentation may be found in the specific SOP. Maintenance log books and service records are maintained permanently in each department.

Ancillary equipment, balance, ovens, refrigerators, etc. are monitored and maintained on a daily basis to assure operational readiness.

11.7 Inspection/Acceptance Requirements for Supplies and Consumables

Chemical standards are ordered and received from various vendors and are examined for damage or missing ampules. Each standard is individually logged into the LIMS indicating the date received, vendor, product name, lot number and expiration date. All packaging slips are also initialed for accuracy and maintained with the accounting department. The Certificate of Analyses is scanned into the LIMS and attached to the assigned Standard ID number. The Material Safety Data Sheets (MSDS) are then given to the Health and Safety Manager and filed in a binder for right-to-know purposes. All chemicals used within the laboratory (such as methylene chloride, hexane, etc.) are checked for damage and missing items and are then released to the manager of the department for their use.

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12.0 Routine Procedures Used to Evaluate Data Quality

Acceptance criteria used are established within the specific method, or by Eurofins Spectrum Analytical's QA Department. Eurofins Spectrum Analytical may establish acceptance criteria for any method performed that does not have recommended acceptance ranges. If QC data falls outside the acceptance range the information is documented and the QC standard must be rerun to verify that all data analyzed is valid.

Quality control samples used to verify the data include method blanks, laboratory control spikes, calibration check samples, matrix spikes, matrix spike duplicates, and field duplicates. See Table 12.1 in Appendix H for Concentration Levels for QC Samples.

12.1 Method Blanks

A method blanks is prepared at the frequency specified by the reference method. The purpose of the method blank is to ensure that the glassware, reagents, standards, and personnel or sample preparation environment do not introduce contaminants. For volatile analyses an instrument blank is analyzed during each sample set to confirm that contaminants are not being introduced by components of the instrumentation or the analytical laboratory. See Table 12.2 in Appendix H for QC Frequency of Method Blanks.

12.2 Laboratory Control Samples, Blank Spikes, Standard Reference Material and Calibration Checks

Most Laboratory control samples are analyzed at a continuing frequency equivalent to 5% of the samples of the analytical set (i.e., one every twenty samples). The data is reviewed and entered into the LIMS as part of the QA procedure. See Table 12.3 in Appendix H for the QC Spike Frequency.

A calibration check sample is analyzed with each batch of samples. The check sample is compared to the original curve and the relative percent deviation is calculated.

12.3 Surrogate Recoveries

Minimums of three surrogate standards are added to each organic sample requiring GC/MS analysis for volatile and acid/base neutral compounds. Samples are fortified prior to extraction, purging, and digestion or distillation. For pesticide analysis, at least one surrogate is added to each sample. Inorganic and organic matrix spikes and LCS spikes are similarly fortified with spike standard solutions containing target analytes of interest. The recovery of these standards is quantitatively measured during analysis, and historical records of the percent recovery for each sample are maintained in the control chart database. Surrogate

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and spike compound recoveries must meet acceptance criteria before the analytical data will be reported and released. In some instances the sample matrix may produce interference, which adversely affects recoveries. Surrogate recovery interference must be confirmed by preparing and analyzing the sample again for confirmation. When a matrix spike test fails spike recovery criteria, the LCS must be analyzed. If the LCS analysis fails, the batch must be reprocessed; if it passes, the matrix effect is confirmed and a QA notice qualifies the affected data. Depending on the type of discrepancy identified, corrective action may involve reporting the data as is with a laboratory qualifying notice. When an analyte does not meet criteria for RPD in inorganic duplicates, a data qualifying flag accompanies the analyte result in accordance with the CLP reporting convention.

12.4 Matrix Spikes and Matrix Spike Duplicates (MS/MSD)

At least one sample from a set of samples (or 5%, whichever is greater) of a similar matrix will be prepared and analyzed by a specific method. See Table 12.4 in Appendix H for MS/MSD Spike QC Frequency.

12.5 Duplicates

At least one sample in a set with a similar matrix will be selected and analyzed in duplicate. Field duplicates are run when provided by the client. See Table 12.5 in Appendix H for Duplicate QC Frequency.

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13.0 Corrective Actions

Conditions that adversely affect the quality of analyses are classified as either isolated conditions or systematic conditions. A third condition is referred to as a bias or random error. The corrective actions implemented are determined by this classification. Random errors are unavoidable circumstances, which are reflected in the unpredictable fluctuations that occur during analytical sequences.

Corrective action procedures are also referred to in each method specific SOP. Due to specifics of methodologies, the corrective actions for quality control issues for microbiology are detailed in the SOPs.

13.1 Isolated Conditions

Most isolated conditions are identified during routine data validation, and are restricted to single samples, batches, or data reports. Data validation includes surrogate and spike standard recoveries, relative percent differences between duplicates, internal standard response variations, and method blank contamination. If the quality control acceptance criteria are exceeded, the corrective action is limited to the affected sample or batch. (See Tables 13.1 through 13.4 in Appendix I)

13.2 Systematic Conditions

Systematic conditions adversely affect entire analytical systems, projects, data integrity, sample integrity, security and safety. These assessments are made by the Laboratory Director, Technical Director or QA Manager during review of summary QA/QC reports or during an internal or external audit. An unacceptable result on a Performance Evaluation (PE) study or internal blind study may also be an indication of a systematic problem. The following is a list of other sources of systematic conditions:

- Variations in temperature on successive days in a sample storage refrigerator
- Unsatisfactory spike recoveries on multiple laboratory control samples
- Glassware, sample or standard storage contamination
- A noncompliance with SOP
- Deviations in documentation or procedures
- Obliterations, write-overs, or other improperly corrected data

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- Expired standards in the refrigerator
- Open or unlabeled waste containers
- Inadequate hood velocity
- Recurring, inconsistent conditions observed on control charts
- Unsatisfactory internal quality checks for positive and negative controls for microbiological analysis

The systematic conditions are documented and corrective actions are initiated. This indicates who is responsible for correcting the problem, the root cause of the problem, what action is taken, and a date for implementation. If client data is affected, all applicable clients are notified within three business days or sooner from the discovery of the issue. The noncompliance issue is closed once laboratory management has determined that all corrective actions are in effect.

For failed proficiency test results managers are responsible for determining why the parameter failed and, if necessary, implementing revised procedures to ensure the error does not occur again. In the case of analyst error, the managers must document specific details and may have the analyst repeat precision and accuracy and initial demonstration of capability studies.

Any changes to approved corrective actions developed to address findings during DoD assessments must be approved by DoD accreditation body.

13.3 Instrument Checks

Initial calibration verifications (ICV) are analyzed after the initial calibration and prepared from a source different than used for initial calibration. An acceptable ICV must be obtained before sample analysis can begin. They verify the accuracy of the calibration. If the percent recoveries of the known analytes do not meet the method or ESA-MA's internal QC requirements, the following procedures are implemented:

- Locate and correct source of the problem
- Reanalyze the ICV
- Recalibrate the system

System and solvent blanks are run before any samples to ensure that the system is functioning properly. This also ensures the system is free of contaminants. If the

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blank fails, another will be run. If the blank fails a second time, the following corrective actions will be taken:

- A notation will be made in the sequence logbook
- Check the reagent blank for background/cross contamination
- Check deionized water for contamination
- Check/prepare new internal standards
- Use fresh solvents
- Rinse syringes using appropriate solvent

For purge and trap systems:

- Bake the trap
- Clean spargers/tubes

For GC systems:

- Bake the column
- Clean and bake injectors and detectors

Continuing calibration check (CCC) standards are run after the blank. They verify the precision of the system and also validate the continuing calibration of the method. If the percent recoveries of the known analytes do not meet the method or ESA-MA's internal QC requirements, the following procedures are implemented:

- Check if quantitation procedures are properly followed (i.e., retention times, peak areas, response factors, internal standard references)
- Rerun QC standard from the same batch to determine if the problem was because of the analyst's performance or instrument malfunction
- Run a fresh QC from a different standard to verify the calibration
- Recalibrate the system

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13.4 Departure from Documented Procedures

The Laboratory Director and Quality Assurance Manager have the right to deviate from documented Standard Operating Procedures. This may occur when the normal corrective action procedures are not followed due to the type of analysis or clients needs. All deviations are noted on bench sheets for record keeping purposes. An example of when this may occur is if a client is trying to determine field-type qualitative data rather than quantitative results. These deviations are documented and the client is notified of laboratory procedures prior to data being released. All associated work orders are narrated in the final report.

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14.0 Review of Requests, Tenders and Contracts

All proposed plans for new work are directed to the Quality Assurance Manager, the plan is then reviewed in its entirety. The plan is broken down to the appropriate management staff to ensure that the requirements of the plan can be attained.

14.1 Distribution of project plan among Management Team.

- Quality Assurance Manager reviews that all required certifications and quality controls can be met. The Quality Assurance Manager also reviews any necessary Quality Assurance Manuals and certifications from subcontract laboratories.

- The Technical Director, Organic Section Team Leader and Department Manager reviews the organic requirements to ensure that instrumentation, personnel, methods, analyte lists and detection limits can be met. The Technical Director, Organic Section Team Leader and Department Manager determines and initiates any calibrations, standards, MDL studies and proficiency testing if necessary. If project data quality limits are not specified, current laboratory reporting limits will be applied.

- The Technical Director and Biochemistry Section Manager reviews the inorganic requirements to ensure that instrumentation, personnel, methods, analyte lists and detection limits can be met. The Technical Director and Biochemistry Section Manager determine and initiate any calibrations, standards, MDL studies and proficiency testing if necessary.

- Laboratory Director assesses the number of samples and analyses to determine an appropriate turn around time sufficient to the required quality control parameters of the project. The Laboratory Director and Courier Manager also oversee sample pickup and glassware requests for new projects.

- Deputy Director of Quality Services reviews any reporting formats or electronic data deliverable (EDD) necessary for the project and provides pricing to the client. If changes are necessary from our standard format, the Deputy Director of Quality Services will coordinate with the IT Manager to make the changes. The Deputy Director of Quality Services reviews all analyses for sub-contract. The sub-contract laboratory certifications and Quality Assurance Manual are verified at this time and updated if necessary. See Section 15 for Laboratory Sub-Contract procedures.

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14.2 Results of Review.

a. Based on the final review of the Management Team, the client is notified of any potential conflicts, deficiencies, lack of appropriate accreditation status or any other inability to meet the client's request. This notification will occur in writing or by telephone. Once conflicts have been resolved, final agreements will be documented in writing. The Laboratory Director makes the final decision for work to commence.

b. If all project requirements can be accomplished, the Laboratory Director makes the final decision for work to commence.

c. If a contract needs to be amended after work has commenced, either by the client or by changes within the laboratory, the same contract review process shall be repeated and any amendments shall be communicated to all affected personnel.

14.3 Record Maintenance

a. The Quality Assurance Manager maintains records of review and Quality Assurance Project Plans.

b. All other documents are held within the office of the Laboratory Director.

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15.0 Subcontracting and Support Services and Supplies

15.1 Subcontracting Laboratory Services

Any analyses not performed by Eurofins Spectrum Analytical will be sent only to an approved subcontract laboratory certified for the analysis. This includes ensuring that the subcontracted laboratory holds the appropriate certification, when certifiable, for the type of samples; for example: DoD, ISO or NELAP accreditation. The selection of subcontractors is approved upon evaluation conducted by the Laboratory Director, Quality Assurance and Quality Service Departments in order to ensure quality, deliverable, and service. When a new subcontract laboratory is selected, Client Services enters the sub lab's information into LIMS but leave the status inactive until all documentation is received. The Accounting Department initiates a request to the sub lab for all the required documentation. Upon receipt of the sub lab's Quality Assurance Manual and certification (if applicable), the QA Department makes the sub lab active in LIMS. The Accounting Department requests that subcontract laboratories submit revised Quality Assurance Manuals (if applicable) and updated certifications on an annual basis. See ESA-MA's SOP for Subcontracted Analyses for details.

Upon designating analyses to be subcontracted a Subcontract Work Order is generated through the LIMS. A Subcontract Work Order identifying the receiving laboratory, site location, client project number, laboratory sample id, collection date and time, number and type of sample containers, preservation, and the subcontracted analyses will accompany every sample. Any special reporting requests, such as State reporting forms, Data Deliverable packages, MCL exceedance reports or project specific/regulatory reporting limits will be highlighted in the comment section of the Subcontract Work Order. The following information regarding subcontracted analyses is kept on file:

- A copy of the subcontract laboratory's certification
- A copy of the subcontract laboratory's Quality Assurance Manual
- A copy of the subcontract laboratory report including the Chain of Custody document.

A notation of any subcontracted analysis is documented on the final laboratory report provided by Eurofins Spectrum Analytical.

15.2 Outside Support Services and Supplies

Eurofins Spectrum Analytical utilizes only reputable service technicians and vendors whose services meet the internal standards of quality. A listing of all support services and suppliers are kept on file and are available for review.

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Eurofins Spectrum Analytical Comprehensive Quality Assurance Manual Revisions

Revised October 2016

- Removed all but two most recent revision logs.
- Section 2.1: Organizational Structure - Added Lean Project Manager position and description of responsibilities. Updated Information Systems Department description of responsibilities. Replaced Wet Chemistry Manager with Raquel Thomas. IT no longer a managerial position and replaced with Joel Navaroli.
- Section 2.3.a: Quality Assurance Managerial Organization – Updated positions with current titles.
- Section 2.4: List of Key Personnel and Positions – Added Kevin White as Lean Project Manager.
- Section 3.6: Preventative Action – Added entire new section.
- Section 5.2: Sample Acceptance Policy – Added sample label and custody seal as examples.
- Section 5.5: Storage Conditions – Revised lab refrigerator temp range from 4°C +/- 2°C to $\leq$6°C and not frozen.
- Section 6.1: Equipment Calibration Information – Clarified balance weights are certified annually by an ISO 17025 accredited calibration vendor.
- Section 7.0: Standard Operating Procedures and Test Methods – Added ESA will not distribute proprietary SOPs.
- Section 9.2: Report Formats and Contents – Added finished drinking water lab reports include the MCL, SMCL and ORSG values.
- Section 9.3: Records and Document Control – Added archived data is monitored by an access log.
- Appendix A – Updated website link.
- Appendix C – Updated organizational structure with current staff.
- Appendix D – Added example of sample label and custody seal.
- Appendix E: Table 6.3 – Updated chart with current ICV criteria for ICP metals and Mercury. Updated CCV criteria for mercury and Anions by 300.0. Added footnotes for Mercury and 200.7 Metals. Removed all references to 525.2 and 552.2, as those methods have been discontinued.
- Appendix F – Updated with current SOP Master List.
- Appendix H – Updated chart with current MS/MSD frequency for 608, 200.7, 200.8 and 245.1. Removed all references to 525.2 and 552.2.
- Appendix I – Table 13.2:
    - Updated chart to see lab for specific analyte control limits for 608, 624, 625.
    - Updated with current BS/BSD RPD for 1664.
    - Updated with current BS/BSD control limit for Cyanide, 524.
    - Removed all references to 525.2 and 552.2.
- Appendix I – Table 13.3
    - Updated chart to see lab for specific analyte control limits for 608, 624, 625,
    - Updated with current MS/MSD control limits and RPD for 1664.
    - Updated with current MS/MSD control limit for Cyanide.

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- Removed all references to 525.2 and 552.2.

Revised April 2016

- Section 1.1: Added Mission Statement as section 1.1 and renumbered subsequent sections.
- Section 2.1: Organizational Structure - Removed "Support the QA Departments of all three laboratories as needed" from QA Manager responsibilities. Added to Lab Director that must notify AB if absent for 35 days.
- Section 2.1: Organizational Structure – Revised Operation Department responsibility from review logbooks daily to review logbook within prescribed frequency.
- Section 2.1: Organizational Structure – Revised Technical Director responsibilities. Changed job title for Organic Section Team Leader to Operational Support Manager and revised responsibilities.
- Section 2.4: List of Key Personnel and Positions – Revised Christina White's title from Almgren Technical Director to Technical Director and updated references throughout QAM. Revised Wesley Bryon's title from Organic Section Team Leader to Operational Support Manager
- Section 8.6: Control Charts – Clarified who is responsible for reviewing control charts.
- Section 9.1: Data Reduction and Validation – Clarified overall data validation procedures. Revised to note authorized senior management (formerly Technical Director only) may sign reports in the Lab Director's absence.
- Section 10.3: Internal Performance Audits – Clarified that QA reviews a minimum of 10% of all level 4 data deliverable packages. Added Observational Audit procedure.
- Section 11.5: Computers and Electronic Data Requirements – Updated entire section with current IT procedures.
- Appendix C: Updated organizational structure.
- Appendix F – Updated with current SOP Master List.
- Appendix H – Updated with current equipment inventory list.

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APPENDIX A

STATE CERTIFICATIONS

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Please refer to our website for a posting of our current certifications. They are available at the following link: www.eurofinsus.com/environment-testing/laboratories/eurofins-spectrum-analytical/resources/certifications/

Comprehensive Quality Assurance Manual

APPENDIX B

SECTION 1 ATTACHMENTS

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eurofins	Document Title: Eurofins' Ethics Policy Statement		
	Eurofins Document Reference: N/A	Revision: 1	Historical Reference: N/A
	Effective date : 01/01/2014	Status: Effective	

Our Company was built on the foundation of high integrity and ethical laboratory practices. To preserve this standard we have a clear expectation that each of us take personal responsibility to do the right thing and uphold the highest level of ethics and quality in all of our dealings.

Here are the ethical responsibilities required of us:

- Each and every one of us is expected to adhere to the highest professional and ethical standards. Each employee commits to honest and ethical practices in all daily actions.
- No one will intentionally improperly manipulate or falsify activities in <u>any</u> way.
- Ethical performance and data integrity MUST supersede any other objective of laboratory operations.
- Each employee bears ultimate responsibility for the validation and accuracy of his or her documentation. The analyst's signature signifies that the action taken to generate the data and the documentation are accurate and authentic, and confirm that all proper procedures were followed in the generation of the data in real time.
- Eurofins takes a zero tolerance stance for illegal, unethical, and improper practices affecting the testing process. Each employee is responsible for safeguarding the Lab's ethical practices. For this reason, each employee is responsible to report any situation that may be adversely affecting the quality and integrity of the data produced.
- It is vital that all employees take responsibility to preserve our ethical business practices. Employees who know of, or witness any violation of business, quality, or data integrity policy are required to report the activity to an Ethics Officer, Quality Director, or member of Senior Management. A timely and thorough investigation will occur to remedy any situation regarding these allegations.
- Any employee who knows of or witnesses any violation of business, quality, or data integrity policy, but fails to report it will be subject to disciplinary action.
- During a thorough investigation, the Ethics Officer, and/or Senior Management, will assess the situation and resolve the matter. Since data integrity is so vital to our business practices, any employee found willfully falsifying or manipulating data will be released from employment.
- The Ethics Officer, or Senior Management, in collaboration with appropriate staff, will complete a corrective action plan addressing the root causes. The action plan will be put in place and may include additional training or changes in policies and procedures. All those involved will receive confidential communication regarding corrective action steps taken to remedy the situation.

I understand and commit to these responsibilities. I understand the critical importance of data and business integrity compliance. I realize that any infractions of laboratory integrity procedures could lead to serious consequences including employment separation, debarment, or civil/criminal prosecution. I take personal responsibility to uphold the highest ethical business practices and report any concerns to help preserve Eurofins' integrity.

Name (Print)	Employee Number	Company Name

Signature	Date

Return signed document to US_HR@eurofinsus.com

eurofins	Document Title: Eurofins' US Quality Policy Statement		
	Eurofins Document Reference: N/A	Revision: 1	Historical Reference: N/A
	Effective date: 01/01/2014	Status: Effective	

We strive to provide the highest quality data achievable by:

- Describing clearly and accurately all activities performed; documenting "real time" as the task is carried out; understanding that it is never acceptable to "back date" entries and should additional information be required at a later date, the actual date and by whom the notation is made must be documented.

- Providing accountability and traceability for each sample analyzed through proper sample handling, labeling, preparation, instrument calibration/qualification/validation, analysis, and reporting; establishing an audit trail that identifies date, time, analyst, instrument used, instrument conditions, quality control samples (where appropriate and/or required by the method), and associated standard material.

- Emphasizing a total quality management process which provides accuracy, and strict compliance with agency regulations and client requirements, giving the highest degree of confidence; understanding that meeting the requirements of the next employee in the work flow process is just as important as meeting the needs of the external client.

- Providing thorough documentation and explanation to qualify reported data that may not meet all requirements and specifications, but is still of use to the client; understanding this occurs only after discussion with the client on the data limitations and acceptability of this approach.

- Responding immediately to indications of questionable data, out-of-specification occurrences, equipment malfunctions, and other types of laboratory problems, with investigation and applicable corrective action; documenting these activities completely, including the reasons for the decisions made.

- Providing a work environment that ensures accessibility to all levels of management and encourages questions and expression of concerns on quality issues to management.

We each take personal responsibility to provide this quality product while meeting the company's high standards of integrity and ethics, understanding that improprieties, such as failure to conduct the required test, manipulation of test procedures or data, or inaccurate documentation will not be tolerated. Intentional misrepresentation of the activities performed is considered fraud and is grounds for termination.

I understand the expectations and commit to providing quality data.

Name (printed) _____ Employee Number _____

Signature _____

Date _____

Return signed document to US_HR@eurofinsus.com

TYPICAL LABORATORY PROBLEMS AND UNACCEPTABLE AND ACCEPTABLE SOLUTIONS		
Problem	UNACCEPTABLE SOLUTION	ACCEPTABLE SOLUTION
Lack of time or resources to perform testing	Making up Data or Other Information – Creating data for an analysis that was not performed or creating information that is not true.	Analytical results for all samples and quality control (QC) must be based on actual analyses performed. Documented data must match actual data. Sampling information must be based on actual sampling events.
Hold time near or past	Improper Clock Setting (Time Traveling) or Improper Date/Time Recording – resetting the internal clock on an instrument to make it appear that a sample(s) was analyzed within a specified hold time when, in fact, it was not. Changing the actual time or recording a false time to make it appear that hold times were not met, or changing the times for sample collection, extractions, or other steps to make it appear that they were performed at the correct time when, in fact, they were not.	The recorded date and time of collection, preparation, or analysis must match the actual date and time that the action was performed. Documented dates and times must represent actual dates and times. Samples exceeding hold times must be reported as such; a case narrative is recommended.
DFTPP or BFB not meeting acceptance criteria	Improper GC/MS Tuning – artificially manipulating GC/MS tuning data to produce an ion abundance result that appears to meet specific QC criteria when, in fact, the criteria were not met.	GC/MS tuning data must be generated and reported according to proper techniques without manipulation of the peak or mass spectrum. Preventive/corrective action must be taken concerning data not meeting required criteria.
Calibration or QC data not meeting acceptance criteria	Improper Peak Integration (Peak Shaving or Enhancing) – artificially subtracting or adding peak area to produce an erroneous area that forces data to meet specific QC criteria when, in fact, the criteria were not met.	Instrument peaks must be consistently integrated and reported according to proper techniques, generally baseline-to-baseline, valley-to-valley, or a combination of the two. Pear area cannot be subtracted or added to force data to meet specified criteria. Preventive corrective action must be taken on instrument data not meeting required criteria.
Calibration or QC data not meeting acceptance criteria.	Improper Calibration/QC Analysis – a) Performing multiple (more than two) calibrations or QC runs (including calibration verifications, LCS, spikes, duplicates, and blanks) until one analysis barely meets criteria, rather than taking needed preventive/corrective action after the second failed analysis, and not documenting or retaining data for the other unacceptable data. b) Using the incorrect (previous) initial calibration to make calibration verification data appear to be acceptable when, in fact, they were not acceptable when compared to the correct initial calibration. c) Discarding points in the initial calibration to force the calibration to meet acceptance criteria. d) Discarding points from an MDL study to force the calculated MDL to be higher or lower than the actual value.	a) All calibration and QC data associated with sample analyses must be documented. Preventive/corrective action must be taken and documented if calibration and/or other QC criteria are not met. b) Acceptance of calibration verification data must be based on the correct initial calibration. c) Calibration points can only be rejected for inclusion in the calibration curve if a known error was made or if a statistical evaluation indicates that a point can be discarded. When multiple target analytes are included in each calibration standard, it might be necessary to discard selected upper or lower points for individual target analytes. Points can be discarded at the upper end of the curve if the linear range of the detector has been exceeded. For these cases, dilute samples that exceed the highest point of the calibration curve. Points can be discarded at the lower end of the curve if the detector is not producing a response. For these cases, the laboratory reporting limit must be adjusted accordingly. d) Data points for MDL studies can only be rejected for inclusion in the MDL calculation if a known error was made or if a statistical evaluation indicates that a point can be discarded.

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TYPICAL LABORATORY PROBLEMS AND UNACCEPTABLE AND ACCEPTABLE SOLUTIONS		
Problem	UNACCEPTABLE SOLUTION	ACCEPTABLE SOLUTION
QC samples or spikes not meeting acceptance criteria	Misrepresentation of QC samples and spikes – misrepresenting QC samples or spikes as being digested or extracted when, in fact, they were not actually digested or extracted. For example: a) Adding surrogates after sample extraction rather than prior to sample extraction. b) Reporting post-digested spikes or duplicates as pre-digested spikes or duplicates. c) Not preparing or analyzing method blanks and laboratory control samples (LCSs) the same way that samples are prepared or analyzed in order to make it appear that method blank or LCS results are acceptable when, in fact, they are not.	QC samples and spikes must be prepared, analyzed, and reported according to appropriate procedures. a) Surrogates must be added prior to sample extraction. b) Post-digestion spikes and duplicates must be reported as post-digested and must not be misrepresented as pre-digestion spikes and duplicates. c) Method blanks and LCSs must be prepared and analyzed the same way that samples are prepared and analyzed. Any QC results outside acceptance criteria must be reported as such; a case narrative is recommended.
Calibration or QC data not meeting acceptance criteria	File Substitution – substituting previously generated files (runs) for a non-compliant calibration or QC run to make it appear that an acceptable run was performed when, in fact, it was not.	Data must be generated and reported for actual analyses performed. Reported dates and times for all analyses must match actual dates and times. Substitution of files is not permitted.
Calibration or QC data not meeting acceptance criteria	Unwarranted Manipulation of Computer Software – unwarranted manipulation of computer software to force calibration or QC data to meet criteria, and removing computer operational codes, such as “M” flag.	Computer manipulation is allowed only for warranted reasons, and any manipulation should be minimal and traceable. Removal of computer operational codes is not permitted.
Analytical conditions for standards do not work for samples	Improper Alteration of Analytical Conditions – improperly altering analytical conditions, such as changing the instrument conditions for sample analyses from those used for standard analyses. Using different procedures to process sample data than those used for standards.	All sample analyses must be performed under the same conditions as those used for standard analyses. Any alteration of analytical conditions must be allowable under the method requirements. All sample data must be processed by the same procedures as those used for processing standard data. Any discrepancies must be documented.
Sample not analyzed at appropriate level or not reported at correct detection limit	Over dilution of Samples or Misrepresentation of Detection Limits – intentionally diluting a sample to such an extent that no analytes (target or non-target) are detected without justification as to why the high dilution was made. Reporting a detection limit that does not represent the sample analysis (e.g., not including dilution factor in sample detection limit).	Dilutions must be made on a reasonable basis, such as high concentrations of target or non-target analytes, matrix interferences, oily samples, and other components in the sample that could harm the instrument. Include details concerning the reason for the dilution in a case narrative. Sample detection or reporting limits must include dilution factors.
Noncompliance data	Deletion of Noncompliant Data – intentional deletion or non-recording of noncompliant data to conceal the fact that analyses were noncompliant.	All data associated with sample collection and analysis, including any out-of-control events or noncompliant data, must be documented and retained. Preventive/corrective action must be taken and documented for any noncompliant data.
Undesirable situation with analysis or sample; knowledge of unethical conduct	Concealment of a Known Problem – concealing a known analytical or sample problem from laboratory management and/or client. Concealing a known unethical behavior or actions from laboratory or corporate management.	Any knowledge of analytical or sample problems must be communicated to laboratory management and the client. Any knowledge of unethical behavior or actions must be fully communicated to laboratory or corporate management.

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APPENDIX C

Section 2 Attachments

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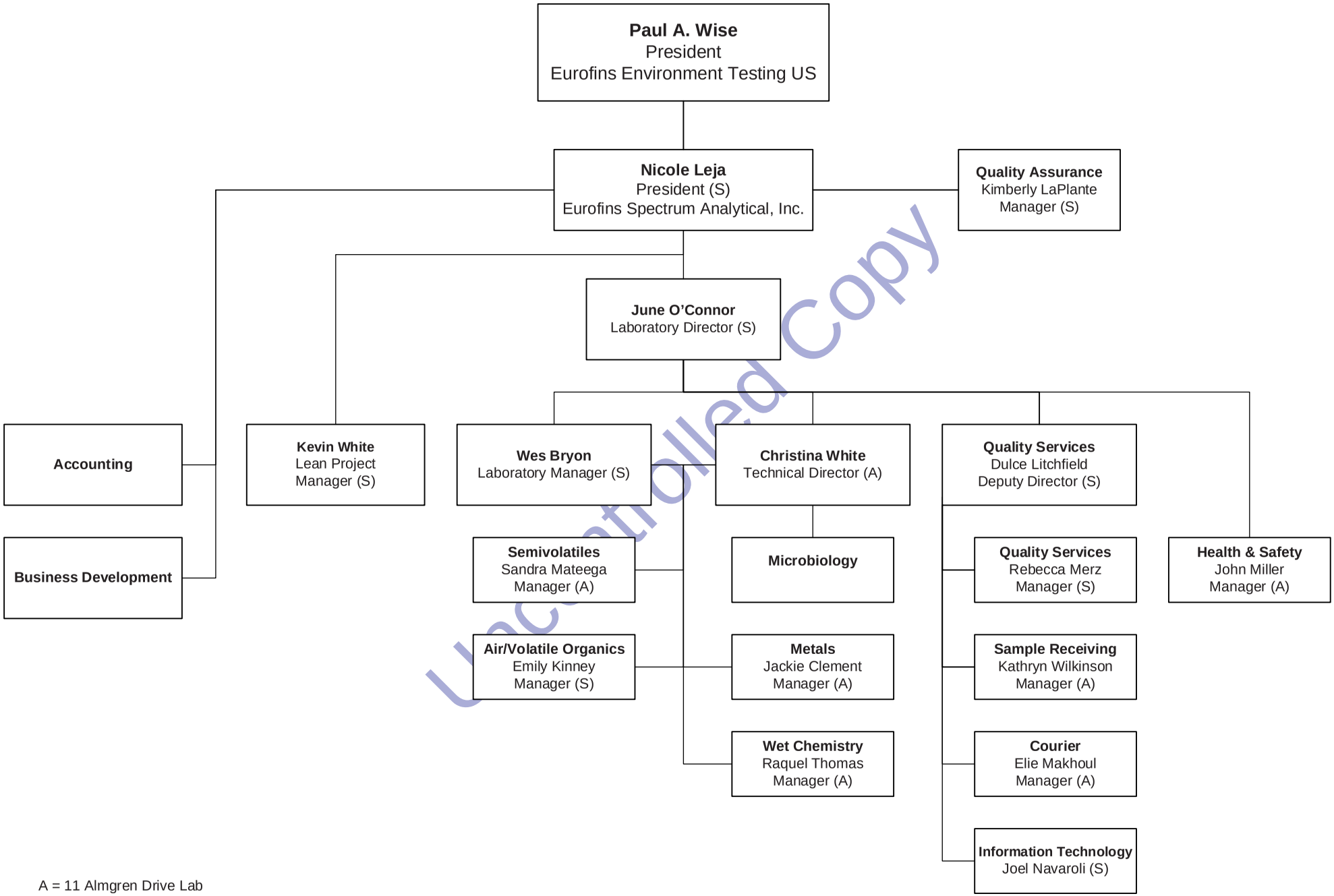
Eurofins Spectrum Analytical, Inc.



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A = 11 Almgren Drive Lab

S = 830 Silver Street Lab

Nicole Leja

11 ALMGREN DR., 830 SILVER STREET, AGAWAM, MA 01001
(413) 789-9018
FAX 413-789-4076
NICOLELEJA@EUROFINSUS.COM

Summary

Over twenty years of experience working in multiple departments of a full service environmental laboratory including VOC analysis, QA/QC, customer service and operations. Diverse skills include technical aptitude, excellence at handling multiple projects at one time, and positive communication with staff and clients. Performs data correlation and validation and assists with assessing the cost-benefits for projects and proposals as well as communicating on a corporate level with senior staff from the Rhode Island and Florida divisions. Works to prepare the capital budget and reviews the monthly financial statements to evaluate company performance.

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Professional Experience

Eurofins Spectrum Analytical, Inc. – Agawam, MA

- September 2015 President

Responsible for assisting with preparation of budget and meeting those goals for each calendar year. Responsible for profits and losses associated with business performance and ensuring operations meet internal and external expectations.

Spectrum Analytical featuring Hanibal Technology – Agawam, MA

- 2010 to September 2015 Laboratory Director and Vice President of Corporate Operations

Daily responsibilities include data validation and final review of reports, technical support to in-house staff and clients, and ensuring high priority jobs meet deadlines. Additional responsibilities include authorization of purchase orders, leading team manager meetings on a weekly basis, and communicating with managers regarding staff schedules and work volume. Supervises management and staff of over 85 employees and responsible for decision making in a team environment. Communicate with Laboratory Directors in the Rhode Island and Florida divisions to ensure optimum efficiency and productivity in all facilities and that corporate procedures are consistently followed.

- 2000 – 2010 Operations Manager

Manage all operational areas of the laboratory including organic and inorganic departments, assist with technical review of documents and data interpretation with clients. Data validation and review of reports are done on a daily basis. Key member of a team that implemented changing the Laboratory Information Management Software (LIMS) in 2002.

- 1998 – 2000 Assistant QA/QC Officer

Responsible for maintaining all state and laboratory certification for laboratory approved methods. Maintained and controlled QA Manual and all Standard Operating Procedure (SOP) manuals for the laboratory. Conducted internal audits and prepared official responses for outside audits by certifying agencies and clients.

- March 1996 – 1998 Analyst and Manager of VOC Department

Operated and maintained GC and GCMS instrument for the analysis of Volatile Organic compounds using purge and trap methodologies. Supervised staff and managed the daily workload for the department. Assisted the Laboratory Director with development and training for the MADEP VPH method.

Scientific Research Council, Energy Department – Kingston, Jamaica West Indies
1994-1995 Technician
Worked with a European based company researching methane gas technology. Operated pilot plants for anaerobic water treatment and analyzed wastewater samples. Collected and organized data with a team of international and Jamaican scientists to review and evaluate waste programs.

Education

December 1993	Holyoke Community College Holyoke, MA A.S. Environmental Science
Spring 2010	Westfield State College B.S. Environmental Science
Spring 2015	University of Phoenix MBA

Additional courses including Biology, Biochemistry, Inorganic Chemistry I and II
References available upon request

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JUNE A. O'CONNOR
LABORATORY DIRECTOR

EDUCATION
BA in Biology 1985
Central Connecticut State University, New Britain, CT

Postgraduate Program in Molecular Biology and Genetics
University of Connecticut, Storrs, CT 1985

PROFESSIONAL EXPERIENCE

Eurofins Spectrum Analytical, Inc.
Laboratory Director
September, 2015 to present

- The Laboratory Director is responsible for overall supervision of laboratory operations, overseeing all technical and administrative policies and procedures, as well as the enforcement and adherence to said policies by laboratory staff
- Is responsible for final data validation and approval of laboratory reports for data generated by both the 11 Almgren Dr and 830 Silver St facilities,;
- Provide technical support and onsite supervision of the operational departments located at 830 Silver St;
- Supervising the revision of and final approval of protocols and methodologies;
- Ensuring proper data deliverable and client services;
- Using information collected from all departments and client feedback, the laboratory director must conduct a review of the laboratory's quality system and testing activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements. Prepare an annual Management Review with these findings and ensure they are assigned and carried out in an agreed upon timeframe.

Spectrum Analytical, Inc.
Technical Director of Silver St and Microbiology
January, 2005 to 2015
Responsibilities:

- Maintaining overall good laboratory practices in both organic, air and Microchemistry
- Performs data validation
- Final review and approval of Microbiology data;
- Provides technical support to clients;
- Provides technical support for method development;
- Laboratory Director back up;
- Coordinates with Quality Assurance Department to ensure method compliance.

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Spectrum Analytical, Inc.
Quality Assurance/Quality Control Manager
2003 to January, 2005
Responsibilities:
- Maintained overall laboratory quality assurance
- Performed data validation
- Assisted in the implementation of Comprehensive Quality Assurance Manual
- Maintained all state certifications

Microbiological/Wet Chemistry Manager
Spectrum Analytical, Inc.
2000 to 2003
Responsibilities:
- Implements and maintains new policies and procedures according to laboratory requirements.
- Provides inorganic and bacterial analyses for drinking water, waste treatment (NPDES) and performs tests to certify concentrations in the metals plating industry.
- Manages and coordinates sampling events for various clients.
- Actively involved in marketing services to existing and prospective clients

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Axiom Laboratories, Inc.
Bloomfield, Connecticut
1998-2000
Laboratory Manager and Director
Responsibilities:
- Directed and administered all aspects of the James A. Newlands Environmental Laboratory operations.
- Managed the implementation of a new LIMS system.
- Provided analytical testing to include inorganic and bacterial analyses for drinking water, waste treatment (NPDES), site evaluation, and soil testing.

Axiom Laboratories, Inc.
Bloomfield, Connecticut
1998
Supervisor, General Laboratory Operations
Responsibilities:
- Supervised and trained a staff of four analysts in all aspects of quality control and laboratory operations including inorganic and general chemistry, organic chemistry, and environmental microbiology.
- Assisted in the selection, economic justification and purchase of new instrumentation including Varian Liberty Series II ICP, Dionex Ion Chromatograph, Mercury Analyzer M600A and others.
- Performed Gravimetric and WET chemical analyses, including extractions, titration, pH and spectroscopy.

Environmental Science Corporation
Middletown, CT
1990-1998
Supervision, Wet Chemistry Laboratory
Responsibilities:

- Managed a staff of three in providing inorganic and bacterial analyses for waste treatment, site evaluation, water and soil testing.
- Managed and implemented new LIMS system.

Henry Souther Laboratories, Inc.
Bloomfield, CT
1986-1990
Responsibilities:

- Supervised the analyses and generation of analytical reports
- Performed all analytical testing and quality control of bacteriological samples. Analyses included total and fecal coliform, heterotrophic plate counts, and fecal streptococcus via membrane filtration.
- Analyzed municipal drinking water reservoirs for algae identification and enumeration.

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Demonstration of Capability
Certification Statement

Date:_____
Laboratory Name: Eurofins Spectrum Analytical,
Address: 830 Silver St, Agawam, MA 01001
Laboratory Department: _____
Analyst(s) Name(s): _____
Matrix:
Analyte / Class of Analytes:
Method #:_____
SOP Revision #:

We CERTIFY that:

- The analysts identified above, using the cited test method(s), which is in use at this facility for the analyses of samples under the National Environmental Laboratory Accreditation Program, have met the Demonstration of Capability.
- The test method(s) was performed by the analyst(s) identified on this certification.
- A copy of the test method(s) and the laboratory-specific SOPs are available for all personnel on-site.
- The data associated with the demonstration capability are true, accurate, complete and self-explanatory. (Attached Precision and Accuracy studies and/or MDL studies.)
- All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility and the associated information is well organized and available for review in the QA department by authorized assessors.

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_____ _____ _____
Department Manager's Name Signature Date

Kimberly LaPlante _____ _____
Quality Assurance Manger's Name Signature Date

_____ _____
Section Leader or Technical Director's Name Signature Date

Instrument Demonstration of Capability
Certification Statement

Date: _____

Laboratory Name: *Eurofins Spectrum Analytical*

Address: _____

Laboratory Department: _____

Instrument: _____

Make: _____

Model: _____

Serial Number: _____

Matrix: _____

Analyte / Class of Analytes: _____

Method #: _____

SOP Date and Revision #: _____

We, the undersigned, CERTIFY that:

- The instrument identified above, using the cited test method(s), which is in use at this facility for the analyses of samples under the National Environmental Laboratory Accreditation Program, have met the Demonstration of Capability.
- The test method(s) was/were performed via this instrumentation.
- A copy of the test method(s) and the laboratory-specific SOPs are available for all personnel on-site.
- The data associated with the demonstration capability are true, accurate, complete and self-explanatory (attached MDL studies).
- All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility and that the associated information is well organized and available for review by authorized assessors.

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Department Manager's Name	Signature	Date
Kimberly LaPlante		
Quality Assurance Manager's Name	Signature	Date
Section Leader or Technical Director's Name	Signature	Date

Comprehensive Quality Assurance Manual

APPENDIX D

Section 5 Attachments

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eurofins | Spectrum Analytical

CHAIN OF CUSTODY RECORD

Page _____ of _____

Special Handling:

☐ Standard TAT - 7 to 10 business days

☐ Rush TAT - Date Needed: _____

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 60 days unless otherwise instructed.

Report To: _____

Telephone #: _____

Project Mgr: _____

Invoice To: _____

P.O No.: _____ Quote #: _____

Project No: _____

Site Name: _____

Location: _____ State: _____

Sampler(s): _____

F=Field Filtered **1**=Na_2S2O_3 **2**=HCl **3**=H_2SO_4 **4**=HNO_3 **5**=NaOH **6**=Ascorbic Acid
7=CH3OH **8**=$NaHSO_4$ **9**=Deionized Water **10**=H_3PO_4 **11**= _____ **12**= _____

List Preservative Code below:

DW=Dinking Water **GW**=Groundwater **SW**=Surface Water **WW**=Waste Water

O=Oil **SO**=Soil **SL**=Sludge **A**=Indoor/Ambient Air **SG**=Soil Gas

X1= _____ **X2**= _____ **X3**= _____

G= Grab **C**=Compsite

QA/QC Reporting Notes:
***** additional charges may appply

MA DEP MCP CAM Report? ☐ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No

☐ Standard ☐ No QC
☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic										Check if chlorinated	
																			☐	
																			☐	
																			☐	
																			☐	
																			☐	
																			☐	
																			☐	
																			☐	
																			☐	
																			☐	

Relinquished by:	Received by:	Date:	Time:	Temp °C
				Observed
				Corecction Factor
				Corrected
				IR ID #

☐ EDD format: _____

☐ E-mail to: _____

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken

☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

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Chain of Custody Record/Field Test Data Sheets for Air Analyses

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Page _____ of _____

Special Handling:

☐ Standard TAT - 7 to 10 business days

☐ Rush TAT - Date Needed: _____

· All TATs subject to laboratory approval.

· Min. 24-hour notification needed for rushes.

Report To:	**Invoice To:**	
		Project No.:
		Site Name:
		Location: **State:**
Tel #:	**Attn:**	**Sampler(s):**
Project Manager:	**P.O. No.:** **RQN:**	

Can ID	Can Size (L)	Outgoing Canister Pressure ("Hg) (Lab)	Incoming Canister Pressure ("Hg) (Lab)	Flow Reg. ID	Flow Controller Readout (ml/min)	Lab Id:	Sample Id:	Sample Date(s)	Time Start (24 hr clock)	Time Stop (24 hr clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Analysis				Matrix: Indoor /Ambient Air	Matrix: Soil Gas		Check box if canister is returned unused
LABORATORY USE ONLY																						

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Date of Request:	Total # Canisters:
Requested by:	# LL Canisters:
Company:	# Flow Controllers:
Location:	Flow Rate/Setting:
Date Needed: Order #:	Prepared by:

I attest that all media relinquished from Eurofins Spectrum Analytical, Inc. have been received in good working condition, based on visual observation, and agree to the terms and conditions as listed on the back of this document.

Signed: Date:

Printed:

QA/QC Reporting Level:

☐ Standard ☐ NY ASP A* ☐ TIER II* ☐ MA DEP CAM

☐ NO QC ☐ NY ASP B* ☐ TIER IV* ☐ CT DPH RCP

☐ DQA* * additional charges may apply contact SA's QA Department for further info.

Client Use	Ambient Temperature (Fahrenheit)	Ambient Pressure (inches of Hg)
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Please contact ESAI's Air Department immediately at (800) 789-9115 if you experience any technical difficulties or suspect any QC issue(s) with air media.

Relinquished by:	Received by:	Date:	Time:

☐ EDD Format

☐ E-mail Results to

TERMS AND CONDITIONS

Due to the high costs of media used for air sampling, the following terms and conditions are summarized below for your information and our laboratory's use.

1. Media shall be returned in the same condition as received, if not, full replacement costs will be invoked to client.
2. Media will be returned to the laboratory within ten days of receipt.
3. Media not returned to the laboratory for any reason will be charged a rental fee as described below.
   - ◊ Summa Canisters not returned after ten days — $ 50.00 rental fee per week per canister
   - ◊ Summa Canisters not returned — $900.00 per canister – plus rental fee
   - ◊ Passive Flow Controller — $600.00 per controller
   - ◊ Stainless steel tubing attachment not returned — $ 15.00 per canister
   - ◊ In-line Air Sampling Filter not returned — $100.00 per filter
4. Cleaning fee for media returned unused — $ 50.00 per canister

CHAIN OF CUSTODY RECORD - INSTRUCTIONS

GENERAL

1. All applicable information must be completed.
2. Forms must be completed legibly and in indelible ink.
3. Any errors must be corrected by a single line strikethrough along with the date and initials of the individual making the correction.

FORM COMPLETION

4. **Page Numbering** - Enter the total number of pages and the page number of each individual page.
5. **Special Handling –** Check whether standard or rush turn around time is needed. For rush TAT indicate date.
6. **Report To** - Enter the company name, address, phone and fax numbers.
7. **Project Mgr**. - Enter the Project Manager's name.
8. **Invoice To** - Enter the company name, address, phone and fax numbers.
9. **P.O. No.** - Enter P.O. number to appear on invoice.
10. **RQN** - List quotation number if applicable.
11. **Project Number/Site Name/Location/State** - Enter project number (if applicable). The project name and location/state must be completed**.**
12. **Sampler(s)** - Print name(s) of sampler(s) and the organization by which they are employed.
13. SAMPLE INFORMATION
    a. **Sample ID** - Enter the field sample ID number(s) of each unique sample (s).
    b. **Sample Date(s)** - Enter the date(s) sampled.
    c. **Time Start** - Enter the start time of sample collection. Military time preferred.
    d. **Time Stop** - Enter the stop time of sample collection. Leave blank for grab sample.
    e. **Canister Pressure Start** - Enter pressure at time of start of sample.
    f. **Canister Pressure Stop** - Enter pressure at time of end of sample.
    g. **Interior Temp. Start** - Enter temperature at time of start of sample.
    h. **Interior Temp. Stop** - Enter temperature at time of end of sample.
    i. **Analyses** - Specify the test(s) to be requested by method number(s).
    j. **Matrix** - Enter a matrix type.
    k. **Check box if canister is returned unused** - Check if no analysis required for canister.
14. **QA/QC Reporting Level –** Check appropriate reporting level
15. **Temperature/Pressure** - Complete as necessary
16. **Special Instructions/QC Requirements** - Pertinent remarks about the sample or sample condition may be noted as well. List any applicable limits to be met.
17. SIGNATURES FOR CUSTODY PURPOSES - Use as many lines as necessary to show transfer and receipt of samples.
    a. **Relinquished by** - Signature of person who relinquishes samples.
    b. **Received by** - Signature of person who accepts samples.
    c. **Date/Time** - List date and time of sample transfer.
18. REPORT DELIVERY - Indicate whether results are to be emailed and list email address. Also indicate EDD format if one is needed in addition to PDF of laboratory report.

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SAMPLE INTEGRITY FORM

Sample ID			Preservative Added						Notes
	Initial pH	Sample split	50% HCl - Element # 15D1359	50% H2SO4 - Element # 15H0773	50% NaOH - Element # 15B0084	Final pH	Chlorinated? (Y/N)	10% Na2S2O3 - Element # 15D0952	Work Order No. SC12884 Solid samples for VOC analyses: _____ Submitted in SA provided CH3OH/DI/NaHSO4 vials _____ Submitted in CH3OH/DI/NaHSO4, not SA _____ Not submitted in CH3OH/DI/NaHSO4

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Notes:

COC login reviewed by: _____ Login Analyst Initials: _____ Date: 9/30/2015 (Rev. 2/5/2013)

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Site Name:_____ Date:_____ Time:_____

Project #:_____ Analysis:_____

Sample ID:_____ Preservative:_____

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CHAIN OF CUSTODY SEAL

Initials _____ Date _____

Comprehensive Quality Assurance Manual

APPENDIX E

Section 6 Attachments

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Table 6.1
Calibration Procedures for Analytical Equipment
GC/MS Laboratory

Method	Tuning Frequency	Tuning Criteria	Initial Calibration Frequency and Concentration Range	Min. # of Standards for Initial Calibration	Initial Calibration Acceptance Criteria	CCC Frequency and Concentration Range	CCC Acceptance Criteria	Corrective Action
524	every 12 hours or 20 samples	See Table 6.1A	When CCC fails; CR: 0.50-200 ug/L	5; 6 if non	RSD ≤20% or Linear/Non-linear Regression ≥0.99 for all target compounds. ICV ±20%	Every 12 hours or 20 samples CR: 50 ug/L; high and low weekly	%D ≤ 30% for all compounds; RT within ± 30 seconds from initial calibration; Meeting response range for each target compound.	Reanalyze. If CCC fails again, perform system maintenance and recalibrate.
624	every 12 hours or 20 samples	See Table 6.1A	When CCC fails; CR: 1-200 ug/L	5	RSD ≤20% or Linear/Non-linear Regression ≥0.99 for all target compounds	Every 12 hours or 20 samples CR: 50 ug/L; high and low weekly	%D within method set control limits	Reanalyze. If CCC fails again, perform system maintenance and recalibrate.
504.1	every 12 hours or 20 samples	See Table 6.1B	When CCC fails; CR: 0.01-2.0ppb	5	RSD ≤ 20% ICV ±20%; recalibrate if ICV fails.	Every 12 hours or 20 samples CR: 0.2ppb	Recovery 70-130%	Reanalyze. If CCC fails again, perform system maintenance and recalibrate.

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Table 6.1
Calibration Procedures for Analytical Equipment
GC/MS Laboratory

Method	Tuning Frequency	Tuning Criteria	Initial Calibration Frequency and Concentration Range	Min. # of Standards for Initial Calibration	Initial Calibration Acceptance Criteria	CCC Frequency and Concentration Range	CCC Acceptance Criteria	Corrective Action
625	every 12 hours	See Table 6.1B	When CCC fails; CR: 5-150 ug/L	5	RSD ≤35% or Linear/Non-linear Regression ≥0.99 for all target compounds. ICV ±20%	Every 12 hours CR: 100 ug/L	%D ≤ 20% for all compounds.	Re-tune and rerun CCC. If CCC fails, then rerun initial calibration.
8270	every 12 hours	See Table 6.1B	When CCC fails; CR: 5-150 ug/L	5	RSD ≤20% or Linear/Non-linear Regression ≥0.99 for all target compounds. ICV ±20% except ±60% for *difficult analytes. Recalibrate if ICV has >10% of all analytes fail.	Every 12 hours CR: 100 ug/L	%D ≤20% for all compounds.	Re-tune and rerun CCC. If CCC fails, then rerun initial calibration.

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Table 6.1
Calibration Procedures for Analytical Equipment
GC/MS Laboratory

Method	Tuning Frequency	Tuning Criteria	Initial Calibration Frequency and Concentration Range	Min. # of Standards for Initial Calibration	Initial Calibration Acceptance Criteria	CCC Frequency and Concentration Range	CCC Acceptance Criteria	Corrective Action
8260	every 12 hours or 20 samples	See Table 6.1A	When CCC fails; CR: 1-200 ug/L	5	RSD ≤20% or Linear/Non-linear Regression ≥0.99 for all target compounds. **Min RF per 8260C. ICV ±20%; recalibrate if ICV has >10% of all analytes fail.	Every 12 hours CR: 50 ug/L; high and low weekly	%D ≤20% for all compounds.	Reanalyze. If CCC fails again, perform system maintenance and recalibrate

Notes: CR = Concentration Range
RF = Response Factor
RPD = Relative Percent Difference
CCC = Calibration Check Compounds
ICV = Initial Calibration Verification
*625/8270 Difficult Analytes: 4-Chloroaniline, 4-Nitrophenol, Phenol, 2,4-Dinitrophenol
**Minimum RF of 0.05 for the lowest calibration standard and for the average RF. Analytes which are exempt from these criteria due to poor purging efficiency are ketones, alcohols and dioxanes.

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Table 6.1A
BFB Key Ions and Abundance Criteria
524, 624, 8260 and Direct Injection

Mass	Ion Abundance Criteria
50	15.0 - 40.0% of the base peak
75	30.0 - 60.0% of the base peak
95	base peak, 100% relative abundance
96	5.0 - 8.0% of the base peak
173	less than 2.0% of mass 174
174	Greater than 50.0% of the base peak
175	5.0 - 8.0% of mass 174
176	> 95.0%, but < 101.0% of mass 174
177	5.0 - 8.0% of mass 176

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Table 6.1B
DFTPP Key Ions and Ion Abundance Criteria
GCMS SVOC's 525.2, 625, SW846 8270

Mass	Ion Abundance Criteria
51	30.0 – 60.0% of mass 198
68	less than 2.0% of mass 69
70	less than 2.0 % of mass 69
127	40.0 - 60.0 % of mass 198
197	less than 1.0 % of mass 198
198	base peak, 100% relative abundance
199	5.0 - 8.0 % of mass 198
275	10.0 - 30.0 % of mass 198
365	greater than 1.00 % of mass 198
441	Present, but less than mass 443
442	greater than 40.0 % of mass 198
443	17.0 – 23.0 % of mass 442

Notes:

All ion abundances must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120% that of m/z 95.

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Table 6.2
Calibration Procedures for Analytical Equipment
GC Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
VPH/GRO	5	when CCC fails; CR = 1-200ppb	≤ 25% RSD or "r" ≥ 0.99 for all targets and chains. ICV ±20% for all analytes; recalibrate if ICV fails.	Opening and closing with every batch of 20 samples, CR = 50ppb	% D ≤ 25% for all targets and ranges with the exception of n-nonane %D ≤30%.	Reanalyze CCC; if unacceptable, repeat initial calibration
DRO	5	When needed CR = 0.2-20mg/kg	"r" ≥ 0.99	Opening and closing with every batch of 20 samples, CR = 10mg/kg	Recovery within 40 – 140%.	Reanalyze CCC, if unacceptable repeat initial calibration
NJ EPH/ MA EPH	5	when CCC fails; CR = 5-200ppb	≤25% RSD for Carbon Chains and ≤15% for all targets; or "r" ≥ 0.99 for all targets and chains. ICV ±20% for all analytes; recalibrate if ICV has >10% of all analytes fail.	Opening and closing with every batch of 20 samples, CR = 100ppb	% D ≤ 20% for all targets and ≤ 25% for carbon chains.	Reanalyze CCC; if unacceptable, repeat initial calibration

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Table 6.2
Calibration Procedures for Analytical Equipment
GC Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
608	3	when CCC fails; CR = 0.02-5ppb	Linearity standards must be ≤ 10% RSD; DBC drift must be ≤ 2%, DDT and endrin degradation ≤ 20% combined; % RT drift ≤ 2% for a packed column or ≤1.5% for a capillary column. ≤10% RSD for PCB and Pesticides; or "r" ≥0.995 for PCB and Pesticides. ICV ±20% for PCB and Pesticides; recalibrate if ICV fails.	10% per sample batch of 20 or 12 hour shift, whichever is more frequent; CR = 0.5ppb	RSD ≤15%; DBC drift must be ≤ 2%; D endrin degradation ≤ 20% of % RT drift ≤ 2% for a packed column or ≤ .5% for a capillary column. CCC % D ≤ 15% for all compounds.	Septum change and column maintenance; reanalyze CCC; if unacceptable, repeat initial calibration.

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Table 6.2
Calibration Procedures for Analytical Equipment
GC Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
8081/8082	5	when CCC fails; 8081CR =5-500ppb 8082 CR 0.02-5ppb	Linerity standards must be ≤10% RSD; DBC drift must be ≤2%; DDT and Endrin degradation ≤30% combined; % RT drift ≤2% for a packed column or ≤1.5% for a capillary column. ≤20% RSD for PCB and Pesticides; or "r" ≥0.995 for PCB and ≥0.99 for Pesticides. ICV ±20% for PCB and Pesticides; recalibrate if ICV fails.	5% per sample batch of 20 or 12 hour shift, whichever is more frequent; CR = 0.5ppb	DBC drift must be ≤2%; DDT and endrin degradation ≤20% combined; % RT drift ≤2% for a packed column or ≤1.5% for capillary column. CCC % D ≤ 15% for all compounds.	Reanalyze standard; if unacceptable, repeat initial calibration.

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Table 6.2
Calibration Procedures for Analytical Equipment
GC Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
8151	5	when CCC fails; CR = .01-5ppb	≤20% RSD for all analytes or "r" ≥0.99; ≤1.5% RT drift from initial standard. ICV ±20% for all analytes; recalibrate if ICV fails.	10% per sample batch of 20 or 12 hour shift, whichever is more frequent; CR = 0.1ppb; 15 ppb for MADEP MCP CAM	CCC % D ≤ 15% for all compounds. DBC drift must be ≤2%; DDT and endrin degradation ≤20% combined; % RT drift ≤2% for a packed column or ≤1.5% for capillary column	Septum change and column maintenance; rerun initial calibration if reanalysis fails

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Table 6.3
Calibration Procedures for Analytical Equipment
Inorganic Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Method of Curve Generation	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
ICP Metals	5	Daily / with each use; 0 - 10 ppm	Five point curve with automatic instrument software calculation	Correlation Coefficient >0.998 ICV +/- 5% of true value by EPA 200.7**. ICV +/- 10% of true value by EPA 6010	Every 10 samples or less	+/- 10%	Reanalyzed CCV; if unacceptable, repeat initial calibration
ICP-MS Metals	5	Daily / with each use; 0 - 100 ppb	Linear regression; automatic instrument software calculation	Correlation Coefficient >0.998 ICV +/- 10% of true value	Every 10 samples or less	+/- 10%	Reanalyzed CCV; if unacceptable, repeat initial calibration
Mercury	6	Daily / with each use; 0 - 10 ppb	Linear regression; automatic instrument software calculation	Correlation Coefficient >0.995 ICV +/- 5% of true value*	Every 10 samples or less	+/- 10%*	Reanalyzed CCV; if unacceptable, repeat initial calibration

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Table 6.3
Calibration Procedures for Analytical Equipment
Inorganic Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Method of Curve Generation	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
Cyanide	6	Daily / with each use; 0 - 300 ppb	Linear regression	Correlation coefficient >0.997 ICV +/- 10% of true value	10% or every 2 hours, whichever is more frequent, 0.50 ppm	± 10% True Value	Recalibrate as needed. Rerun all samples not preceded and/or followed by acceptable ICV/ICB, CCV/CCB
Fluoride EPA 300.0	4	With each use 0.10 - 5.0 ppm	Linear Regression	Correlation coefficient >0.997	10% or every 2 hours, whichever is more frequent, 0.40 - 2.50 ppm	± 10% True Value	Rerun all samples not preceded and/or followed by acceptable ICV/ICB, CCV/CCB
Sulfates EPA 300.0	6	With each use 1.0 - 50 ppm	Linear regression; each chord is calculated & reported separately	Correlation coefficient >0.997	10% or every 2 hours, whichever is more frequent, 4.0 - 25 ppm	± 10% True Value	Rerun all samples not preceded and/or followed by acceptable ICV/ICB, CCV/CCB.

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Table 6.3
Calibration Procedures for Analytical Equipment
Inorganic Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Method of Curve Generation	Acceptance Criteria	CCC Frequency and Concentration Range	Acceptance Criteria	Corrective Action
Chlorides EPA 300.0	6	When needed 0.10 - 5.0 ppm	Linear regression; each chord is calculated & reported separately	Total curve correlation coefficient >0.995	10% or every 2 hours, whichever is more frequent, 10 ppm	± 10% True Value	Rerun all samples not preceded and/or followed by acceptable ICV/ICB, CCV, CCB

Notes:
CB = Continuing Calibration Blank
CCV = Continuing Calibration Verification
ICV = Initial Calibration Verification
ICB = Initial Calibration Blank
ppm = Parts Per Million
ppb = Parts Per Billion

*Mercury ICV/CCV: At least one of these samples, preferably the ICV, must fall within 5% of its true value, while the other one may be within 10% of true value.
** 200.7 ICV must be +/- 5% of true value for initial QC criteria; subsequent ICV must be +/- 10% of true value.

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Table 6.4
Calibration Procedures for Analytical Equipment
Organic Characterization Laboratory

Method	# of Standards for Initial Calibration	Calibration Frequency and Concentration Range	Acceptance Criteria	CCC Frequency and Concentration	Acceptance Criteria	Corrective Action
Oil & Grease/ TPH 1664	6	When needed, scales are checked daily with 2mg to 1000mg Class "S" weights.	±10% at 2mg and ±0.5% at 1000mg	Check balance calibration prior to and after weighing sample batch.	±10% at 2mg and ±0.5% at 1000mg	Re-calibrate scale; reweigh sample batch.
TPH 8100M /8015D	5	When needed	± 2% difference for 2 injections; correlation coefficient ≥ 0.995	one every 20 analyses CR = 10ppm	QC recovery 40-140%	Rerun calibration. If continuing calibration fails, reanalyze samples run before continuing calibration failed
Total Organic Carbon	2	Daily/with each use 0 - 20 ppm	Correlation coefficient must be ≥ 0.0997	one every 10 analyses CR = 5 ppm	± 15%	Rerun Calibration. If continuing calibration fails, reanalyze samples run before continuing calibration failed.

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Comprehensive Quality Assurance Manual

APPENDIX F

Section 7 Attachments

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EUROFINS SPECTRUM ANALYTICAL
Massachusetts Master List Standard Operating Procedure

Department	Standard Operating Procedure	Methods Performed	Accreditating Authority and Number	File Name	Revision No.	Effective Review Date/Initials of reviewer/Comments
Accounting and HR	Client Credit Application Forms	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\HR and Accounting\SOP for Client Credit Application Forms, 07-22-13 Rev. 3.doc	Rev 3 - 7/22/13	7/29/13 - JF
Accounting and HR	Human Resources & Accounting Functions	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\HR and Accounting\SOP for Human Resources and Accounting Functions, 8-19-13 Rev. 15.doc	Rev 15 - 8/19/13	8/23/13 - SS
Accounting and HR	SOP for Work Related Incidents, Accidents and Injuries	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\HR and Accounting\SOP for Work Related Incidents, Accidents, Injuries, 6-17-14 Rev. 4	Rev 4 - 6/17/14	6/24/14 - MS Discontinued 6/09/16
Administation	SOP for Departmental Validation Procedures for SAI Agawam Division	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Admin\Departmental Validation Procedures for ESAI-MA, 7-22-16 Rev. 6.doc	Rev 6 - 7/22/16	7/22/16 - KL
Administation	SOP for Manual Integrations	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Admin\SOP for Manual Integration of Chromatographic Peaks, 1-09-14 Rev. 4.doc	Rev. 4 - 1/09/12	1/14/14 - WB
Administation	SOP for Bringing a New Method Online	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Admin\SOP for Bringing a New Method Online, 7-22-16 Rev. 3.doc	Rev 3 - 7/22/16	7/22/16 - KL
Administation	Balance Calibration Check	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Admin\SOP for Balance Calibration Check, 8-08-13 Rev. 3.doc	Rev 3 - 8/08/13	8/08/13 - KL
Air Division	Canister Tracking and Cleaning	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Air\SOP for Canister Tracking and Cleaning, -21-15 Rev. 5.doc	Rev 5 - 9/21/15	9/21/15 - BF
Air Division	Determination of Air-Phase Petroleum Hydrocarbons	Massachusetts DEP APH		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Air\SOP for APH, 03-14-16 Rev. 9.doc	Rev 9 - 3/14/16	3/16/16 - EK
Air Division	Determination of Sulfur Compounds using SCD	EPA 44A/ASTM D5504		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Air\SOP for Sulfur by Modified 44A, D5504, 4-15-13 Rev. 1.doc	Rev 1 - 4/15/13	4/24/13 - KL Discontinued 7/10/15
Air Division	Determination of Volatile Organic Compounds in Air	EPA Method TO-15	NY 11840, FL E87936	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Air\SOP for TO-15, 6-28-16 Rev. 21.doc	Rev 21 - 6/28/16	6/28/16 - BF
Air Division	Determination of Volatile Organic Compounds in Air	EPA 18		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Air\SOP for Modified EPA 18 TPH-BTEX in Air, 03-20-15 Rev. 8.doc	Rev 8 - 3/20/15	3/25/15 - EK
Air Division	Determination of Volatile Organic Compounds in Ambient Air	EPA Method TO-14A		F:\Data\QAQC\NELAC\SOP for TO-14A	Rev 3 - 6/30/04	07/06/04 - WB Discontinued 1/1/12

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EUROFINS SPECTRUM ANALYTICAL
Massachusetts Master List Standard Operating Procedure

Department	Standard Operating Procedure	Methods Performed	Accreditating Authority and Number	File Name	Revision No.	Effective Review Date/Initials of reviewer/Comments
Air Division	Instructions for Using Flow Controllers	SA Policy	N/A	F:\Data\QAQC\NELAC\SOP for Using Flow Controller	Rev 0 - 9/5/02	DG
Air Division	Modified EPA 3C/RSKSOP-175 Determination of Fixed Gases and Dissolved gases in Gaseous and Aqueous phase matrices by TCD	EPA 3C/RSKSOP-175		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Air\SOP for Fixed Gases & Dissolved Gases Mod. 3C-RSK-175 by TCD, 2-23-15 Rev. 5.doc	Rev 5 - 02/23/15	02/24/15 - EK
Air Division	Respirable Particulates	NIOSH 0600		F:\Data\QAQC\NELAC\SOP for Respirable Particulates	Rev 1 5/23/02	11/04/02 - NB OBSOLETE; never ran
Air Division	Total Particulates	NIOSH 0500		F:\Data\QAQC\NELAC\SOP for Total Particulates	Rev 1 5/23/02	11/04/02 - NB OBSOLETE; never ran
Client Services	Entering Subout Data	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2012\Client Services\SOP for Entering Subout Data, 1-19-12 Rev. 3.doc	Rev 3 - 01/19/12	1/24/12 - GP Decomissioned. Replaced by SOP for Subcontracted Analyses.
Client Services	Laboratory Report Invoicing	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Client Sevices\SOP for Report Invoicing, 6-06-16 Rev. 7.doc	Rev 7 - 6/06/16	6/06/16 - JH
Client Services	Laboratory Report Mailing	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Client Services\SOP for Laboratory Report Mailing, 7-13-16 Rev. 13.doc	Rev 13 - 7/13/16	7/13/16 - LC
Client Services	Laboratory Report Publishing	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Client Services\SOP for Laboratory Report Publishing, 12-22-15 Rev. 9.doc	Rev 9 - 12/22/15	12/22/15 - JH
Client Services	Resolution of Complaints	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Client Services\SOP for Resolution of Complaints, 10-03-13 Rev. 2.doc	Rev 2 - 10/03/13	10/03/13 - DL
Client Services	SOP for Scanning Laboratory Work Order File Copies	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Client Services\SOP for Scanning Work Order File Copies, 7-08-16 Rev.4.doc	Rev 4 - 7-08-16	7/08/16 - LC
Client Services	SOP for Subcontracted Analyses	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Client Services\SOP for Subcontracted Analyses, 5-28-14 Rev. 1.doc	Rev 1 - 5/28/14	5/29/14 - RM
Client Services	Data Package Preparation	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Client Services\SOP for Data Package Preparation, 8-14-14 Rev. 0.doc	Rev 0 - 8/14/14	8/14/14 - APM
Courier Dept.	Courier Policies and Procedures	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Courier\SOP for Courier Policies and Procedures, 1-29-15 Rev. 18.doc	Rev 18 - 1/29/15	1/30/15 - EM

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EUROFINS SPECTRUM ANALYTICAL
Massachusetts Master List Standard Operating Procedure

Department	Standard Operating Procedure	Methods Performed	Accreditating Authority and Number	File Name	Revision No.	Effective Review Date/Initials of reviewer/Comments
Courier Dept.	Glassware Preservation	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Courier\SOP for Glassware Preservation, 3-18-15 Rev. 14.doc	Rev 14 - 3/18/15	3/18/15 - EM
Courier Dept.	UPS/Fed Ex Shipments for both International and Domestic Services	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Courier Dept\SOP for UPS-Fed Ex Shipments for both International and Domestic Services, 9-30-14 Rev. 3.doc	Rev. 3 - 9/30/14	9/30/14 - EM
Courier Dept.	SOP for Preparing the Butanol Odor Intensity Test Kit	SA Policy		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Courier Dept\SOP for Butanol Odor Intensity Kit, 10-29-13 Rev. 1.doc	Rev 1 - 10/29/13	10/31/13 - CW Discontinued
Health and Safety	Chemical Hygiene Plan	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Health & Safety\Chemical Hygiene Plan, 6-06-16 Rev. 12.doc	Rev 12 - 6/06/16	6/06/16 - JM
Health and Safety	Contingency Plan	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Health & Safety\SOP for Contingency Plan, 3-14-16 Rev. 7.doc	Rev 7 - 3/14/16	3/14/16 JM
Health and Safety	Gas Tank Changing, Ordering and Storage	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\Health & Safety\SOP for Gas Tank Ordering, Storage and Changing, 8-20-11 Rev.2.doc	Rev 2 - 8/20/11	8/24/11 - DS
Health and Safety	International Soil Handling and Disposal	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Health & Safety\SOP for Regulated Soil Handling and Disposal, 7-13-16 Rev. 7.doc	Rev 7 - 7/15/16	7/13/16 - KL
Health and Safety	OSHA Hazard Communication Standard	OSHA & SA Policies	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Health & Safety\SOP for OSHA Hazard Communication Standard, 4-12-16 Rev. 3.doc	Rev 3 - 4/12/16	4/12/16 - JM
Health and Safety	Use and Operation of Grinding Mill	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Health & Safety\SOP for Use and Operation of Grinding Mill, 10-15-14 Rev. 2.doc	Rev 2 - 10/15/14	10/16/14 - KL
Health and Safety	Waste Disposal	SA Policy	N/A	F:\Data\QAQC\NELAC\SOP Waste Disposal	Rev 1 7/18/06	Discontinued; info in CHP, 7/21/06 - CB
Health and Safety	Use and Operation of the Glass Crusher and Plastic Shredder	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\Health & Safety\SOP for Use and Operation of the Glass Crusher and Plastic Shredder, 8-26-11 Rev. 0.doc	Rev 0 8/26/11	8/30/11 - JM
Inorganic - Metals	Analytical procedure for NIOSH method 7300 (modified)	NIOSH method 7300		F:\data\QAQC\NELAC SOPs 2016\Metals\SOP for Metals by NiOSH 7300 ICP 1-06-16 Rev 2.doc	Rev. 2 - 1/06/16	1/07/16 - JC Discontinued 4/13/16
Inorganic - Metals	AutoBlock Plus Maintenance and Operation	N/A	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for AutoBlock Plus Maintenance and Operation, 8-04-16 Rev 2.doc	Rev. 2 - 8/04/16	8/04/16 - JC
Inorganic - Metals	Digestion of Biological Tissue-USGS B-9001-95	USGS B-9001-95		F:\data\QAQC\NELAC SOPs 2006\Metals\SOP for Biological Tissue Digestions 7-12-06 Rev.0.doc	Rev. 0 - 7/12/06	Discontinued 7/14/06 - JC

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Inorganic - Metals	Digestion of Non-Aqueous Samples via Microwave, SW846 3051A	SW846 3051A	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Digestion of Non-Aqueous Samples via Microwave SW846 3051A, 6-06-16 Rev. 5.doc	Rev 5 - 6/06/16	6/06/16 - JC
Inorganic - Metals	Sample Preparation for Metals Determination	SW846 3005A/3050B/SM2340B, EPA 200.7, EPA 200.8	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Sample Preparation for Metals Determination, 7-11-16 Rev. 4.doc	Rev 4 - 7/11/16	7/11/16 - JC
Inorganic - Metals	Mercury Sample Digestion	EPA 245.1/SW 846 7470A and 7471B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Mercury Sample Digestion by EPA 245.1, SW846 7470A and 7471B, 1-06-16 Rev. 5.doc	Rev. 5 - 1/06/16	1/11/16 - JC
Inorganic - Metals	Mercury Analysis	EPA 245.1/SW 846 7470A and 7471B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Mercury Analysis by EPA 245.1, SW846 7470A and 7471B, 02-02-16 Rev. 21.doc	Rev 21 - 2/02/16	2/03/16 - JC
Inorganic - Metals	Metals by Inductively Coupled Plasma-Atomic Emission Spectrometry	EPA 200.7	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Metals by 200.7, 6-06-16 Rev. 14.doc	Rev 14 - 6/06/16	6/06/16 - JC
Inorganic - Metals	Metals by Inductively Coupoled Plasma-Mass Spectrometry (ICP-MS)	EPA 200.8	NY 11393 M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for ICP-MS by 200.8, 8-19-16 Rev. 14.doc	Rev 14 - 8/19/16	8/19/16 - ET
Inorganic - Metals	Metals by Inductively Coupoled Plasma-Mass Spectrometry (ICP-MS)	SW846-6020A	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Metals by ICP-MS SW846 6020A, 06-06-16 Rev. 10.doc	Rev 10 - 6/06/16	6/06/16 - KL
Inorganic - Metals	SOP for Labware Cleaning for Trace Metals Analysis	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Labware Cleaning for Trace Metals Analysis, 8-04-16 Rev. 2.doc	Rev 2 - 8/04/16	8/04/16 - JC
Inorganic - Metals	SOP for Metals by Inductively Coupoled Plasma (ICP) SW846 6010C, SM2340B	SW846 6010C, SM2340B	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Metals\SOP for Metals by ICP SW846 6010C and SM2340B, 6-06-16 Rev. 12.doc	Rev 12 - 6/06/16	6/06/16 - JC
Inorganic - Metals	SOP for the Operation of the Hydra Prep Automated Mercury Preparation System	N/A	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2008\Metals	Rev 0 - 08/28/08	Discontinued 9/8/08 - JC
Inorganic - Metals	Mercury Analysis in Air by Modified NIOSH 6009	NIOSH 6009	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Metals\SOP for Mercury Analysis in Air by Modified NIOSH 6009, 7-08-13 Rev. 0.doc	Rev 0 - 7/08/13	7/08/13 - JC Discontinued 4/13/16
IT	Instrument Data Backup Procedure	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\IT\SOP for Instrument Data Backup Procedure, 7-08-11 Rev.4.doc	Rev 4 - 7/08/11	Discontinued 7/14/11 - JN

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IT	Laboratory Computers	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\IT\SOP for Laboratory Computers, 2-08-16 Rev. 9.doc	Rev 9 - 2/08/16	2/10/16 - JN
IT	Agawam IT System Maintenance Procedures	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\IT\SOP for Agawam IT System Maintenance Procedures, 2-08-16 Rev. 5.doc	Rev 5 - 2/08/16	2/10/16 - JN
IT	Software System Change Control	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\IT\SOP for Software System Change Control, 2-08-16 Rev. 0.doc	Rev 0 - 2/8/16	2/10/16 - JN
Microbiology	Anaerobic Bacteria for UTC Power Space Shuttle Water	SA Procedure		F:\PDF Documents\NELAC SOPs in PDF - Uncontrolled Copies\Microbiology\Old SOPs\SOP Anaerobic Bacteria	Rev 0 - 5/07/07	Discontinued on 10/6/10
Microbiology	Tryptose Broth & Brilliant Green Lactose Bile Broth and E. Coli Using Nutrient Agar with MUG	SM9222B SM9222G, MI Agar		F:\data\QAQC\NELAC SOPs 2009\Microbiology\SOP for Total Coliform Confirmation.doc	Rev 5 - 1/14/09	Discontinued 1/22/09 -CB
Microbiology	Fecal Coliform Membrane Filtration	SM9222D	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Microbiology\SOP for Fecal Coliform Filtration by SM9222D, 4-14-16 Rev. 16.doc	Rev 16 - 4/14/16	4/14/16 - VIA
Microbiology	General Microbiology Requirements	N/A	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Microbiology\SOP for General Microbiology Requirements, 9-27-16 Rev. 25.doc	Rev 25 - 9/27/16	9/27/16 - KL
Microbiology	Hetrotophic Plate Count	SM9215B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Microbiology\SOP for SM9215 Heterotropic Plate Count, 2-16-16 Rev. 12.doc	Rev.12 - 2/16/16	2/16/16 - VIA
Microbiology	Method 1600: Enterococci in Water by Membrane Filtration using membrane-Enterococcus Indoxyl-β-D-Glucoside Agar	EPA 1600	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Microbiology\SOP for Method 1600, 4-15-15 Rev. 5.doc	Rev. 5 4/15/15	4/17/15 - VA
Microbiology	Petroleum Degrader Bacteria	SAI SOP	N/A	F:\data\QAQC\NELAC SOPS 2006\Microbiology\Petroleum Degrader Bacteria Test 7-17-06.doc	Rev 1 - 7/17/06	7/21/06 - SC Discontinued
Microbiology	Total Coliform Membrane Filtration	SM9222B		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2010\Microbiology\SOP Total Coliform Membrane Filtration SM9222B 4-5-10 Rev.8.doc	Rev.8 4/5/10	Discontinued 4/10/10 - JOC
Microbiology	Total Coliforms and E. Coli in water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)	Method 1604	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Microbiology\SOP for Method 1604, 12-22-15 Rev. 12.doc	Rev 12 - 12/22/15	12/23/15 - VA
Microbiology	Method 1603: Escherichia coli (E.coli) in Water by Membrane Filtration Using Modified Membrane-Thermotolerant Escherichia coli Agar (modified mTEC)	Method 1603	M-MA138	..\QAQC\NELAC SOPs\NELAC SOPs 2015\Microbiology\SOP for E.coli by Method 1603, 8-07-15 Rev. 2.doc	Rev 2 - 8/07/15	8/11/15 - JOC

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Microbiology	pH Orion EA940 for Microbiological Medias	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Microbiology\SOP for pH Orion EA940 Microbiological Medias, 05-26-15 Rev. 2.doc	Rev 2 - 5/26/15	5/26/15 - VIA
Microbiology	Total and E.coli by SM92223B using IDEXX Colilert	SM92223B Colilert	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Microbiology\SOP for IDEXX Colilert SM9223B Rev. 1, 10-12-16.doc	Rev 1 - 10/12/16	10/12/16 - VIA
Quality Assurance	SOP for Laboratory Support Equipment Calibration	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Admin\SOP for Laboratory Support Equipment Calibration, Rev. 0, 2-22-16	Rev. 0 - 2/22/16	2/22/16 - SMR
Quality Assurance	Refrigerator Thermometers and Temperature Probe Program	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Admin\SOP for Refrigerator Thermometers and Temperature Probe Program, 2-05-15 Rev. 7.doc	Rev. 6 - 6/04/13	2/09/15 - KL
Quality Assurance	Establishment and Reporting of Detection Limits	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Admin\SOP for Establishment and Reporting of Detection Limits, 7-18-16 Rev. 4.doc	Rev. 4 - 7/18/16	7/18/16 - KL
R&D / Treatability	Ethyleneddiaminetetraacetate		N/A	F:\data\QAQC\NELAC SOPs 2008\R&D-Treatability\SOP EDTA 11-17-08 Rev.1.doc	Rev 1 - 11-17-08	11-17-08-CW Discontinued 5/07/15 per CW
R&D / Treatability	Hydrogen Peroxide		N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2009\R&D - Treatability\SOP for Hydrogen Peroxide Rev.2. 8-21-09.doc	Rev 2 - 8/21/09	8/25/09 - ML
R&D / Treatability	Inorganic Department for UN Oxidizer Test By Method SW846 1040	SW846 1040	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2007\Wet Chemistry\SOP for Inorganic Department UN Oxidizer Test Rev.0. 3-13-07.doc	Rev. 0 - 3/13/07	3/13/07 - JOC Discontinued 5/07/15 per CW
R&D / Treatability	Inorganic Dept. for Oxidizer Test	SA SOP	N/A	F:\data\QAQC\NELAC SOPs in PDF - Uncontrolled Copies\Wet Chem\SOP for Inorganic Department Oxidizer Test Rev.2. 7-21-06	Rev 2 - 7/21/06	7/21/06 - JOC Discontinued 9/20/13 per CW
R&D / Treatability	Persulfate by Spectrophotometer		N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Treatability and Forensics\SOP for Persulfate, 1-20-14 Rev. 2.doc	Rev 2 - 1/20/14	1/24/14 - CW
R&D / Treatability	SOP for Bulk Density ASTM D 1895B	ASTM D 1895B	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2010\Treatability & Forensics\SOP for Bulk Density ASTM D 1895B 7-21-10 Rev. 0	Rev. 0 7/27/10	7/27/10 CW
R&D / Treatability	SOP for Ferrous Iron	ASTM D 1068-03		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2007\R&D - Treatability\SOP Ferrous Iron ASTM.doc	Rev 0 - 1/16/07	01/19/07 - CW Discontinued
R&D / Treatability	SOP for Oxidation-Reduction Potential		N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Treatability and Forensics\SOP for Oxidation-Reduction Potential, 2-07-13 Rev.4.doc	Rev 4 - 2/07/13	2/08/13 - ML

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R&D / Treatability	SOP for Ozone in Water by Indigo Colormetric Method SM4500-O3B Rev. 0 12-3-09	SM4500-O3B	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2009\R&D - Treatability\SOP for Ozone in Water by Indigo Colormetric Method SM4500-O3B Rev. 0 12-3-09.doc	Rev 0 - 12-3-09	12-4-09 - CW Discontinued 5/07/15 per CW
R&D / Treatability	SOP for Potassium Permanganate in Water	SM 4500-KMnO4	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Treatability and Forensics\SOP for Potassium Permanganate 1-22-14 Rev. 3	Rev 3 - 1/22/14	1/27/14 - CW
R&D / Treatability	SOP for Specific Gravity of Soil/Solids by Water Pycnometer by ASTM D854-02	ASTM D854-02	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Treatability and Forensics\SOP for Specific Gravity Soil by ASTM D 854-02, 1-23-14 Rev. 1.doc	Rev 1 - 1/23/14	1/27/14 - CW
R&D / Treatability	SOP for Specific Gravity of Water Pycnometer by ASTM D1429-95 (1999)	ASTM D1429-95 (1999)	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Treatability and Forensics\SOP for Specific Gravity Water by ASTM D 1429-95, 1-23-14 Rev. 1.doc	Rev 1 - 1/23/14	1/27/14 - CW
R&D / Treatability	SOP for Viscosity by ASTM D2196-99	ASTM D2196-99	N/A	F:\data\QAQC\NELAC SOPS 2009\Treatability and Forensics\Viscosity 12-3-09 Rev. 0	Rev. 0 - 12/3/09	1/5/10 - CW Discontinued 5/07/15 per CW
R&D / Treatability	Daily Conductivity Checks on Laboratory Reagent Grade Water	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Treatability and Forensics\SOP for Daily Conductivity Checks, 1-20-14 Rev. 3.doc	Rev 3 - 1/20/14	1/24/14 - ML
Sample Dept.	Daily Conductivity Checks on Laboratory Reagent Grade Water	SA Policy	N/A			SOP re-issued under Treatability Dept effective 4/04/13
Sample Dept.	Sample Selection, Preparation and Compositing	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Sample Department\SOP for Sample Selection, Preparation and Compositing 3-12-14 Rev. 6	Rev 6 - 3/12/14	3/12/14 - CW
Sample Dept.	Sample Documentation Procedures	SA Policy	N/A	F:\data\QAQC\NELAC SOPS 2010\Sample Department\SOP Sample Documentation Rev. 3 3-1-10	Rev 3 - 3/1/10	3/31/10 KEW Discontinued, consolidated with Sample Login SOP 10/25/13
Sample Dept.	Sample Handling	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Sample Department\SOP for Sample Handling, 2-13-14 Rev. 7.doc	Rev 7 - 2/13/14	2/25/14 - KEW Discontinued, consolidated with Sample Documentation and Login Procedure 4/03/15
Sample Dept.	Sample Documentation and Login Procedure	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Sample Dept\SOP for Sample Documentation and Login, 8-05-16 Rev. 24.doc	Rev 24 - 8/05/16	8/05/2016 - KW

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Semi-Volatile Organic Dept	SOP for SVOC Sample Preparations	3510C, 3535A, 3580A, 3550C, 3540C, 3545A, 3546	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\SVOC\SOP for SVOC Sample Preparations, 10-13-16 Rev. 17.doc	Rev 17 10-13-16	10/13/16 - SM
Semi-Volatile Organic Dept	Determinatiom of Polycyclic Hydrocarbons in Ambient Air	TO-13A		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2008\SVOC\SOP TO-13A 03-20-08 Rev.0	Rev 0-04/22/08	Discontinued 08/29/08 - JG
Semi-Volatile Organic Dept.	Organic Lead by GAS Chromatography Mass Spectrometry: Capillary Column Technique	SW846 8270C Mod.		F:\Data\QAQC\NELAC SOPS 2005\SOP for Organic Lead By Modified 8270C 3-1-05.doc	Rev 0-3/14/05	Discontinued 3/14/05 - CW
Semi-Volatile Organic Dept.	Polychlorinated Biphenyls (PCBs) by Gas Chromatography (GC/ECD)	EPA Methods 608, SW846 8082A	NY 11393	..\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\SOP for PCBs by 8082A-608, 12-22-15 Rev. 26.doc	Rev 26 - 12/22/15	12/22/15 - SM
Semi-Volatile Organic Dept.	1,2-Dibromethane (EDB), 1,2-Dibro-3-Chloropropane (DBCP) in Water by Microextraction and Gas Chromatography (GC/ECD)	EPA Method 504.1	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\SVOC\SOP for 504.1, 7-20-16 Rev. 11.doc	Rev 11 - 7/20/16	7/20/16 - SM
Semi-Volatile Organic Dept.	Chlorinated Herbicides Acids and Esters by Gas Chromatography/ECD SW846 8151A	SW846 8151A	NY 11393	..\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\SOP for Herbicides by 8151A, 7-20-16 Rev. 16.doc	Rev 16 - 7/20/16	7/20/16 - SM
Semi-Volatile Organic Dept.	Determination of Glycol/Alcohol in Soil and Water	SW846 8015D Mod.	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\SVOC\SOP for Glycols-Alcohols by 8015D, 8-04-16 Rev. 10.doc	Rev 10 - 8/04/16	8/04/16 - SM
Semi-Volatile Organic Dept.	Determination of Petroleum Range Hydrocarbons (FL-PRO)	FL-PRO		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\SVOC\SOP for FL PRO, 1-23-14 Rev. 5.doc	Rev 5 - 1/23/14	1/27/14 - SM Discontinued
Semi-Volatile Organic Dept.	DRO Modified 8015D	8015D Modified	NY11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\SVOC\SOP for DRO by 8015D, 8-04-16 Rev. 6.doc	Rev 6 - 8/04/16	8/04/16 - SM
Semi-Volatile Organic Dept.	Extractable Petroleum Hydrocarbons (EPH)	Massachusetts DEP Method for EPH		..\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\SOP for MA CAM EPH, 6-08-15 Rev. 21.doc	Rev 21 - 6/08/15	6/08/15 - MP
Semi-Volatile Organic Dept.	Extractable Total Petroleum Hydrocarbons (CT ETPH)	CT-ETPH	CT PH-0777	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\SVOC\SOP for CT ETPH, 1-23-14 Rev. 7.doc	Rev 7 - 1/23/14	1/24/14 - SM
Semi-Volatile Organic Dept.	Gel Permeation Chromatography (GPC)	Method 3640		F:\data\QAQC\NELAC SOPs 2006\SVOC\SOP GPC Cleanup 8-25-06 Rev No. 0.doc	Rev. 0 - 8/25/06	Discontinued 9/22/06 - JD
Semi-Volatile Organic Dept.	Haloacetic Acids in Drinking Water by Liquid-Liquid Extraction and Derivatization by GC/ECD - EPA 552.2	EPA Method 552.2	NY 11393, M-MA138	..\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\SOP for HAA by 552.2, 6-02-15 Rev. 6.doc	Rev. 6 - 6/02/15	6/02/15 - SM

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Semi-Volatile Organic Dept.	Labware Cleanup	SA Policy	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\SOP for Lab Ware Cleanup, 08-12-15 Rev. 3.doc	Rev. 3 - 8/12/15	8/12/15 - SM
Semi-Volatile Organic Dept.	Maine DRO	ME DRO		F:\Data\QAQC\NELAC\SOP for MEDRO	Rev 1 - 3/31/03	4/04/03 - NB Discontinued
Semi-Volatile Organic Dept.	Oil & Grease/Total Petroleum Hydrocarbons (TPH)	EPA Method 1664B Gravimetric Procedure	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\SVOC\SOP for EPA 1664B, 10-20-16 Rev. 12.doc	Rev 12 - 10/20/16	10/20/16 - KL
Semi-Volatile Organic Dept.	Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column GC/MS	EPA Method 525.2	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\SVOC\SOP for 525.2, 12-02-13 Rev. 10.doc	Rev 10 - 12/02/13	12/03/13 - SM Discontinued 5/09/16
Semi-Volatile Organic Dept.	Organochlorine Pesticides by Gas Chromatography (GC/ECD) EPA Method 608 & SW-846 Method 8081B	EPA Methods 608 SW846 8081B	NY 11393, M-MA138	..\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\SOP for Pesticides by 8081B-608, 12-22-15 Rev. 22.doc	Rev 22 - 12/22/15	12/22/15 - SM
Semi-Volatile Organic Dept.	Organochlorine Pesticides by Gas Chromatography (GC/ECD) in Ambient Air	EPA Method TO-4A		F:\data\QAQC\ NELAC SOPs\NELAC SOPs 2010\SVOC\SOP TO-4A Organochlorine Pesticides in Air 3-16-10 Rev. 0	Rev 0 - 3/16/10	3/16/10 - DS Discontinued
Semi-Volatile Organic Dept.	Polychlorinated Biphenyls (PCBs) by Gas Chromatography (GC/ECD) in Ambient Air	EPA TO-4A		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2008\SVOC\SOP for TO-4A Polychlorinated Biphenyls in Ambient Air	Rev 1 - 3/20/08	3/20/08 - TG Discontinued
Semi-Volatile Organic Dept.	Semivolatile Organic Compounds by GAS Chromatography Mass Spectrometry: Capillary Column Technique EPA 625	EPA Method 625	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\PDFs\SOP for EPA 625 Method, 01-19-15 Rev. 7.pdf	Rev 7 - 1/19/15	1/20/15 - DS
Semi-Volatile Organic Dept.	Semivolatile Organic Compounds by GAS Chromatography Mass Spectrometry: Capillary Column Technique SW846 8270D	EPA Method SW846 8270D	NY 11393, M-MA138,	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\SVOC\PDFs\SOP for SW846 8270D, 12-22-15 Rev. 26.pdf	Rev 26 - 12/22/15	12/22/15 - SM
Semi-Volatile Organic Dept.	SOP for 8011	Method 8011	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\SVOC\SOP for EDB and DBCP by 8011, 11-18-13 Rev. 2.doc	Rev. 2 - 11/15/13	11/18/13 - DS
Semi-Volatile Organic Dept.	SOP for Determination of Petroleum Range Hydrocarbons (OQA-QAM-025-Revision: 7, 2-25-08) NJ TPH	OQA-QAM-025-Revision: 7, 2-25-08		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\SVOC\SOP for NJ-TPH Method, 1-23-14 Rev. 4.doc	Rev. 4 - 1/23/14	1/24/14 - SM Discontinued
Semi-Volatile Organic Dept.	SOP for Florisil Cleanup	Method 3620C		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\SVOC\SOP for Florisil Cleanup, 3-20-14 Rev. 2.doc	Rev. 2 - 3/20/14	3/27/14 - SM
Semi-Volatile Organic Dept.	SOP for NJ DEP Extractable Petroleum Hydrocarbons (EPH)	NJ DEP Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), October, 2009 Revision:2	NJ MA011	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\SVOC\SOP for NJ EPH, 1-23-14 Rev. 6.doc	Rev. 6 - 1/23/14	1/24/14 - SM

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Semi-Volatile Organic Dept.	SOP for Semi-Volatile Organic Compounds in Biological Tissue by Gas Chromatography	SW846 8270C 8081A and 8082		F:\data\QAQC\NELAC SOPs 2006\SVOC\SOP Biological Tissue for Semi-Volatile Analysis Rev.0 10-04-06	Rev.0 - 10/04/06	Discontinued 11/03/06 CW
Semi-Volatile Organic Dept.	SOP for Texas TPH 1005	1005		F:\data\QAQC\NELAC SOPs 2008\SVOC\SOP for Texas TPH 1005 2-11-08 Rev. 0	Rev. 0- 2-11-08	2-11-08 JG Discontinued
Semi-Volatile Organic Dept.	SOP for Texas TPH 1006	1006		F:\data\QAQC\NELAC SOPs 2008\SVOC\SOP for Texas TPH 1006 2-11-08 Rev. 0	Rev. 0- 2-11-08	2-11-08 JG Discontinued
Semi-Volatile Organic Dept.	Sulfur Cleanup using Copper	Method 3660B		F:\data\QAQC\NELAC SOPs 2006\SVOC\SOP Copper Cleanup 9-11-06 Rev No.0.doc	Rev. 0 - 9/11/06	9/22/06 - JD
Semi-Volatile Organic Dept.	Sulfuric Acid Cleanup	Method 3665A		F:\data\QAQC\NELAC SOPs 2006\SVOC\SOP for Method 3665A Sulfuric Acid Cleanup	Rev. 0 - 9/13/06	9/13/06 - JD
Semi-Volatile Organic Dept.	Total ExtractablePetroleum Hydrocarbons (SW846 8100M)	SW846 8100M		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\SVOC\SOP for TPH by 8100, 1-27-14 Rev. 5.doc	Rev. 5 - 1/27/14	1/27/14 - SM
Semi-Volatile Organic Dept.	Total Petroleum Hydrocarbons and 8270 Standard Preparation	SA Procedure		F:\data\QAQC\NELAC SOPS 2005\SVOC\SOP EPH-TPH Standard Preparation Procedure.doc	Rev 3 - 09/23/05	Discontinued 3/30/06- SM
Semi-Volatile Organic Dept.	SVOC Logbook Preparation	SA Procedure	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2012\SVOC\SOP for SVOC Logbooks Preparation, 12-17-12 Rev. 0.doc	Rev 0 - 12/17/12	12/18/12 - SM
Volatile Organic Department	SOP for VPH and GRO	MADEP WSC-CAM-IV A and GRO by 8015D	NY 11840 (GRO only)	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\VOC\SOP for MADEP VPH, 4-07-15 Rev. 11.doc	Rev 11 - 4-07-15	4/07/15 - EK
Volatile Organic Department	Analysis of 1,4-Dioxane	EPA 8260C Mod.	CT PH-0777	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\VOC\SOP for VOC Analysis of 1,4-Dioxane by Modified 8260C, 3-06-13 Rev.7.doc	Rev 7 - 3/06/13	3/07/13 - GA
Volatile Organic Department	Analysis of Maine Gasoline Range Organics (ME GRO) by Maine Health nad Environmental Testing Laboratory	ME GRO		F:\QAQC\NELAC SOPs 2004\ME GRO SOP 2004 8-02-04.doc	Rev 0 - 8/02/04	Discontinued 02/08/05 - KW
Volatile Organic Department	Analysis of Volatile Organic Compounds by EPA 624 and the Massachusetts Water Resource Act	EPA 624	NY 11840, M-MA1110, FL E87936	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\VOC\SOP for 624, 8-03-16 Rev. 10.doc	Rev 10 - 8/03/16	8/03/16 - EK
Volatile Organic Department	Analysisof Volatile Organic Compounds by EPA 524.2 & MADEP WSC-CAM-II A	EPA Methods 524.2	NY 11840, M-MA1110, FL E87936	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\VOC\SOP for 524.2, 6-63-16 Rev. 12.doc	Rev 12 - 6/06/16	6/06/16 - KL
Volatile Organic Department	VOC by EPA 8260C & MADEP SC-CAM-II-A	SW 846 8260C MADEP WSC-CAM-II A	NY 11840, FL E87936	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\VOC\SOP for SW846 8260C 6-06-16 Rev. 18.doc	Rev 18 - 6/06/16	6/06/16 - KL

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Volatile Organic Department	Z-Nose Screening of Aqueous Samples	SA Procedure		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2008\VOC\SOP for Z-Nose Screening	Rev 0 - 3/26/08	Discontinued 3/26/08 - WB
Volatile Organic Department	Electronic Logbooks in VOC Department	SA Procedure	N/A	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\VOC\SOP for Electronic Logbooks in the Air and VOC Department, 1-27-16 Rev. 1.doc	Rev 1 - 1/27/16	2/02/16 - SB
Wet Chemistry	% Nitric Acid % Hydrofluoric Acid	MCA - 223 SA SOP		Method discontinued as of 05/15/08 per JOC - SOP Removed from Dept.	Rev 3 - 7/21/06	7/21/06 - JO Discontinued
Wet Chemistry	Acidity	SM2310B	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for Acidity SM2310B, 9-16-13 Rev.7.doc	Rev 7 - 9/16/13	9/20/13 - NL
Wet Chemistry	Alkalinity	SM2320B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for Alkalinity by SM2320B, 8-04-16 Rev. 11.docx	Rev 11 - 8/04/16	8/04/16 - CW
Wet Chemistry	Ammonia by Flow injection	EPA 350.1	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chem\SOP for Ammonia by EPA 350.1 & LACHAT, 10-14-16 Rev. 7.doc	Rev 7 - 10/14/16	10/14/16 - CW
Wet Chemistry	Ammonia Nitrogen as N	SM4500-NH3-B,C, 20th Edition	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Ammonia Nitrogen by SM4500-NH3-B,C, 1-22-14 Rev. 10	Rev 10 - 1/22/14	1/27/14 - CW
Wet Chemistry	ASTM Leaching by Modified ASTM D 3987-06	ASTM D 3987-06		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for ASTM Leaching, 5-30-14 Rev. 0.doc	Rev 0 - 5/30/14	6/03/14 - CW
Wet Chemistry	Biochemical Oxygen Demand	SM5210B	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for BOD by SM5210B, 10-12-16 Rev. 12.doc	Rev 12 - 10/12/16	10/12/16 - RT
Wet Chemistry	Calcium Hardness	SM3500-Ca-B		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2010\Wet Chem\SOP for Ca Hardness SM3500-Ca-B Rev.1 11-22-10.doc	Rev 1 - 11/22/10	11/29/2010 Discontinued
Wet Chemistry	Carbon Dioxide & Forms of Alkalinity (calc)	SM4500-CO2D		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2009\Wet Chemistry\SOP Carbon Dioxide and Forms of Alkalinity by Caluclation SM4500-	Rev 0 - 6/8/09	6/08/09 - CW
Wet Chemistry	Chemical Oxygen Demand	HACH 8000	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chem\SOP for COD by HACH 8000, 10-17-16 Rev. 8.doc	Rev 8 - 10/17/16	10/18/16 - CW
Wet Chemistry	Chloride	SM4500-Cl B		F:\Data\QAQC\NELAC SOPs 2006\Wet Chemistry\SOP CHLORIDE.doc	Rev 3 - 7/11/06	7/18/06 - YV Discontinued
Wet Chemistry	Color by Colorimetric-Platinum-Cobalt	SM 2120B	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Color by SM2120B, 9-26-14 Rev.3.doc	Rev 3 - 9/26/14	9/30/14 - TD

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Wet Chemistry	Corrosivity as Langalier Saturation Index, Aggressive Index, Ryznar Index	SM 18-19 2330B	NY 11393	F:\data\QAQC\NELAC SOPs 2013\Wet Chemistry\SOP for Corrosivity as Langelier Saturation Index, Aggressive Index, Ryznar Stability Index 11-12-13 Rev. 1	Rev 1 - 11/12/13	11/14/13 - CW
Wet Chemistry	Cyanide (aqueous & drinking water) by EPA 335.4/9012B (Total Cyanide, Extractable Cyanide as TCLP/SPLP, WAD, Amenable, PAC, and Soluble Cyanide	EPA 335.4/9012B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Wet Chem\SOP for Cyanide by 335.4-9012B, 8-06-15 Rev. 14.doc	Rev 14 - 8/06/15	8/10/15 - RT
Wet Chemistry	Cyanide Tier Package Data Upload and Preparation for ASP-B and CLP-Like Deliverables	SA Policy		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\Wet Chemistry\SOP for Cyanide Tier Package Data Upload and Package Preparation 2-24-11 Rev. 2.doc	Rev 2 - 2/24/11	3/01/11 - EE Discontinued
Wet Chemistry	Cyanides Amenable to Chlorination	SM4500 CN G/ EPA 335.1		Obsolete, combined into 335.4 and 9012A		Discontinued
Wet Chemistry	Determination of % Solids	SM2540G Modified		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Wet Chem\SOP Determination of % Solids Rev. 3 07-09-15.doc	Rev 3 - 07/09/15	07/10/15 - TD
Wet Chemistry	Dissolved Oxygen	SM 4500-O G		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP Dissolved Oxygen by SM4500-O G, 2-11-14 Rev. 2.doc	Rev 2 - 2/11/14	2/11/14 - DB
Wet Chemistry	Dry Preparation Of Soil Samples for Particle Size Analysis (Grain Size Analysis)	ASTM D 421/422		F:\QAQC\NELAC SOPS 2010\Wet Chem\Grain Size ASTM D421-422.doc	Rev 2 - 7/12/10	7/15/10 - JC
Wet Chemistry	Ferrous Iron (Phenanthroile Method)	SM3500-Fe B		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Ferrous Iron by SM3500-Fe-B, 11-13-14 Rev. 4.doc	Rev. 4 - 11/13/14	CW - 12/02/14
Wet Chemistry	Flash Point by Pensky-Martens Closed Cup	SW846 1010A	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for Flashpoint by SW846-1010A, 9-26-13 Rev. 9.doc	Rev 9 - 9/26/13	9/27/13 - TD
Wet Chemistry	Fluoride	SM4500-F C		F:\Data\QAQC\NELAC\SOP for Fluoride	Rev 2 - 4/15/02	Discontinued 01/25/05 - YV
Wet Chemistry	Formaldehyde by NIOSH 3500	NIOSH 3500		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Formaldehyde by NIOSH 3500, 6-20-14 Rev. 0.doc	Rev. 0 - 6/20/14	9/20/14 - CAW
Wet Chemistry	Hexavalent Chromium for Soils	Alkaline Digestion Method SW846 7196A/3060A	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2012\Wet Chem\SOP for Hexavalent Chromium in Soils 1-27-12 Rev.9.doc	Rev 9 - 1/27/12	2/1/12 - CW
Wet Chemistry	Hexavalent Chromium for Water - Colorimetric Method	SM3500-Cr B/SW846 7196A	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Hexavalent Chromium in Water, 3-13-14 Rev. 8.doc	Rev 8 - 3/13/14	3/14/14 - CW

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Wet Chemistry	Hydrogen Sulfide Un-ionized Fraction by Calculation Using SM4500-S^{2-} H.	SM4500-S2- H		2010\Wet Chem\SOP for Hydrogen Sulfide Fraction By Calculation by SM4500-S 2-3-10 Rev.0.doc	Rev. 0 - 2/3/10	2/8/10 - CW
Wet Chemistry	Ignitability	40 CFR 261.21		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\Wet Chemistry\SOP for Ignitability by 40 CFR 261.21 Rev 0, 3-07-11.doc	Rev 0 - 3/07/11	Discontinued 03/10/11 - JO
Wet Chemistry	Ignitability	SW846 1030	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for Ignitability by SW846 1030, 6-06-16 Rev. 4.doc	Rev 4 - 6/06/16	6/06/16 - CW
Wet Chemistry	Inorganic Anions by Ion Chromatography	EPA Method 300.0	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for Anions by Ion Chromatoghy EPA 300.0, 11-14-13 Rev. 15.doc	Rev 15 - 11/14/13	11/18/13 - TD
Wet Chemistry	Iodine	EPA 345.1		F:\DATA\QAQC\NELAC\SOP Iodine	Rev 1 6/19/03	Discontinued 02/01/05 - AW
Wet Chemistry	Loss of Ignition ASTM	ASTM D2974/ AASHTO T267		2006\Wet Chemistry\SOP Loss on Ignition ASTM Rev. 4 03-18-08.doc	Rev 4 - 3/18/08	7/22/08 - JO
Wet Chemistry	Loss of Ignition SM 2540 G	SM 2540G		(no longer in use, using Total, Fixed, Volatile Solids SOP as of 11/15/06)	Rev 1 2/19/03	01/26/05 - LN Discontinued
Wet Chemistry	Nitrate Nitrogen Manual Cadmium Reduction	SM4500-NO_3-E		Method discontinued as of 05/15/08 per JOC	Rev 4 - 7/19/06	11/15/06 - JO Discontinued
Wet Chemistry	Nitrate/Nitrite-N by Flow Injection Analysis	EPA 353.2 10-107-04-1-B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Nitrate & Nitrite by EPA 353.2 & 10-107-04-1-B, 4-24-14 Rev. 6.doc	Rev 6 - 4/24/14	5/08/14 - RT
Wet Chemistry	Nitrite Nitrogen Colorimetric Method	SM4500 NO2, B		Obsolete, removed from use 1/05/11		Discontinued
Wet Chemistry	Paint Filter/Free Liquids	EPA 9095B		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2006\Wet Chemistry\SOP Paint Filter 9095B 7-31-06 Rev. 1.doc	Rev. 1 - 7/31/06	7/31/06 - JO
Wet Chemistry	pH in Soil	SW 846 9045D	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for pH in Soil SW846 9045D, 10-14-16 Rev. 6.doc	Rev 6 - 10/14/16	10/14/16 - CW
Wet Chemistry	pH by ASTM 1293-99B	ASTM 1293-99 B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for pH by ASTM 1293-99B, 10-15-13 Rev. 9.doc	Rev 9 - 10/15/13	10/17/13 - TD
Wet Chemistry	Phosphorous	EPA Method 365.2		Method discontinued as of 05/15/08 per JOC	Rev 3 - 7/5/06	Discontinued 7/6/06 - AW
Wet Chemistry	Phosphorous by Flow Injection Analysis	10-115-01-1-D		F:\Data\QAQC\NELAC\SOP for Phosphorous by Lachat	Rev 1 - 6/5/2003	Discontinued 02/01/05 - AW
Wet Chemistry	Phosphorous Fractionation of Sediments for Loosely-Sorbed and Iron-Bound Phosphorous	Extraction Procedure with ASTM D515-88A Colorimetric Analysis		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for Phosphorus Fractionation, 1-15-13 Rev. 2.doc	Rev 2 - 1/15/13	Discontinued 1/09/14 1/17/13 - JOC

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Wet Chemistry	Phosphorous in Water Colorimetric Ascorbic Acid Reduction Method	ASTM D515-88(A)	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2012\Wet Chem\SOP for Phosphorus in Water ASTM D515-88(A) 1-27-12 Rev.6.doc	Rev 6 - 1/27/12	2/1/12 - CW
Wet Chemistry	Physiologically Available Cyanide (PAC)	SA SOP		Obsolete, combined into 335.4 and 9012A		Discontinued
Wet Chemistry	Reactivity (Cyanide and Sulfide)	SW 846 7.3	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for Reactivity, 8-04-16 Rev. 6.doc	Rev 6 - 8/04/16	8/04/16 - CW
Wet Chemistry	Salinity	SM 2520		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for Salinity by SM2520, 12-18-13 Rev. 1.doc	Rev 1 - 12/18/13	12/30/13 - CW
Wet Chemistry	Settleable Solids	SM2540F	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for Settleable Solids SM2540F, 9-17-13 Rev. 1.doc	Rev 1 - 9/17/13	9/20/13 - TD
Wet Chemistry	Soil Extraction and FID Classification of Soil Samples for VOC Analysis	SW846 5030 and SW846 5035		F:\data\QAQC\NELAC SOPs 2006\Wet Chemistry\SOP Soil Extraction and FID Classification of SoiL Samples for VOC Analysis Rev.1 07-10-06.doc	Rev 1 7/10/06	7/10/06 - JOC
Wet Chemistry	Specific Conductance using Accumet Meter	SM2510B		obsolete - combined with Seven Multi SOP 8-20-09	Rev 2 - 7/19/06	Discontinued
Wet Chemistry	Sulfate	EPA Method 375.4		F:\data\QAQC\NELAC SOPs 2006\Wet Chemistry\SOP SULFATE 7-21-06 Rev.3.doc	Rev 3 - 7/21/06	11/15/06 - JO Discontinued
Wet Chemistry	Specific Conductance using SevenMulti Mettler-Toledo	SM2510B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for Specific Conductance SM2510B, 10-12-16 Rev. 5.doc	Rev 5 - 10/12/16	10/12/16 - KL
Wet Chemistry	Sulfide	SM 4500-S2F / EPA 376.1		F:\data\QAQC\NELAC SOPs 2006\Wet Chemistry\SOP SULFIDE 376.1 Rev. 3 07-19-06.doc	Rev 3 - 7/19/06	11/16/06 - JO Discontinued 4/12/16
Wet Chemistry	Sulfide	SM4500 S2D / EPA 376.2	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for Sulfide by SM4500-S2-D & EPA 376.2, 6-15-16 Rev. 6.doc	Rev 6 - 6/15/16	6/15/16 - TD
Wet Chemistry	Sulfite	SM 4500 SO3(-2), B 19th Ed.		SOP for Sulfite SM4500-SO3 B	Rev 3 - 07/19/06	11/15/06 - JO
Wet Chemistry	Synthetic Precipitation Leaching Procedure (SPLP)	SW846 1312	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for SPLP by 1312, 11-26-13 Rev. 11.doc	Rev 11 - 11/26/13	12/02/13 - CW
Wet Chemistry	Threshold Odor	SM 2150B		F:\Data\QAQC\NELAC SOPs 2006\Wet Chemistry\SOP for Odor2.doc	Rev 2 - 7/7/06	7/13/06-ES
Wet Chemistry	Fixed and Total Volatile Solids in Solid Matrices	SM 2540G		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Fixed and Total Volatile Solids in Solids by SM2540G, 10-23-14 Rev. 4.doc	Rev 4 - 10/23/14	10/27/14 - CW

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Wet Chemistry	Total and Free Residual Chlorine	Hach 8167/8021		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2011\Wet Chemistry\SOP for Total and Free Chlorine by HACH 8167-8021 1-24-11 Rev.4.doc	Rev 4 - 1/24/11	1/31/11 - TD Discontinued
Wet Chemistry	Total and Free Residual Chlorine	SM 4500 Cl-G	M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Chlorine Residual SM4500- Cl-G, 9-08-14 Rev. 7.doc	Rev 7 - 9/08/14	9/08/14 - TD
Wet Chemistry	Total Cyanide, WAD, Amenable Cyanide & PAC by Flow Injection Analysis for Soil & Solid Products	SW 846 9012B	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2015\Wet Chem\SOP for CYANIDE in Soil by SW846 9012B, 8-06-15 Rev. 14.doc	Rev 14 - 8/06/15	8/10/15 - RT
Wet Chemistry	Total Dissolved Solids	SM 2540C	NY 11393, M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Total Dissolved Solids by SM2540C, 10-15-14 Rev. 11.doc	Rev. 11 - 10/15/14	10/17/14 - CW
Wet Chemistry	Total Dissolved Solids	EPA 160.1		F:\Data\QAQC\NELAC SOPs 2006\Wet Chemistry\SOP TDS EPA 160-SM2540C.doc	Rev 5 - 7/7/06	Discontinued 4-2-08 method removed by EPA MUR
Wet Chemistry	Total Hardness	SM2340C	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2009\Wet Chemistry\SOP for Total Hardness by SM2340C Rev.5. 8-13-09.doc	Rev 5 - 8/13/09	8/21/09 - CK
Wet Chemistry	TOTAL KJEDAHL NITROGEN By Flow Injection Analysis Colorimetric EPA 351.2 Lachat QuikChem Method 10-107-06-2-E	EPA 351.2, 10-107-06-2-E	M-MA138 NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for TKN by Flow Injection Analysis, 351.2, Lachat, 1-13-16 Rev. 7.doc	Rev 7 - 1/13/16	1/15/16 - RT
Wet Chemistry	Total Kjeldahl Nitrogen Organic Nitrogen	SM4500-NH3-C, SM4500-NorgB	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for TKN by SM4500-NH3 C, 10-30-14 Rev. 8.doc	Rev 8 - 10/30/14	10/30/14 - TD
Wet Chemistry	Total Organic and Inorganic Carbon by Lloyd Kahn Method	Lloyd Kahn Method	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chemistry\SOP for TOC by Lloyd Kahn Method, 06-14-16 Rev. 6.doc	Rev 6 6/14/16	6/14/16 - RT
Wet Chemistry	Total Organic & Inorganic Carbon	SW846 9060, SM 5310B	M-MA138, NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2016\Wet Chem\SOP for TOC by SW846 9060 & SM5310B, 7-19-16 Rev. 15.doc	Rev 15 - 7/19/16	7/19/16 - RT
Wet Chemistry	Total Solids (TS)	SM2540B	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Total Solids by SM2540B, 10-15-14 Rev. 7.doc	Rev 7 - 10/15/14	10/17/14 - CW
Wet Chemistry	Total Suspended Solids	SM2540D	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Total Suspended Solids by SM2540D, 10-15-14 Rev. 11.doc	Rev 11 - 10/15/14	10/17/14 - CW
Wet Chemistry	Total Volatile, Volatile Suspended, and Fixed Solids in Aqueous Matrices	SM2540E		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2014\Wet Chem\SOP for Total Volatile, Volatile Suspended and Fixed Solids in Aqueous by SM2540E, 10-22-14 Rev. 1.doc	Rev 1 - 10/22/14	10/27/14 - CW

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EUROFINS SPECTRUM ANALYTICAL
Massachusetts Master List Standard Operating Procedure

Department	Standard Operating Procedure	Methods Performed	Accreditating Authority and Number	File Name	Revision No.	Effective Review Date/Initials of reviewer/Comments
Wet Chemistry	Toxicity Characteristic Leaching procedure (TCLP)	SW846 1311	NY 11393	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2013\Wet Chem\SOP for TCLP by 1311, 11-18-13 Rev. 13.doc	Rev 14 - 3/27/15	3/30/15 - TD
Wet Chemistry	Turbidity	SM 2130B, EPA 180.1	M-MA138	F:\data\QAQC\NELAC SOPs\NELAC SOPs 2012\Wet Chem\SOP for Turbidity by SM2130B and 180.1, 7-23-12 Rev. 6.doc	Rev 6 - 7/23/12	7/24/12 - JOC
Wet Chemistry	wc-Ash	ASTM D2974-C		F:\data\QAQC\NELAC SOPs\NELAC SOPs 2008\Wet Chemistry\ wc-Ash	Rev 0 - 3/25/08	7/22/08 - DR

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SOP REQUEST FOR CREATION OR MODIFICATION

Date:	
SOP:	
Requested by:	
APPROVED or DENIED	
New revision number:	
Expected Date of Completion:	

Please provide a brief description for why SOP needs to be created or modified:

Laboratory Director	Date
QA Manager	Date

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Comprehensive Quality Assurance Manual

APPENDIX G

Section 11 Attachments

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Table 11.1
Reagent Storage

Reagent	Container	Storage Area
Hexane	Stored in 4-liter amber glass bottles	Vented, flammable storage cabinets [1,3]
Methylene Chloride	Stored in 4-liter amber glass bottles	Vented, flammable storage cabinets [1,3]
Pentane	Stored in 4-liter amber glass bottles	Vented, flammable storage cabinets [1]
Ethyl Acetate	Stored in 4-liter amber glass bottles	Vented, flammable storage cabinets [1]
Acetonitrile	Stored in 1-liter amber glass bottles	Vented, flammable storage cabinets [1]
1 Sooctone	Stored in 4-liter amber glass bottles	Vented, flammable storage cabinets [1]
Ethyl Ether	Stored in 4-liter Tin	Vented, flammable storage cabinets [1]
Nitric Acid	Stored in 2.5 Liter glass bottles	Vented, cabinets designed for acid storage [1]
Hydrochloric Acid	Stored in 2.5 Liter glass bottles	Vented cabinet designed for acid storage [1]
Sulfuric Acid	Stored in 2.5 Liter glass bottles	Vented cabinet designed for acid storage [1,3]
Acetone	Stored in 4 Liter Plastic bottles	Vented cabinet designed for volatile storage [1]
Acetone	Stored in 4 Liter Amber bottles	Vented, flammable storage cabinets [1]
Potassium Permanganate	Stored in a 500 gm amber glass bottle	Cabinet [1] *
Hydrogen Peroxide	Stored in a 500 ml plastic bottle	Cabinet [1] *
Stannous Chloride	Stored in a 500 gm plastic bottle	Cabinet [1] *
Potassium Persulfate	Stored in a 500 gm Plastic bottle	Cabinet [1] *
Magnesium Perchlorate	Stored in a 500 gm amber glass bottle and a 2.5 Kg Plastic bottle	Cabinet [1] *
Sodium Bisulfate	Stored in a 500 gm Plastic bottle	Cabinet [1] *

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Table 11.1
Reagent Storage

Reagent	Container	Storage Area
Sodium Chloride	Stored in a 5 gm Plastic bottle	Cabinet [1] *
Hydroxylamine Sulfate	Stored in a 500 gm Plastic bottle	Cabinet [1] *
Methanol	Stored in a 500 ml amber glass bottle	Vented, flammable storage cabinets [2]

Notes:
1 Located at 11 Almgren Dr Lab
2 Located at 830 Silver St Lab
3 Bulk storage is in a designated area in original shipping containers and packaging.
* Reactive and oxidizing reagents are stored separately from corrosive reagents

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Instrument	User Description	Maker	Model	Serial	In use	Room	Room D	Department	Building	Location
Autosampler (Canister)	Air-1	ENTECH	7016CA	0220	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Autosampler (Canister)	Air-3	Markes	CIA Advantage	GB00H10102	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Autosampler (Canister)	Air-4	ENTECH	7016A	1176	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Autosampler (Canister)	Storage	ENTECH	7016CA	0223	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Canister Cleaner	Storage	ENTECH	3100A	1114	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Canister Cleaner	CC1	ENTECH	3100-16 Position	0141	0 no	143	Storage	AIR	Silver	Agawam,MA
Canister Cleaner #1	CC1	ENTECH	3100D	1679	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Canister Cleaner #2	CC2	ENTECH	3100A	1247	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Concentrator	Air-3	Markes	Unity2	E112903	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Dynamic Diluter	Diluter 1	ENTECH	4600	0110	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Dynamic Diluter	Diluter 2	ENTECH	4600	109	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Dynamic Diluter	Diluter 3	ENTECH	4600	1162	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Flow Controllers	205 Unit	ENTECH	CS 1200 ES-Silonite	VariousB	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Gas Chromatograph	Air-3	Agilent	7890A	CN10725048	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Gas Chromatograph	Air-4	Agilent	6890N	CN10633094	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Gas Chromatograph	Air-1	HP	6890	US00020055	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Gas Chromatograph	Air-2	HP	6890	US00042889	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Gas Chromatograph	Air-5	Perkin Elmer	Clarus 500	650N3051901	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Flow Calibrator (0-10mls)	A	Allicat Scientific	V-10-CCM-D	12466	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Flow Calibrator (10-100mls)	B	Allicat Scientific	V-100vCCM-D	12468	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Flow Calibrator (10-100mls)	C	Allicat Scientific	V-100-CCM-D	11860	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Spectrometer	Air-1	Agilent	5973	US91422439	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Spectrometer	Air-2	Agilent	5973	US10441772	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Spectrometer	Air-3	Agilent	5975C	US73317665	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Mass Spectrometer	Air-4	Agilent	5975	US54441865	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Open-Air Platform Shakers	Orbital rotator	Barnstead	Maxq 2000	141006100816 6	1 yes	124	AIR Lab	AIR	Silver	Agawam,MA
Oven	Storage	Fisher	516G	60200029	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Oven #1 for Canister Cleaner #1	CC1	ENTECH	3513	1204-1191	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Oven #2 for Canister Cleaner #1	CC1	ENTECH	3108	0119	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Oven #1 for Canister Cleaner #2	CC2	ENTECH	3513ENT	1482070562349	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Oven #2 for Canister Cleaner #2	CC2	ENTECH	3513	0105-2612	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Pre-Concentrator	Air-1	ENTECH	7100	#0240	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Pre-Concentrator	Air-2	ENTECH	7100A	1438	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Pre-Concentrator	Air-4	ENTECH	7100A	1385	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Pre-Concentrator	Storage	ENTECH	7100	#0245	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Sievers interface controller	Air-5	Sievers	255-355	1705	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
SulfurChemluminescence Controller	Air-5	Sievers	SCD-355	03061070	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Summa Canister	325 Canisters	Restek/Entech	6L-SilcoSteel	VariousA	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-2	Edwards	E2M1.5	703525	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-4	Edwards	1.5	006840244	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-1	Pfeiffer	Duo-2.5	21320965	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-3	Edwards	1.5	982169849	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-1	Vacuubrand	ME2	23583609	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-2	Vacuubrand	ME2	27170702	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Air-4	Vacuubrand	ME2	29690604	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	CC1	Vacuubrand	MZ2	29560805	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Storage	Vacuubrand	ME2	30190020	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	Storage	Vacuubrand	ME2	24058109	0 no	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	spare	Vacuubrand	MZ2	27176504	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	CC#2	Vacuubrand	MZ2NT	38789904	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Vacuum Pump	TD Bag	Vacuubrand	MZ2	24252605	1 yes	143	AIR Lab	AIR	Silver	Agawam,MA
Cell Phone	413-237-4234	Motorola	W385	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-237-7736	Motorola	V325i	A00000234B7D51	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-237-2270	Nokia	7205	A00000015137a1	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-896-0910	Nokia	7205	A00009015137C6	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell phone	315-405-0825	Samsung	SCH-U640	A000002A5D5700	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell phone	315-405-0826	Samsung	SCH-U640	A000002A5D5644	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	315-882-2833	Samsung	SCHU640	A000002A5D3C5C	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	401-323-4591	Samsung	SCH-U640	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-237-2248	SAMSUNG	SCH-U640	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-348-2933	Samsung	SCH-U640	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-348-2934	Samsung	SCH-U640	A000002A3CA4C0	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-478-6970	Samsung	SCH-U640	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-654-7322	Samsung	SCH-U640	A0000029901374	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-896-0909	Samsung	SCH-U640	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone	413-896-4038	Samsung	SCH-U640	NA	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Cell Phone		Samsung	SCH-U640	A00000234B7D33	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Fork lift	Warehouse	BT Lifter	L2000U	1084243	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA
Fork lift	2	Rol-Lift Stacher	2199	PSF20T20FD36151ANN	1 yes	116	Health & cou	COURIER	Almgren	Agawam,MA

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GPS	NY Courier	Garmin	Nuvi 265wt	21d253515	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
GPS	Courier department	Tom Tom	xl 340t	ru4430109234	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
GPS	Courier department	Tom Tom	xl 340t	ru2240b03264	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
GPS Unit	Courier Dept	Garmin	nuvi	NA	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
GPS Unit	Courier Dept	Garmin	Nuvi	NA	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Hand cart	van 2	Global industrial	241301	N/A	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Ice Machine		Scottsman	SLC400AE-1A	638919-12L	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Ice Machine Storage Bin		Manitowoc	C420	951120535	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Package scale	Courier department	Pelouze	p100s	1300000175	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Package scale	Warehouse	Pelouze	p100s	1000000143	1	yes	116	Health & co	COURIER	Almgren	Agawam,MA
Glass Crusher	H&S	Prodeva	95-6	12854	1	yes	125	Garage	GARAGE	Almgren	Agawam,MA
Hyder Prep	Storage	Leeman Labs	Prep	7001	0	no	501	Garage	GARAGE	Almgren	Agawam,MA
Plastic Shedder	H&S	Prodeva	315-S	12855	1	yes	125	Garage	GARAGE	Almgren	Agawam,MA
Sonicator	Storage	Branson Sonifier	450	BI60237	0	no	501	Garage	GARAGE	Almgren	Agawam,MA
Vacuum Pump	Storage	Pfeiffer	Duo-2.5	21233388	0	no	501	MOE Office	GARAGE	Almgren	Agawam,MA
Autodigestor	Autoblock 2	Environmental Express	SC862	0605DUR084	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
Autosampler	iCAP2	CETAC	ASX-520	051167A520	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Autosampler	iCAP	CETAC	ASX-520	0312148A520	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Autosampler	(Spare)	CETAC Tecnologies	ASX520	081105A520	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Autosampler	ICAP4	CETAC Tecnologies	ASX520	0213764A520	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Autosampler	MERCURY4	Leeman Labs	Hydra II AA	4035	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Autosampler	ICPMS2	Perkin Elmer	S10	102S7093702	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Balance	Scale #2	AND	ER-60A	3492967	0	no	120	Metals Prep	INORG	Almgren	Agawam,MA
Balance	Scale #12	Ohaus	PA114	8328170194	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
CEM Ionizer	anti-static ionizer	CEM	912490	N/A	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
Chiller	ICPMS2	Poly Science	N8122247	3E1111254	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Chiller	ICAP1	Thermo	ThermoFlex900	12713401140523	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
chiller	ICAP2	Thermo	ThermoFlex900	127135701140528	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
chiller	ICAP4	Thermo	ThermoFlex900	R08254046	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Fume Hood	23	Hamilton	PL-260-1	N/A	1	yes	124	Metals Prep	INORG	Almgren	Agawam,MA
Fume Hood	24	Labconco	No markings	N/A	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
Hot Plate	Hot Plate	Barnstead	HP47135	107303046689	1	yes	124	Metals Prep	INORG	Almgren	Agawam,MA
Hot Plate	Hot Plate	Thermolyne	HP47135	103030284577	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
Hotblock	HB2	Environmental Express	SC154	3826CEC1819	1	yes	124	Metals Prep	INORG	Almgren	Agawam,MA
Hotblock	HB1	Environmental Express	SC154	3483CEC1685	1	yes	124	Metals Prep	INORG	Almgren	Agawam,MA
Hotblock	HB3	Environmental Express	SC154	3826CEC1822	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
ICAP	ICAP	Thermo Scientific	6500	20072108	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Icap	ICAP2	Thermo Scientific	6500	20112705	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Icap	ICAP4	Thermo Scientific	6500	IC5D20114909	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
ICP-MS	ICPMS2	Perkin Elmer	Elan 9000	AJ100540602	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Mars Xpress Microwave	Mars Microwave	CEM	907501	MD3510	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
Mercury Analyzer (automatic)	MERCURY3	Leeman Labs	Hydra AA	HA-7019	1	yes	120	Metals Prep	INORG	Almgren	Agawam,MA
Mercury Analyzer (automatic)	MERCURY4	Leeman Labs	Hydra II AA	5159	1	yes	121	Metals Instru	INORG	Almgren	Agawam,MA
Oxidizer Variable Transformer	Powerstat	Powerstat		3pn116c	1	yes	124	Metals Prep	INORG	Almgren	Agawam,MA
Refrigerator	16	True	GDM-69	1-2665715	1	yes	130	Hallway	INORG	Almgren	Agawam,MA
TCLP Rotator	Rotator #3	Environmental Express	GFM0605-JIC	75233035	0	no		Wet Chem	INORG	Almgren	Agawam,MA
TCLP Rotator	Rotator #2	Environmental Express	GFM0605-JIC	BGFM18-060SJIC	1	yes		Wet Chem	INORG	Almgren	Agawam,MA
TCLP Rotator	Rotator #4	Environmental Express	GFM0605-JIC	EE551112566	1	yes	124	Metals room	INORG	Almgren	Agawam,MA
HotBlock	HB4	Environmental Express	SC151	6791CEW3_ 8	1	yes	124	Metals Prep	INORG	Almgren	Agawam, MA
Autodigester	AB+	Environmental Express	AB4001	AB4001-1212-013	1	yes	120	Metals Prep	INORG	Almgren	Agawam, MA
Balance	Scale #15	Intell-Lab Balance	PA200	21257	1	yes	120	Metals Prep	INORG	Almgren	Agawam, MA
Fume Hood	28	Hamilton	No Markings	N/A	1	yes	124	Metals Prep	INORG	Almgren	Agawam, MA
Autoclave	auto1	Napco	8000-DSE	601071535	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Autoclave	auto2	Pelton Crane	OCR	A4-18569	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Autoclave	Parts	Pelton Crane		A435728	0	no	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Autodigester	AB+	Environmental Express	AB4001	AB4001-1212-013	1	yes	120	Metals	MICROBIO	Almgren	Agawam,MA
Balance	Scale #15	Intelligent Weighing Tech.	PA200	021257	1	yes	120	Metals	MICROBIO	Almgren	Agawam,MA
Fume Hood	Mic	Fisher	No Visible Numbers	N/A	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Hot Block	HB4	Environmental Express	SC151	6791CECW3148	1	yes	124	Metals	MICROBIO	Almgren	Agawam,MA
Hot Plate	Mic	Corning	PC101	LR33491	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Hot Plate	Mic	Corning	PC-620	380805011787	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Hot Plate	Need repair	Corning	PC-420	410504096694	0	no	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Hot Plate	Need repair	Corning	PC-420	420504195972	0	no	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Hot Plate	Hot Plate	Vela	03401-40	917040476861	1	yes	124	Metals	MICROBIO	Almgren	Agawam,MA
Hot Plate/Stirrer	Mic	Nuova	NA	NA	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA

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Incubator	Mic	Attest	116	169370	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Incubator	Incubator1	Fisher	Isitemp 600	103N0088	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Incubator	Mic	Sunbeam		169370	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Incubator	Incubator2	Thelco	#2	21AB12	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Incubator water bath	#2	Precision		602061055	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Microscope	Mic	Olympus	291652	N/A	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Microscope w/camera	Mic	Olympus	BH2	N/A	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Quebec Colony Counter	Mic	AO American Optical	3325	0852	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Refrigerator	26	Magic Chef	980W	0502MCBR980W01708	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Ultraviolet Lamp	Mic	UVP	UVL-56	J221	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Vacuum Pump	Filtration Pump	GAST	DOA-P704-AA	0909601274	1	yes	120	Metals	MICROBIO	Almgren	Agawam,MA
Vacuum Pump (2)	Mic	Fisher	AA680J	N/A	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Water Bath	#1	Precision	#183	N/A	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
Thermocouple	Datalogger	MadgeTech	HiTemp140	P09095	1	yes	117	Microbiology	MICROBIO	Almgren	Agawam,MA
MA Reg 616-ETT	Car 99 HT	Ford 2009	Explorer	1FMEU85849UA02438	1	yes	108	President, L.	COURIER	Silver	Agawam,MA
Balance	Scale #6	Denver Instruments	P-4002D	P4K2D094003	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Cartridge Pump	Pump	Cole-Parmer	7519-25	H04004078	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Cartridge Pump	Pump	Cole-Parmer	7519-25	F05002554	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Cartridge Pump	Pump	Cole-Parmer	7519-25	C05000925	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Clinical Rotator	Orbital rotator	Barnstead	2314	1665060641975	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Clinical Rotator	Orbital rotator	Fisher	None	502N0006	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Clinical Rotator	Orbital rotator	Fisher	None	504N0057	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Clinical Rotator	Orbital rotator	Fisher	None	506N0079	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Clinical Rotator	Orbital rotator	Fisher	None	506N0088	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Conductivity Meter	Multi-meter	Accumet	50	C0024727	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Console Drive	Pump Driver	Cole-Parmer	7520-40	B05004879	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Console Drive	Pump Driver	Cole-Parmer	7520-40	G05003239	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Console Drive	Pump Driver	Cole-Parmer	7520-40	D05002827	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
economy Drive	Pump Driver	Cole-Parmer	90	F05002411	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Fume Hood	22	Kewaunee	N/A	N/A	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Incubator	#32	Fisher	FFU2064DW1	WB50339119	1	yes	124	Hallway	R&D	Almgren	Agawam,MA
Open-Air Platform Shakers	Orbital rotator	Thermo	Maxq 2000	1410061223506	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Open-Air Platform Shakers	Orbital rotator	Thermo	Maxq 2000	1410061008170	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Open-Air Platform Shakers	Orbital rotator	Thermo	Maxq 2000	1410070132534	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Ozone Generator	Ozone Generator	Longevity	HT4-500G	44715	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Peristaltic Pump	Pump	Spetec	Perimax12	03010735	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
pH / Conductivity meter	pH meter	Accumet	AR20	AR93316734	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Refrigerator	23		GDM-45	1-3873196	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Spectrophotometer	Spec3	Spectronic	Genesys-5	3V8A080002	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Stir plate	Stir Plate	Corning	Scholar 171	43107017455	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Stir Plate	Stir Plate	Fisher	1205	809N2022	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
Stir Plate	Stir Plate	Fisher	120S	809N2022	1	yes	126	R & D Office	R&D	Almgren	Agawam,MA
Stir plate	Stirrer	Corning	Scholar 171	440133	1	yes	126	R & D Office	R&D	Almgren	Agawam,MA
Surface Tensiomat	Tensiomat	Fisher	21	505N0022	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
Viscometer	Viscometer	Brookfield	LVDV-II+P	RTP6527203	1	yes	124	R & D Office	R&D	Almgren	Agawam,MA
YSI ProOBOD PROBE	YSIDO	YSI Incorporated	ProODO	11B 100626	1	yes	123	R & D Office	R&D	Almgren	Agawam,MA
11 Almgren DR Building	Spectrum LAB	MARC Bergeron	12,000.00 SF Building	2.0 ACRES	1	yes	103	LOGIN	SAMPLE	Almgren	Agawam,MA
830 Silver ST Building	Spectrum LAB	MARC Bergeron	10,000.00	2.5 ACRES	1	yes	103	LOGIN	SAMPLE	Almgren	Agawam,MA
Freezer	Log #25	Frigidare	FFV1152DW2	WB50523864	1	yes	115	LOGIN	SAMPLE	Almgren	Agawam,MA
IR TEMP GUN	Cicero - sample department	Fluke	566	19010082	1	yes	115	LOGIN	SAMPLE	Almgren	Agawam,MA
IR TEMP GUN 1	Login 1	Fluke	566	17820031	1	yes	103	LOGIN	SAMPLE	Almgren	Agawam,MA
IR TEMP GUN 2	Login 2	FLUKE	566	17820026	1	yes	103	LOGIN	SAMPLE	Almgren	Agawam,MA
IR Thermometer (Cal due 04/19/08)	Gun 1	Fisher	06-664-38	61638335	1	yes	115	LOGIN	SAMPLE	Almgren	Agawam,MA
Refrigerator	#1		GDM-69	1267988	1	yes	115	LOGIN	SAMPLE	Almgren	Agawam,MA
Refrigerator	#11		GDM-45	13873486	1	yes	115	LOGIN	SAMPLE	Almgren	Agawam,MA
Thermocouple Thermometer 3	Login	Fluke	51/52-II	16710225	1	yes	103	LOGIN	SAMPLE	Almgren	Agawam,MA
Therocouple thermometer 4	Login	Fluke	51/52 II	16710232	1	yes	103	LOGIN	SAMPLE	Almgren	Agawam,MA
Mercury Analyzer (automatic)	MERCURY2	Leeman Labs	Hydra AA	HA-4007	0	no	501	Garage	storage	Almgren	Agawam,MA
Vacuum Pump	Storage	Edwards	1.5	046071663	0	no	501	Wes' office	storage	Silver	Agawam,MA
Vacuum Pump	Storage	Pfeiffer	Duo-2.5	21031618	0	no	501	Wes' office	storage	silver	Agawam,MA
4-Pos 2-Lit Shaker	Shaker#1	Glas-Col	099AVH2000S	266868	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
4-Pos 2-Lit Shaker	Shaker#2	Glas-Col	099AVH2000s	266869	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
8-Pos 2-Lit Shaker	Shaker#3	Glas-Col	3-D Shaker	401651	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
ASE 200	ASE1	Dionex	ASE200	03020287	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
ASE 200	ASE2	Dionex	ASE200	04010257	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
ASE 200	ASE3	Dionex	ASE200	05010046	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
ASE 200	ASE4	Dionex	ASE 200	98070129	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Autosampler	HPS-15	Agilent	G2913A	CN70238299	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-16	Agilent	G2913A	CN70238298	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-4	Agilent	G2913A	US12419278	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-5	Agilent	G2913A	CN72942162	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-6	Agilent	G2913A	CN73042302	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA

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Autosampler	HPS8	Agilent	G4513A	CN11500142	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-11	LEAP Technologies	GC PAL	160951	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-12	LEAP Technologies	GC PAL	160947	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-14A	LEAP Technologies	GC PAL	160930	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-17	Leap Technologies	GC PAL	161399	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-18	Leap Technologies	GCPAL	160369	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-19	Leap Technologies	GCPAL	160312	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-2	LEAP Technologies	GC PAL	160956	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-3	LEAP Technologies	GC PAL	160428	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler	HPS-7	LEAP Technologies	GC PAL	160805	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler Tray	HPS-15	Agilent	G2614A	CN62940496	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler Tray	HPS-16	Agilent	G2614A	CN70242601	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler Tray	HPS-4	Agilent	G2614A	CN71043246	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler Tray	HPS-5	Agilent	G2614A	CN71943937	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler Tray	HPS-6	Agilent	G2614A	CN72044008	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Autosampler Tray 7693	HPS8	Agilent	G4519A	CN11500019	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Balance	Scale #11	Denver Instruments	DI	22550872	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Balance	Scale #3	Mettler	AE200-S	K65275	0	no	122	Storage	SVOC	Almgren	Agawam,MA
Balance	Scale #1A	Mettler Toledo	XS104	1128420705	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Balance	Scale #16	Intelligent Weighing Tech.	PA200	09120111	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Centrifuge	Centrifuge	Fisher	226	2603	0	no	122	Storage	SVOC	Almgren	Agawam,MA
Centrifuge	Centrifuge	Fisher	228	FS17661	0	no	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Chiller	Chiller	Poly Science	N0691883	G57680	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 31	fisher-Hamilton	Safeaire II	267790	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 10	Labconco	60830-00/D	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 18	Labconco	NA	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 19	Labconco	60830-00/D	267789	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 25	Labconco	NA	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 27	Labconco	No Visible Numbers	N/A	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep16	Labconco	60830-00/D	267790	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Fume Hood	Prep 20	NA	NA	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Gas Chromatograph	Storage	Perkin Elmer	N611	610N 4090204	0	no	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (Dual ECD)	HPS-11	Agilent	6890 series	US00039713	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (Dual ECD)	HPS-12	Agilent	6890 series	CN10445021	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (Dual ECD)	HPS-14A	Agilent	6890N	CN10602096	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (Dual ECD)	HPS-17	Agilent	6890N	US10721002	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (Dual ECD)	HPS-19	Agilent	7890N	CN10721099	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (Dual FID)	HPS-18	Agilent	6890N	CN10602035	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (FID)	HPS-15	Agilent	6890N	US10721003	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (FID)	HPS-16	Agilent	6890N	US10721007	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (FID/MS)	HPS-2	Agilent	6890N	CN10419046	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (FID/MS)	HPS-3	Agilent	6890N	US10151072	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (FID/MS)	HPS-5	Agilent	6890N	CN10603083	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (FID/MS)	HPS-7	Agilent	6890	US00001599	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (MS)	HPS-4	Agilent	6890 series	US00041057	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (MS)	HPS-6	Agilent	7890N	CN10713019	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Gas Chromatograph (MS)	HPS8	Agilent	7890A	CN12051112	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
High Throughput 24-Sample Rotor	Rotor (holds vessesl)	Milestone	Pro-24	578	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
High Throughput 24-Sample Rotor	Rotor (holds vessesl)	Milestone	Pro-24	589	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	393537	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	391514	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	474942	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	474943	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	474944	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	393529	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	474946	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-Col	099A VH 20005	474949	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-col	3-D	401647	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-col	3-D	401648	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-col	3-D	401649	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Holder	Prep	Glas-col	3-D	401650	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Block	Hot block 4	Environmental Express	SC100	145CEC0186	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate	Soxhlet	Cole Parmer Vela	03401-40	917050249208	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate	Soxhlet	Cole Parmer Vela	03401-40	91705024803	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate	SVOC	Cole Parmer Vela	03401-40	9170476859	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate	SVOC	Cole Parmer Vela	03401-40	917050247798	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate	SVOC	Cole Parmer Vela	03401-40	917050247802	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate	SVOC	Cole Parmer Vela	03401-40	917050247803	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate	SVOC	Cole Parmer Vela	03401-40	917052049207	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate	SVOC	Cole Parmer Vela	03401-40	917050249210	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate	Soxhlet	Fisher	NA	1000170	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate	Soxhlet	Fisher	11-100-100SH	1886070303211	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA

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Hot Plate	SVOC	Fisher	11-498-7S	561-00971	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Sohlet	Fisher	11-100-100SH	188607303215	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188607303193	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188607030194	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188607303206	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188607303215	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-1000-100SH	188607303197	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-498-75	56100971	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409080419 0	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188090804182	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409080959 1	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409080959 7	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409080679 7	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409080959 3	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409080679 2	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409091271 2	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409071364	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188409083488 9	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188408061502 9	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188408082234 0	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188408022136 2	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Hot Plate/Stirrer	Soxhlet	Fisher	11-100-100SH	188408061316 2	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Interface Controller	Storage	Perkin Elmer	900 Series 970	2351270996	0	no	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Lazy Baki Funnel Holder	Shaker#3	Mohammed Baki	NA	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Mass Spectrometer	HPS-2	Agilent	5973N	US40646488	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer	HPS-3	Agilent	5973N	US05040114	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer	HPS-4	Agilent	5973N	US44047071	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer	HPS-5	Agilent	5973N	US55142222	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer	HPS-6	Agilent	5975C	US73317300	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer	Storage	Agilent	5973	US82321957	0	no	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer	HPS-7	HP	5975C	US11027505	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Mass Spectrometer (MSD)	HPS8	Agilent	5975C	US11473917	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Microwave Control Terminal 640	Software Control Terminal	Milestone	Easy Control	1208000026	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Microwave Extractor	Microwave 1	Milestone	ETHOS EX	134049	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Motor - (solid phase) Filtration Pump	Prep	KNFLab	(type) UN8163KT)	11901912	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Oven - Isotemp 500 series	Storage	Fisher	516G	60200057	0	no	125	Garage	SVOC	Almgren	Agawam,MA
Oven-Isotemp senior model	Glassware	Fisher	103	A101	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Recycler	Storage	Electrothermal	Em 3000/CX	10725311	0	no	125	Garage	SVOC	Almgren	Agawam,MA
Refrigerator	4	Bush	35103G03	905798	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	2	Fisher	13-987-348G	01773625	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Refrigerator	6	Kelvinator	UC25RF-FMS	381934	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	14	Magic Chef	MCBR1010W	030728402	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	29	Magic Chef	MCBR1010W	030728402	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	15	True	GDM-45	1-2680707	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	17	True	GDM69	12824599	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	7	True	GDM69	1-3226065	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	19	United		N/A	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	3	Universal	UCM-46	490519	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	7a	WelBilt	W8-/3320	199101	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Refrigerator	5	Westinghouse	MRT13CRBW3	BA60111729	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Sonic Disembrator	Sonic #2	Fisher	F550	F1808	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Sonic Disembrator	Sonic #1	Tekmar	NA	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Soxhlet	SVOC	Electrothermal	EMEG0250/CEMK1	NA	0	no	122	Storage	SVOC	Almgren	Agawam,MA
Soxhlet (2)	SVOC	Electrothermal	EMEG0250/CEMK1	N/A	0	no	122	Storage	SVOC	Almgren	Agawam,MA
Soxhlet 168 Setup	SVOC	AMK Glass	Soxhlet	NA	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Turbo Vap	SVOC	Zymark	Turbo Vap II	TV0015N9521	0	no	122	Storage	SVOC	Almgren	Agawam,MA
Turbo Vap	SVOC	Zymark	Turbo Vap II	TV0018N9553	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Turbo Vap	SVOC	Zymark	TurboVap II	TV0625N13132	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Turbo Vap	SVOC	Zymark	TurboVap II	TV9907N8670	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Turbo Vap	SVOC	Zymark	TurboVap II	TV9911N8743	1	yes	122	Prep Room :	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-2	Edwards	A371-24-902	046032716	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-6	Edwards	A371-24-902	027220249	1	yes	122	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-5	Edwards	A371-24-902	017210484	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-4	Edwards	1.5	46071663	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-7	Pfeiffer	Duo-2.5	21425042	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-3	Pfeiffer	Duo-2.5	22007828	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	HPS-8	Pfeiffer	Duo-2.5	21797729	1	yes	130	SVOC GC R	SVOC	Almgren	Agawam,MA
Vacuum Pump	1664			M056LX2-A	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Vacuum Pump	Pump	Fisher	4001901	F04002923	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Vacuum Pump	Pump	Fisher	4001901	L12004065	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Water Bath	Ultra sonic cleaner	Fisher	FS220	RWB120278478	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Water Bath	Water Bath	Cole Palmer	12500-00	100196	0	no	122	SVOC Prep	SVOC	Almgren	Agawam,MA

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Turbo Vap	#6	Biotage	TurboVap II	TV1246N17454	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Oven	Prep room glassware dryer	Lab Depot	Model 30 GC Gravity Convection Oven	G3-010052	1	yes	122	SVOC Prep	SVOC	Silver	Agawam,MA
Autosampler	FID-0	EST	LGX-50	LGX112122215	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	HP-9	EST	Archon	14672	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	FID-1	Tekmar	2032	US03174002	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	FID-1	Tekmar	2016	US03253003	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	FID-2	Tekmar	Sola-Tek 72	US08252003R	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	HP-2	Tekmar	2016	99267001	0	no	144	Storage	VOC	Silver	Agawam,MA
Autosampler	HP-2	Tekmar	2032	94298001	0	no	144	Storage	VOC	Silver	Agawam,MA
Autosampler	HP-3	Tekmar	2016	US00182008	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	HP-3	Tekmar	2032	99267002	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	HP-5	Tekmar	Sola-Tek 72	US05118002	1	yes	139	VOC	VOC	Silver	Agawam,MA
Autosampler	HP-7	Tekmar	Sola-Tek 72	US08004002	1	yes	139	VOC	VOC	Silver	Agawam,MA
Autosampler	HP-8	EST	Centurion	CENTW542122315	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler	Storage	Tekmar	2016	93149005	0	no	144	VOC	VOC	Silver	Agawam,MA
Autosampler	Storage	Tekmar	2032	US02263001	0	no	144	VOC	VOC	Silver	Agawam,MA
Autosampler/Concentrator	HP-1	Tekmar	Atomx	US14086002	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler/Concentrator	HP-2	Tekmar	Atomx	US10348002	1	yes	144	VOC	VOC	Silver	Agawam,MA
Autosampler/Concentrator	HP-4	Tekmar	Atomx	US11130002	1	yes	144	VOC	VOC	Silver	Agawam,MA
Balance	Scale #7	Fisher	NA	WW42108B	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	HP-9	EST	Encon #2A	248032406EP	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	FID-1	Tekmar	3100	US01239007	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	HP-8	EST	Eveloution	EV715121715	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	HP-2	Tekmar	3100	99294009	0	no	144	Storage	VOC	Silver	Agawam,MA
Concentrator	HP-3	Tekmar	3100	US01107015	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	HP-7	Tekmar	Stratum	US08016003	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	FID-2	Tekmar	Stratum	US07226009	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	HP-5	Tekmar	Stratum	US12136003	1	yes	144	VOC	VOC	Silver	Agawam,MA
Concentrator	Storage	Tekmar	Velocity XPT	US05266001	0	no	144	VOC	VOC	Silver	Agawam,MA
DIH2o	ASM	Millipore	TankPE030	FIDN01197	1	yes	144	VOC	VOC	Silver	Agawam,MA
DIH2o	Elix	Millipore	ZLXS6OO5Y	F1HNO1233D	1	yes	144	VOC	VOC	Silver	Agawam,MA
DIH2o	MilliQ	Millipore	ZMQS6000Y	F0NN23096I	1	yes	144	VOC	VOC	Silver	Agawam,MA
FID/PID	FID-2	O.I Analytical	4430	C349530940	1	yes	144	VOC	VOC	Silver	Agawam,MA
FID/PID	FID-0	OI	FID/PID	C847530448	1	yes	144	VOC	VOC	Silver	Agawam,MA
FID/PID	FID-1	OI	FID/PID	C110530898	1	yes	144	VOC	VOC	Silver	Agawam,MA
Freezer	#24	Traulsen	G22010	T17227B06	1	yes	144	VOC	VOC	Silver	Agawam,MA
Fume Hood	Prep 17	Fisher	No Visible Numbers	N/A	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	FID-0	Agilent	6890	US00009552	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	FID-1	Agilent	6890N	US10343008	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	FID-2	Agilent	6890N	CN10546066	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-8	Agilent	6890N	CN10503005	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-2	Agilent	7890A	CN10805006	1	yes	139	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-3	Agilent	7890A	CN10719024	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-4	Agilent	7890A	CN1041119	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-5	Agilent	6890N	CN10505034	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-7	Agilent	7890A	CN10721091	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-1	Agilent	6890N	US10552068	1	yes	144	VOC	VOC	Silver	Agawam,MA
Gas Chromatograph	HP-9	Agilent	6890N	CN10621067	1	yes	144	VOC	VOC	Silver	Agawam,MA
Headspace	Storage	Tekmar	7000	US00357002	0	no	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-8	Agilent	5973	US44646987	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-2	Agilent	5975C	US80818565	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-3	Agilent	5975C	US71215937	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-4	Agilent	5975C	US10437501	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-7	Agilent	5975C	US71215999	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-1	Agilent	5973	US54441749	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-9	Agilent	5975	US54421547	1	yes	144	VOC	VOC	Silver	Agawam,MA
Mass Spectrometer	HP-5	Agilent	5973	US10442098	1	yes	144	VOC	VOC	Silver	Agawam,MA
Oven	VOC1	Fisher	516G	10200123	1	yes	144	VOC	VOC	Silver	Agawam,MA
Refrigerator	#27	General Electric	SC2SGC	801835	1	yes	144	VOC	VOC	Silver	Agawam,MA
Refrigerator	#21	TRUE	GDM69	1-3530155	1	yes	144	VOC	VOC	Silver	Agawam,MA
Refrigerator	#29	TRUE	GDM45	1-4773992	1	yes	144	VOC	VOC	Silver	Agawam,MA
Sonicator	VOC	Fisher	FS20	RSA070270060	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-9	Edwards	1.5	046282174	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-2	Edwards	1.5	27581676	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-3	Edwards	1.5	972152597	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-4	Edwards	1.5	986019209	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-1	Edwards	1.5	700135	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-5	Pfeiffer	Duo-2.5	21042836	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-7	Pfeiffer	Duo-2.5	21217234	1	yes	144	VOC	VOC	Silver	Agawam,MA
Vacuum Pump	HP-9	Pfeiffer	Duo-2.5	21233388	0	no	144	Storage	VOC	Silver	Agawam,MA
3 Place Digester	TKN#1	Glas-Col	104A RL4312	472051	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
3 Place Digester	TKN#2	Glas-Col	104A RL4312	385317	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA

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Ammonia Distiller	Amm#1	Labconco	21285-01	260231	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
Ammonia Distiller	Amm#2	Labconco	21285-01	202799	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
Autosampler	Lachat1 Autosampler	Cetac	ASX-250	030763A520	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Autosampler	TOC1 Autosampler	Tekmar	STS-8000	190D1135	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Autosampler DX120	IC1	Dionex	AS40-1	03070056	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Autosampler ICS2000	IC2	Dionex	AS40-1	01040553	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Autosampler TOC	TOC2 Autosampler	Tekmar	STS-8000	190L8340	0	no	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Balance	Scale #5	Denver Instruments	M-220	PO107463	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Balance	Scale #8	Denver Instruments	APX-200	A24034055	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Balance	Scale #10	Mettler Toledo	XS204	1127510277	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Balance	Scale #9	Mettler Toledo	XS403S	1126021064	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Balance	Scale #13	Ohous	SC6010	BJ434061	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Balance	Scale #17	Ohaus	AV2101	8033191103	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Balance	Scale #1	Denver	APX-402	A42066011	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Balance	Scale #14	Ohaus	AV812	8033151106	1	yes	126	Wet chem Lı	WET CHEM	Almgren	Agawam,MA
BOD Incubator	#5	VWR	2020	0200692	1	yes	126	Hallway	WET CHEM	Almgren	Agawam,MA
BOD Low Temp Incubator	#34	VWR Scientific	PF2020	08087508	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
COD Reactor	#1	Hach	45600-00	940400010763	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
COD Reactor	#2	Hach	45600-00	990900019410	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
COD Reactor	#3	Hach	16500-10	880811290	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Conductivity Meter	pH / conductivity meter	Mettler Toledo	Sevenmulti	1227317010	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Cyanide / ammonia Apparatus	Wet	Kontes	Midi-Vap 2000	706	1	yes	126	Wet chem ai	WET CHEM	Almgren	Agawam,MA
Cyanide Apparatus	Wet	Lab Crest/Andrews	110-10-R	A6R1019	1	yes	126	Wet chem ai	WET CHEM	Almgren	Agawam,MA
Desiccator Cabinet	Wet	Nalgene	5317	N/A	0	no	126	Storage	WET CHEM	Almgren	Agawam,MA
Desiccator Cabinet	Wet	Sanplatec	Dry Keeper	NA3	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
DI Water System	DI system	Elga		UID 203042	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Dissicator	Metal Dissicator	Boekel	1344	103624864	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Dissolved Oxygen Meter	DO meter	YSI	5000	00G1001AU	1	yes	126	Wet chem rc	WET CHEM	Almgren	Agawam,MA
Distillation (Water)	Still	Corning	Mega 6 Liter Auto MP6	001184	0	no	126	Storage	WET CHEM	Almgren	Agawam,MA
DO Meter	DO Meter	Accumet	XL40	XL94003198	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
FID	Wet	Foxboro	OVA128	A41900	1	yes	126	Wet chem rc	WET CHEM	Almgren	Agawam,MA
FID/PID (Toxic Vapor Analyzer)	FID/PID	Foxboro	TVA-1000	102441714	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Flash Tester	For Parts	Koehler	K16200	R61091648A	0	no	501	Storage	WET CHEM	Almgren	Agawam,MA
Flash Tester	For Parts	Koehler	K16200	R61091929	0	no	501	Storage	WET CHEM	Almgren	Agawam,MA
Flashpoint	Flash#3	Koehler	K16200	R070021	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Glass Desiccator	Wet 2	Pyrex	NA	NA2	1	yes	126	Hallway	WET CHEM	Almgren	Agawam,MA
Hood	Self contained	ERLAP/Captair	Filtair-XL8104	109-1998	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Hood	Wet 28	Fisher	No Visible Numbers	N/A	1	yes	124	Wet chem rc	WET CHEM	Almgren	Agawam,MA
Hood	#16	Fisher / Hamilton	?	?	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Hood	#29	Fisher / Hamilton	?	?	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
Hood (6 ft)	21	No markings	No Visible Numbers	N/A	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
Hot Plate/Stirrer	#9	Cole Parmer	51450-72	981010222343	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
IC (Dionex)	IC1	Dionex	#DX-120	01031376	0	no	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
IC Dionex	IC2	Dionex	ICS-2000	03040056	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Incubator	Incubator 2	Thelco	2	?	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
INCUTROL	Wet	Hach	2597-00	000700010573	0	no	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
INCUTROL	Wet	Hach	2597A	900107979	0	no	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Ion Analyzer	Wet	Orion	940	PS102A	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Metrohm 858 Professional Sample Processor	IC3 autosampler	Metrohm	858 Professional	1858002003675	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Metrohm 881 Compact IC pro	IC3	Metrohm	881 Compact IC pro	1881000124117	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Metrohm autosampler auto-dilutor	IC3 auto-dilutor	Metrohm	n/a	1800001072308	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Muffle Furnace	Muffle furnace	Thermolyne	F30428C	1059010109782	0	no	126	Cafeteria	WET CHEM	Almgren	Agawam,MA
Muffle Furnace	Muffle furnace	Thermolyne	F30428C-78	718950809034	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Oven	#2	Blue-M	OV-490A-3	OV-6847	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Oven	#1	Blue-M	OV-490A-3	OV-6848	0	no	126	Wet chem rc	WET CHEM	Almgren	Agawam,MA
Oven	#4	Quincy Lab	40GC	G4-006222	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Oven	TOC Oven	Fisher	516G	908N0306	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Oven	#3	Thelco	6557	603354-171	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
pH Meter	pH meter	Oakton	pH2700	861795	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Pipet Washer/Rinser	Wet	Nalgene	5425	N/A	0	no	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Positive Displacement TCLP Unit	Wet	Millipore	XX6700P05	94--84906-296	0	no	126	Wet chem Lı	WET CHEM	Almgren	Agawam,MA
Pump	Pump	Barnant	400-8500	NA1	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Pump	Pump	Barnant	400-1901	FO4002977	1	yes	126	Wet chem sc	WET CHEM	Almgren	Agawam,MA
Pump Vacuum	Wet	Gast	Doap704-AA	0311011443	1	yes	126	Wet chem Lı	WET CHEM	Almgren	Agawam,MA
Quick Chem 8500 Series 2	Lachat 2	Lachat	8500 Series 2	110200001311	1	yes	126	Wet chem rc	WET CHEM	Almgren	Agawam,MA
Quick Chem FIA	Lachat 1	Lachat	8000 Series	A883000-1904	1	yes	126	Wet chem rc	WET CHEM	Almgren	Agawam,MA
Reagent Pump	Pump	Lachat	RP-100	A82000-665	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Reagent Pump	Pump	Lachat	RP-150	A82000-2450	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Refrigerator	10	True	GDM69	12027830	1	yes	130	Hallway	WET CHEM	Almgren	Agawam,MA
Refrigerator	8	Whirlpool	ET19TKXLNR2	551123499	1	yes	130	Hallway	WET CHEM	Almgren	Agawam,MA
Refrigerator Incubator	#6A	VWR Scientific	2020	0502092	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Rotator	#1	House made	none	none	1	yes	126	Wet chem Lı	WET CHEM	Almgren	Agawam,MA

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Sieve Shaker	Wet	Combustion Engineering	Mobel RX-86	N/A	1	yes	126	Hallway	WET CHEM	Almgren	Agawam,MA
Spectrophotometer	Wet	Hach Dr/3000	19600-00	910903160	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Spectrophotometer	Wet	Thermo	Evolution 300 BB	EV3151402	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stir Plate	#10	Fisher	145111A	123	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Stir plate	#1	Fisher	11-600-165	103N0101	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stir plate	#2	Fisher	14-505-21	902N0060	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stir plate	#3	Fisher	11-600-16S	103N0091	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stir plate	#5	Fisher	14-511-1A	?	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stir plate	#6	Fisher	14-511-IV2	?	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stir plate	#7	Thermo	S131125	C1760100604224	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
Stirrer (Magnetic)	#4	Corning	PC-410	440935	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Stirring hot plate	#8	Lab Depot	H4000-HS	20120104109	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
Stirring hot plate	#11	IKA	RT15 PS1	03.282758	1	yes	126	Wet chem L	WET CHEM	Almgren	Agawam,MA
Titrator	Titrator	Mettler-Toledo	DL55	5127133350	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Titrator	Titrator autosampler	Mettler-Toledo	Rondo 60	5127434135	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
TOC Boat Sampler	TOC soil sampler	Tekmar	183	US01130011	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Total Organic Carbon Analyzer	TOC2	Tekmar	Apollo 9000	US06282005	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Total Organic Carbon Analyzer	TOC1	Tekmar	Apollo 9000	99207004	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
Turbidimeter	Turbidimeter	HACH	2100NTurbid	050400010294	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Westco Smart Digester	DIS1	Westco	40/20	1509	1	yes	126	Wet chem A	WET CHEM	Almgren	Agawam,MA
XYZ Sampler	Lachat 1	Lachat	XYZ-ASX 500	A8-5301010	0	no	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
XYZ Sampler	Lachat 2	Lachat	ASX520	011144A520	1	yes	126	Wet chem in	WET CHEM	Almgren	Agawam,MA
pH Meter	pH meter	Orion Star	A211	X13276	1	yes	126	Wet chem m	WET CHEM	Almgren	Agawam,MA
Autoblock system	Autoblock	Environmental Express	AB4001	P.O. 30053	1	yes				Almgren	Agawam,MA
Computer	accounting	HP	DC7700	MXL7510PMH	1	yes	107	Office	Accounting	Silver	Agawam,MA
LCD	accounting	NEC	AccuSync LCD72VX	75D12833NA	1	yes	107	Office	Accounting	Silver	Agawam,MA
Computer	accounting2	HP	4000 Pro SFF	2UA216000L	1	yes	107	Cubes	Accounting	Silver	Agawam,MA
LCD	accounting2	ViewSonic	VA703b	Q85073961833	1	yes	107	Cubes	Accounting	Silver	Agawam,MA
Computer	cscherpa	HP	4000 Pro SFF	MXL22016RQ	1	yes	107	Cubes	Accounting	Silver	Agawam,MA
LCD	cscherpa	Philips	170S	BZ000508218972	1	yes	107	Cubes	Accounting	Silver	Agawam,MA
Computer	jflores	HP	4000 Pro SFF	2UA1280SZ2	1	yes	107	Office	Accounting	Silver	Agawam,MA
LCD	jflores	ViewSonic	VA703b	QAG073863975	1	yes	107	Office	Accounting	Silver	Agawam,MA
Printer	jflores	HP	LaserJet P2035	VNB3D41582	1	yes	107	Office	Accounting	Silver	Agawam,MA
Computer	mseverance	HP	4000 Pro SFF	2UA20514VY	1	yes	107	Office	Accounting	Silver	Agawam,MA
LCD	mseverance	ViewSonic	VA703b	Q85074961887	1	yes	107	Office	Accounting	Silver	Agawam,MA
Printer	mseverance	HP	LaserJet 2200	JPGGB42973	1	yes	107	Office	Accounting	Silver	Agawam,MA
Computer	ssnopek	HP	4000 Pro SFF	MXL214169W	1	yes	107	Office	Accounting	Silver	Agawam,MA
LCD	ssnopek	ViewSonic	VA703b	Q85074961880	1	yes	107	Office	Accounting	Silver	Agawam,MA
Printer	ssnopek	HP	LaserJet P2035	VNB3D41575	1	yes	107	Office	Accounting	Silver	Agawam,MA
Computer	cwhite	HP	4000 Pro SFF	MXL2070LK0	1	yes	107	Office	Admin	Almgren	Agawam,MA
LCD	cwhite	LG	E2411PB	303MXWE8M057	1	yes	107	Office	Admin	Almgren	Agawam,MA
Printer	cwhite	HP	LaserJet 2200	CNDRC66173	1	yes	107	Office	Admin	Almgren	Agawam,MA
Computer	gtayeh	HP	DC7700	MXL7510V0X	1	yes	107	Office	Admin	Silver	Agawam,MA
LCD	gtayeh	ViewSonic	VA703b	Q85074961874	1	yes	107	Office	Admin	Silver	Agawam,MA
Computer	joconnor	HP	4000 Pro SFF	2UA1331KC2	1	yes	107	Office	Admin	Silver	Agawam,MA
LCD	joconnor	LG	Flatron W2442PA-BF	105NDPHA6240	1	yes	107	Office	Admin	Silver	Agawam,MA
LCD	joconnor	LG	Flatron E2411	401MXTC69545	1	yes	107	Office	Admin	Silver	Agawam,MA
Printer	joconnor	HP	LaserJet 2100	USGX048200	1	yes	107	Office	Admin	Silver	Agawam,MA
Computer	nleja	HP	ProDesk 400 G1 SFF	MXL4211JR4	1	yes	107	Office	Admin	Silver	Agawam,MA
LCD	nleja	LG	Flatron W2442PA-BF	103NDHBFE137	1	yes	107	Office	Admin	Silver	Agawam,MA
LCD	nleja	LG	Flatron W2442PA-BF	106NDSK69750	1	yes	107	Office	Admin	Silver	Agawam,MA
Printer	nleja	HP	LaserJet P2055d	CNBJC00569	1	yes	107	Office	Admin	Silver	Agawam,MA
Computer	air1	Compaq	Evo D310	USV31601JK	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	air1	ViewSonic	VA703b	QAG073863492	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	air2	Compaq	Evo D510	6X31-KN9Z-G02N	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	air2	Dell	1908FPt	CN-0FP182-71618-7AT-RN	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	air3	HP	DC7900 SFF	MXL91712HN	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	air3	HP	L1702	CNN51514T4	1	yes	107	Air	AIr	Silver	Agawam,MA
UPS	air3	APC	Smart-UPS 2200US	WS1308180192	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	air4	HP	DC7100	2UA5410XZV	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	air4	HP	L1706	CNC718PWTQ	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	air5	Compaq	Evo D530	USV33203ZF	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	air5	ViewSonic	VA703b	QAG073864003	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	bfisk	HP	4000 Pro SFF	2UA14101PC	1	yes	107	Cubes	Air	Silver	Agawam,MA
LCD	bfisk	ViewSonic	VA2223wm-LED	STC120120348	1	yes	107	Cubes	Air	Silver	Agawam,MA
LCD	bfisk	LG	Flatron E2411	202NDNU2P559	1	yes	107	Cubes	Air	Silver	Agawam,MA
Computer	cleaner1	HP	ProDesk 400 G1 SFF	2UA4390X3X	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	cleaner1	Dell		MX05R1084760528GCTT3	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	cleaner2	Compaq	Deskpro EN	6118-FHGZ-A362	1	yes	107	Air	Air	Silver	Agawam,MA
LCD	cleaner2	Dell	UltraSharp	MX05R1084760528GCTT5	1	yes	107	Air	Air	Silver	Agawam,MA
Printer		HP	LaserJet 2300	CNBCC25478	1	yes	107	Air	Air	Silver	Agawam,MA
Computer	aparedes	HP	ProDesk 400 G1 SFF	MXL4120WCC	1	yes	107	Office	Client Services	Silver	Agawam,MA

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LCD	aparedes	LG	Flatron E2411	110NDRF44094	1	yes	107	Office	Client Services	Silver	Agawam,MA
Computer	cs	HP	DC7700	MXL7510RYR	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	cs	Philips	170S	BZ000614116747	1	yes	107	Office	Client Services	Silver	Agawam,MA
Scanner	cs	Canon	CanoScan LiDE 210	KEKA38305	1	yes	107	Office	Client Services	Silver	Agawam,MA
Computer	dlitchfield	HP	4300 Pro SFF	2UA3380YQL	1	yes	107	Office	Client Services	Silver	Agawam,MA
Laptop	dlitchfield	IBM	ThinkPad R60	LV-BG660	1	yes	107	Mobile	Client Services	Silver	Agawam,MA
LCD	dlitchfield	LG	Flatron E2411	202NDKD2P989	1	yes	107	Office	Client Services	Silver	Agawam,MA
Computer	jharacz	HP	4000 Pro SFF	MXL2070LK2	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	jharacz	ViewSonic	VA702b	PSX053504044	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	jharacz	ViewSonic	VA2223wm-LED	STC121520419	1	yes	107	Office	Client Services	Silver	Agawam,MA
Printer	jharacz	HP	LaserJet 4250	CNRXX24710	1	yes	107	Office	Client Services	Silver	Agawam,MA
Computer	lchaffee	HP	4000 Pro SFF	2UA2291C0Y	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	lchaffee	Philips	170S	BZ000520136079	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	lchaffee	ViewSonic	VA2223wm-LED	STC121520422	1	yes	107	Office	Client Services	Silver	Agawam,MA
Printer	lchaffee	HP	LaserJet 4250	CNGXB83129	1	yes	107	Office	Client Services	Silver	Agawam,MA
Computer	mbutler	HP	ProDesk 400 G1 SFF	2UA4400HH5	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	mbutler	ViewSonic	VA2223wm-LED	STC121520417	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	mbutler	LG	Flatron E2411	207NDDMDM642	1	yes	107	Office	Client Services	Silver	Agawam,MA
Printer	mbutler	HP	LaserJet P3015	VNBCC1J1K8	1	yes	107	Office	Client Services	Silver	Agawam,MA
Computer	rmerz	HP	ProDesk 400 G1 SFF	2UA4211R79	1	yes	107	Office	Client Services	Silver	Agawam,MA
LCD	rmerz	LG	Flatron W2442PA-BF	105NDPH5L376	1	yes	107	Office	Client Services	Silver	Agawam,MA
Fax		Muratec	MFX-1700	D8838090064027	1	yes	107	Office	Client Services	Silver	Agawam,MA
Fax		Muratec	MFX-1450	90183020	1	yes	107	Office	Client Services	Silver	Agawam,MA
Printer		HP	LaserJet P2035	VNB3253944	1	yes	107	Office	Client Services	Silver	Agawam,MA
Printer		HP	Color LaserJet 4650	JPCACC00488	1	yes	107	Office	Client Services	Silver	Agawam,MA
Copier		HP	LaserJet 500 MFP M525	MXDCF7J02D	1	yes	107		Copy SAI1	Almgren	Agawam,MA
Copier		Konica Minolta	bizhub 363	A1UE011014225	1	yes	107		Copy SAI1	Almgren	Agawam,MA
Fax		HP	LaserJet M2727nf	CNCY7790PK	1	yes	107		Copy SAI1	Almgren	Agawam,MA
Copier		HP	LaserJet 500 MFP M525	MXFCG8F1C2	1	yes	107		Copy SAI2	Silver	Agawam,MA
Fax		HP	LaserJet M2727nf	CND982V0C0	1	yes	107		Copy SAI2	Silver	Agawam,MA
Computer	bbristol	HP	DC7700	MXL7510V6J	1	yes	107	Office	Courier	Silver	Agawam,MA
LCD	bbristol	ViewSonic	VA703b	QAG073863522	1	yes	107	Office	Courier	Silver	Agawam,MA
Printer	bbristol	HP	LaserJet P2035	VNB3D97079	1	yes	107	Office	Courier	Silver	Agawam,MA
Computer	kwhite	HP	DC7800 USDT	MXL80705LN	1	yes	107	Office	Courier	Almgren	Agawam,MA
LCD	kwhite	ViewSonic	VA703b	QAG073961193	1	yes	107	Office	Courier	Almgren	Agawam,MA
Computer	preservation	Compaq	Evo D510	6X31-KN9Z-W1F3	1	yes	107	Air	Courier	Silver	Agawam,MA
LCD	preservation	ViewSonic	VA703b	QAG073863960	1	yes	107	Air	Courier	Silver	Agawam,MA
Computer	shipping	HP	DC5850	2UA9061G68	1	yes	107	Air	Courier	Silver	Agawam,MA
LCD	shipping	Philips	170B	47917441	1	yes	107	Air	Courier	Silver	Agawam,MA
Printer	shipping	Zebra	ZP 450	26A085200817	1	yes	107	Air	Courier	Silver	Agawam,MA
Computer	jmiller	HP	DC7800 USDT	MXL80205WJ	1	yes	107	Office	H&S	Almgren	Agawam,MA
LCD	jmiller	ViewSonic	VA703b	QAG073962163	1	yes	107	Office	H&S	Almgren	Agawam,MA
NAS	archive	Buffalo	TS-H3.0TGL/R5	95821278701852	1	yes	107	Network SAI	IT	Silver	Agawam,MA
NAS	archive2	Buffalo	TS-XE4.0TL/R5	95832810400145	1	yes	107	Network SAI	IT	Silver	Agawam,MA
NAS	archive3	Buffalo	TS-XE4.0TL/R5	95832820300134	1	yes	107	Network SAI	IT	Silver	Agawam,MA
Computer	dtayeh	HP	DC7700	MXL7510PGZ	1	yes	107		IT	Silver	Agawam,MA
LCD	dtayeh	ViewSonic	VA703b	Q85074961909	1	yes	107		IT	Silver	Agawam,MA
Computer	jnavaroli	HP	4000 Pro SFF	MXL1260WRK	1	yes	107	Office	IT	Silver	Agawam,MA
LCD	jnavaroli	HP	L1910	CNK90404CS	1	yes	107	Office	IT	Silver	Agawam,MA
LCD	jnavaroli	ViewSonic	VA2223wm-LED	STC122400673	1	yes	107	Office	IT	Silver	Agawam,MA
Computer	mfellows	HP	4000 Pro SFF	2UA23500RF	1	yes	107	Office	IT	Silver	Agawam,MA
LCD	mfellows	ViewSonic	VA703b	Q85074961901	1	yes	107	Office	IT	Silver	Agawam,MA
LCD	mfellows	ViewSonic	VA2223wm	STC122801318	1	yes	107	Office	IT	Silver	Agawam,MA
LCD	time1	Princeton	1510	JCCF1201987	1	yes	107	Login	IT	Almgren	Agawam,MA
LCD	time2	Princeton	1510	JCCF1203227	1	yes	107	Lobby SAI2	IT	Silver	Agawam,MA
Server	vms1	HP	ProLiant DL360 G6	USE031N29Z	1	yes	107	Network SAI	IT	Silver	Agawam,MA
Server	vms2	HP	ProLiant ML350 G6	MXQ1260B6D	1	yes	107	Network SAI	IT	Silver	Agawam,MA
Server	vms3	HP	ProLiant ML350 G6	MXQ2030HC9	1	yes	107	Network SAI	IT	Silver	Agawam,MA
ASA		Cisco	5505	JMX1642Z1JH	1	yes	107	Network SAI	IT	Silver	Agawam,MA
Computer		HP	DC5700	MXM71606RS	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	DC7800 USDT	MXL80205XV	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	DC7800 USDT	MXL80205YZ	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	DC7800 USDT	MXL80705PN	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		Dell	OptiPlex 745	50P6SC1	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	D220M	MXD410032D	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	DC5000	2UB60100ZD	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		Dell	OptiPlex 960	8M82QL1	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		Compaq	Evo D5pS	X203JYHZA918	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		Compaq	Evo D5pS	X203JYHZA862	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		Compaq	Evo D510	V302KN9ZB663	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	DC7800 USDT	MXL80705K3	0	no	107	Storage	IT	Silver	Agawam,MA
Computer		HP	DC5000	MXL50901BR	0	no	107	Storage	IT	Silver	Agawam,MA

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Computer		HP	DC5000	2UB60100V8	0	no	107	Storage	IT		Silver	Agawam,MA
Computer		HP	DC5000	2UB5520FMY	0	no	107	Storage	IT		Silver	Agawam,MA
Computer		Dell	OptiPlex 790	6S91WV1	0	no	107	Storage	IT		Silver	Agawam,MA
Computer		Compaq	Evo D510	6X26-KN92-M0XC	0	no	107	Storage	IT		Silver	Agawam,MA
Laptop		Lenovo	ThinkPad T500	L3-A0623	0	no	107	Storage	IT		Silver	Agawam,MA
Laptop		IBM	ThinkPad 1860	L3-BZYL4	0	no	107	Storage	IT		Silver	Agawam,MA
Laptop		HP	Pavillion tx2500	CNF8400LR4	0	no	107	Storage	IT		Silver	Agawam,MA
Laptop		Acer	Extensa 4230	LXEBE0Z0069082698B16C	0	no	107	Storage	IT		Silver	Agawam,MA
Laptop		Acer	Extensa 4230	LXEBE0Z006908269BF16C	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA2223wm-LED	STC120620597	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VP201MB	A0F020910252	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		NEC	AccuSync LCD72VX	73F34464NA	1	yes	107	Network SAI	IT		Silver	Agawam,MA
LCD		ViewSonic	VA2223wm-LED	STC121120702	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	QAG073863982	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		NEC	AccuSync LCD72VX	76M06523NA	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA2223wm-LED	STC120620819	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		Dell	UltraSharp	MX05R10847605356CL4E	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA702b	PSX054505280	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		NEC	MultiSync 1530V	2103180TA	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	Q85080562871	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	Q85073961596	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	Q85074961893	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		NEC	AccuSync LCD72VX	75D12121NA	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	QAG073145207	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	Q85073961584	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		NEC	AccuSync LCD72VX	75D04590NA	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		NEC	AccuSync LCD72VX	75D11774NA	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	Q85073963055	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		ViewSonic	VA2223wm-LED	STC122400181	0	no	107	Storage	IT		Silver	Agawam,MA
LCD		Philips	170S	AU4A0617014508	0	no	107	Storage	IT		Silver	Agawam,MA
Printer		HP	LaserJet P2015	CNB1N78330	0	no	107	Storage	IT		Silver	Agawam,MA
Printer		HP	LaserJet 2200	JPGGH29707	1	yes	107	Office	IT		Silver	Agawam,MA
Printer		Epson	Artisan 50	LCJK107100	1	yes	107	Office	IT		Silver	Agawam,MA
Printer		HP	LaserJet 4250	CNBXB24729	0	no	107	Storage	IT		Silver	Agawam,MA
Printer		HP	LaserJet 2100	USGX116887	0	no	107	Storage	IT		Silver	Agawam,MA
Router		Linksys	WRT54G2 V1	CSV01HB17815	1	yes	107	Network SAI	IT		Silver	Agawam,MA
Router		SonicWALL	TZ 205	C0EAE423AB94	1	yes	107	Network SAI	IT		Silver	Agawam,MA
Router		Linksys	EA6350	14Y10J09409570	1	yes	107	Network SAI	IT		Almgren	Agawam,MA
Scanner		Canon	DR-9080C	CZ2300552	1	yes	107	Dola Home	IT		Silver	Agawam,MA
Scanner		Canon	CanoScan LiDE 210	KEKA28048	0	no	107	Storage	IT		Silver	Agawam,MA
Server		HP	ProLiant ML350 G5	MXQ746038G	0	no	107	Storage	IT		Silver	Agawam,MA
Switch		Netgear	GS748T	36U23B3951306	1	yes	107	Network SAI	IT		Almgren	Agawam,MA
Switch		Netgear	GS748T	36U23B3D512FF	1	yes	107	Network SAI	IT		Almgren	Agawam,MA
Switch		Netgear	GS748T	36U23B3751304	1	yes	107	Network SAI	IT		Silver	Agawam,MA
Switch		Netgear	GS748T	36U1363750805	1	yes	107	Network SAI	IT		Silver	Agawam,MA
Switch		HP	Procurve 4108GL J4865A	SG24002447	0	no	107	Storage	IT		Silver	Agawam,MA
Switch		HP	Procurve 4108GL J4865A	SG316MF02E	0	no	107	Storage	IT		Silver	Agawam,MA
Switch		HP	Procurve 2524 J4813A		0	no	107	Storage	IT		Silver	Agawam,MA
Switch		HP	Procurve 2524 J4813A	SG431NV03P	0	no	107	Storage	IT		Silver	Agawam,MA
Switch		Netgear	GS748TP	1WX8255B000C3	1	yes	107	Network SAI	IT		Silver	Agawam,MA
UPS		APC	Smart-UPS 2200XL	QS0639110214	1	yes	107	Network SAI	IT		Silver	Agawam,MA
UPS		APC	Smart-UPS 2200	WS0803260139	1	yes	107	Network SAI	IT		Silver	Agawam,MA
LCD		ViewSonic	VA703b	Q85073961605	0	no	107	Storage	IT		Silver	Agawam,MA
Computer	autoblock	Compaq	Evo D510	V302KN9ZB689	1	yes	107	Metals Prep	Metals		Almgren	Agawam,MA
LCD	autoblock	ViewSonic	VA702b	PSX053805820	1	yes	107	Metals Prep	Metals		Almgren	Agawam,MA
Computer	icap	HP	DC5000	MXL509018N	1	yes	107	Metals	Metals		Almgren	Agawam,MA
LCD	icap	Dell	1708FPt	CN-0KU789-71618-718-AH	1	yes	107	Metals	Metals		Almgren	Agawam,MA
Computer	icap2	Dell	OptiPlex 960	5DDMDQ1	1	yes	107	Metals	Metals		Almgren	Agawam,MA
LCD	icap2	Dell	P1911		1	yes	107	Metals	Metals		Almgren	Agawam,MA
Computer	icap4	Dell	OptiPlex 960	9HQ1FP1	1	yes	107	Metals	Metals		Almgren	Agawam,MA
LCD	icap4	Dell	P1911	CN-08JCGH-74445-156-D\	1	yes	107	Metals	Metals		Almgren	Agawam,MA
Computer	icpms2	HP	D220M	MXD42301TX	1	yes	107	Metals	Metals		Almgren	Agawam,MA
LCD	icpms2	ViewSonic	VG710S	A2VV035100406	1	yes	107	Metals	Metals		Almgren	Agawam,MA
UPS	icpms2	APC	Smart-UPS 3000XLT	AS1218142528	1	yes	107	Metals	Metals		Almgren	Agawam,MA
UPS	icpms2	APC	Smart-UPS 5000RMT	IS1236001465	1	yes	107	Metals	Metals		Almgren	Agawam,MA
Computer	jclement	HP	4000 Pro SFF	2UA1280R9D	1	yes	107	Office	Metals		Almgren	Agawam,MA
LCD	jclement	ViewSonic	VS112801	Q85073961605	1	yes	107	Office	Metals		Almgren	Agawam,MA
Computer	mercury3	Compaq	Evo D310	USV3190BQ1	1	yes	107	Metals Prep	Metals		Almgren	Agawam,MA
LCD	mercury3	ViewSonic	VA703b	Q85074961922	1	yes	107	Metals Prep	Metals		Almgren	Agawam,MA
Computer	mercury4	Dell	OptiPlex 745	3Q47GC1	1	yes	107	Metals	Metals		Almgren	Agawam,MA
LCD	mercury4	Dell	E170Sc	CN-OHFOK3-64180-22N-1	1	yes	107	Metals	Metals		Almgren	Agawam,MA
Computer	metals1	Dell	OptiPlex GX620	H23SN91	1	yes	107	Office	Metals		Almgren	Agawam,MA

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LCD	metals1	LG	Flatron E2411	309MXWE24033	1	yes	107	Office	Metals	Almgren	Agawam,MA
Computer	metals2	HP	DC7800 USDT	MXL80504XS	1	yes	107	Office	Metals	Almgren	Agawam,MA
LCD	metals2	ViewSonic	VA2223wm-LED	STC121520383	1	yes	107	Office	Metals	Almgren	Agawam,MA
Computer	metals3	HP	4000 Pro SFF	MXL2201695	1	yes	107	Office	Metals	Almgren	Agawam,MA
LCD	metals3	ViewSonic	VS112801	Q85073961605	1	yes	107	Office	Metals	Almgren	Agawam,MA
Computer	metals4	HP	4000 Pro SFF	MXL15129F2	1	yes	107	Office	Metals	Almgren	Agawam,MA
LCD	metals4	LG	Flatron E2411	206NDGL2F351	1	yes	107	Office	Metals	Almgren	Agawam,MA
Computer	metals5	HP	4000 Pro SFF	MXL1400FVS	1	yes	107	Office	Metals	Almgren	Agawam,MA
LCD	metals5	LG	Flatron W2442PA-BF	202NDHB2P569	1	yes	107	Office	Metals	Almgren	Agawam,MA
Computer	metalsprep1	HP	DC7800 USDT	MXL80504VR	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
LCD	metalsprep1	ViewSonic	VA703b	Q85073961600	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
Computer	metalsprep2	HP	DC7800 USDT	MXL80504XJ	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
LCD	metalsprep2	ViewSonic	VA703b	Q85073961580	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
Computer	metalsprep3	HP	DC7800 USDT	MXL80705T9	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
LCD	metalsprep3	ViewSonic	VA703b	Q85073961599	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
Computer	tcollins	HP	4000 Pro SFF	MXL21416FB	1	yes	107	Office	Metals	Almgren	Agawam,MA
LCD	tcollins	LG	Flatron W2442PA-BF	202NDPH2P568	1	yes	107	Office	Metals	Almgren	Agawam,MA
Printer		HP	LaserJet 2300	JPBFG18642	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
Printer		DataMax	E-Class 4203	53884059	1	yes	107	Metals Prep	Metals	Almgren	Agawam,MA
Printer		HP	LaserJet P3015	VNBCC1J1KD	1	yes	107	Office	Metals	Almgren	Agawam,MA
Computer	valgarin	HP	DC5000	2UB60100VH	1	yes	107	Micro	Micro	Almgren	Agawam,MA
LCD	valgarin	ViewSonic	VA703b	Q85074962242	1	yes	107	Micro	Micro	Almgren	Agawam,MA
Printer	valgarin	HP	LaserJet 1300	CNCB837878	1	yes	107	Micro	Micro	Almgren	Agawam,MA
Computer	ny1	HP	DC5000	MXL51805FQ	1	yes	107		NY	Syracuse	Syracuse,NY
LCD	ny1	ViewSonic	VA703b	QAG073145207	1	yes	107		NY	Syracuse	Syracuse,NY
Hub		HP	J3294A	TW13703348	1	yes	107		NY	Syracuse	Syracuse,NY
LCD		NEC	AccuSync LCD72VX	76M06515NA	1	yes	107		NY	Syracuse	Syracuse,NY
Printer		HP	LaserJet 4100	USJND17996	1	yes	107		NY	Syracuse	Syracuse,NY
Computer	klaplante	HP	4000 Pro SFF	2UA14101KK	1	yes	107	Office	QA	Silver	Agawam,MA
LCD	klaplante	LG	Flatron E2411	209NDMTCK595	1	yes	107	Office	QA	Silver	Agawam,MA
Scanner	klaplante	Canon	DR-2050C	DL314542	1	yes	107	Office	QA	Silver	Agawam,MA
Computer	sronshaugen	HP	4000 Pro SFF	2UA20514TS	1	yes	107	Office	QA	Silver	Agawam,MA
LCD	sronshaugen	LG	Flatron W2442PA-BF	105NDVWA6239	1	yes	107	Office	QA	Silver	Agawam,MA
Printer		HP	LaserJet 2300	CNBCB25309	1	yes	107	Office	QA	Silver	Agawam,MA
Computer	mlamberto	HP	DC7800 USDT	MXL80705TM	1	yes	107	Office	R&D	Almgren	Agawam,MA
LCD	mlamberto	ViewSonic	VA703b	Q85073961719	1	yes	107	Office	R&D	Almgren	Agawam,MA
Printer		HP	LaserJet 2200	JPGGC79165	1	yes	107	Office	R&D	Almgren	Agawam,MA
Computer	aahamed	HP	4000 Pro SFF	2UA1410FWD	1	yes	107	Office	Sample	Almgren	Agawam,MA
LCD	aahamed	ViewSonic	VA703b	QAG073961204	1	yes	107	Office	Sample	Almgren	Agawam,MA
Scanner	aahamed	Canon	CanoScan LiDE 210	KEKA24643	1	yes	107	Office	Sample	Almgren	Agawam,MA
Computer	emakhoul	HP	4000 Pro SFF	2UA20514TZ	1	yes	107	Office	Sample	Almgren	Agawam,MA
LCD	emakhoul	ViewSonic	VA703b	QAG073961178	1	yes	107	Office	Sample	Almgren	Agawam,MA
Scanner	emakhoul	Canon	CanoScan LiDE 210	KEKB48713	1	yes	107	Office	Sample	Almgren	Agawam,MA
Computer	jhoffman	HP	ProDesk 400 G1 SFF	2UA4090XT3	1	yes	107	Office	Sample	Almgren	Agawam,MA
LCD	jhoffman	ViewSonic	VA703b	Q85073961616	1	yes	107	Office	Sample	Almgren	Agawam,MA
Scanner	jhoffman	Canon	CanoScan LiDE 210	KEKC07617	1	yes	107	Office	Sample	Almgren	Agawam,MA
Computer	kwilkinson	HP	4000 Pro SFF	2UA1280RC7	1	yes	107	Office	Sample	Almgren	Agawam,MA
LCD	kwilkinson	ViewSonic	VA703b	QANO8142357	1	yes	107	Office	Sample	Almgren	Agawam,MA
Scanner	kwilkinson	Canon	CanoScan LiDE 210	KEKC15533	1	yes	107	Office	Sample	Almgren	Agawam,MA
Computer	sample	HP	DC7800 USDT	MXL80705PX	1	yes	107	Office	Sample	Almgren	Agawam,MA
LCD	sample	ViewSonic	VA703b	Q85073963057	1	yes	107	Office	Sample	Almgren	Agawam,MA
Scanner	sample	Canon	CanoScan LiDE 210	KEKC06235	1	yes	107	Office	Sample	Almgren	Agawam,MA
Computer	vknowles	HP	DC7800 USDT	MXL7510J77	1	yes	107	Office	Sample	Almgren	Agawam,MA
LCD	vknowles	ViewSonic	VA703b	QAH073863978	1	yes	107	Office	Sample	Almgren	Agawam,MA
Scanner	vknowles	Canon	CanoScan LiDE 210	KEKB37888	1	yes	107	Office	Sample	Almgren	Agawam,MA
Printer		HP	LaserJet 4250	CNRXR55549	1	yes	107	Office	Sample	Almgren	Agawam,MA
Printer		HP	LaserJet 4250	CNGXL25353	1	yes	107	Office	Sample	Almgren	Agawam,MA
Computer	dswist	HP	4000 Pro SFF	MXL2290J07	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	dswist	ViewSonic	VA703b	QAG073021435	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	dswist	LG	Flatron E2411	206NDKD4V893	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	hps11	HP	4000 Pro SFF	2UA20514NN	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps11	ViewSonic	VA702b	PSX054414832	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps11	LG	Flatron E2411	206NDLS4V888	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps12	HP	4000 Pro SFF	2UA21517B2	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps12	Dell		CN-OJ6642-71618-4AS-AC	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps12	LG	Flatron E2411	206NDAY12168	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps14	HP	DC5700	MXM74406ZR	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps14	Dell		CN-0J6642-71618-55U-AG	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps14	LG	Flatron E2411		1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps15	HP	4000 Pro SFF	MXL2290HXF	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps15	LG	Flatron E2411	206NDWE4V633	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps15	Philips	170S	AU4A0617015052	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA

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Computer	hps16	HP	DC7800 SFF	2UA81502TS	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps16	Dell	1907FPc	CN-0DC323-71618-71D-AC	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps17	Dell	OptiPlex 745	F1TX4D1	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps17	ViewSonic	VA1903wb	QJ0070521711	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps18	Dell	OptiPlex 745	32TX4D1	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps18	ViewSonic	VA1903wb	QJ0070521727	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps19	Dell	OptiPlex 745	994TFD1	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps19	ViewSonic	VA1903wb	QJ0072354398	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps2/hps3	HP	DC5000	MXL4380RSN	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps2/hps3	ViewSonic	VA703b	Q85074961868	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps4	HP	DC5700	MXM74406WH	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps4	ViewSonic	VA703b	QAG073863799	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps4	LG	Flatron E2411	208NDWEE3097	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Printer	hps4	HP	LaserJet 4000	USRB048887	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
UPS	hps4	APC	Smart-UPS 2200US	WS1245180147	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps5	HP	4000 Pro SFF	2UA2291C4Q	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps5	Dell		CN-OJ6642-71618-4AS-AC	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps5	LG	24MB35P-B	406MXZJ72197	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps6	Dell	OptiPlex 745	5F33YD1	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps6	ViewSonic	VA1903wb	QJ0072354408	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps7	HP	4000 Pro SFF	MXL1281D21	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps7	Dell		CN-02Y315-71618-49B-AE	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	hps8	HP	6200 Pro SFF	MXL2120GR1	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	hps8	ViewSonic	VA2223wm-LED	STC120620581	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	smateega	HP	4000 Pro SFF	2UA14101QM	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	smateega	LG	Flatron W2442PA-BF	110NDGLB0895	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	smateega	ViewSonic	VA2223wm	SF1113402027	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	svoc1	HP	DC5100	MXL6250MKM	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc1	ViewSonic	VA2223wm-LED	STC120120369	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc1	LG	Flatron E2411	202NDUN2P558	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	svoc2	HP	DC5700	MXM72603NM	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc2	ViewSonic	VA702b	PSX052306038	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	svoc3	HP	4000 Pro SFF	2UA14101MV	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc3	ViewSonic	VA703b	QAG073021436	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	svoc4	HP	DC5700	MXM74440731	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc4	ViewSonic	VA703b	Q85073961676	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Printer	svoc4	HP	LaserJet P2035	VNB3349751	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Scanner	svoc4	Canon	DR-C125	FP311019	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	svoc5	HP	DC5700	MXM73506CN	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc5	ViewSonic	VA703b	QAG073021438	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	svoc5	LG	Flatron E2411	208NDBP57885	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Computer	svocprep	Compaq	Evo D510	6X31-KN92-G02P	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
LCD	svocprep	Dell		MX032DVX4760521AB8FC	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	tgionfriddo	HP	4000 Pro SFF	2UA1381CJV	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	tgionfriddo	ViewSonic	VA703b	Q85074961896	1	yes	107	Office	SVOC	Almgren	Agawam,MA
LCD	tgionfriddo	LG	Flatron E2411	206NDGL4V887	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Printer		HP	LaserJet 4250	CNRXG78983	1	yes	107	Office	SVOC	Almgren	Agawam,MA
Printer		HP	LaserJet 9040	JPFL6DP069	1	yes	107	SVOC	SVOC	Almgren	Agawam,MA
Computer	ekinney	HP	4000 Pro SFF	2UA1381CKY	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	ekinney	ViewSonic	VA2223wm-LED	STC120121354	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	ekinney	LG	Flatron W2442PA-BF	202NDNU1E079	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Computer	fid0	Compaq	Evo D510	6X31-KN9Z-G033	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	fid0	ViewSonic	VA703b	QAG073863513	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	fid1	HP	DC5100	MXL6380HF5	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	fid1	Philips	170S	AU4A0615015606	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	fid2	Dell	Optiplex 755	534LTH1	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	fid2	Dell	1908WFPt	CN-0G435H-72872-88T-0T	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	galvarez	HP	4000 Pro SFF	MXL2070LJZ	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	galvarez	Dell	P2211Ht	CN-0TYXD9-74445-05T-F7	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	galvarez	LG	Flatron W2442PA-BF	201NDUN8R270	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Computer	hpv1	HP	DC5700	MXM72403ZJ	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv1	Dell		MX-OH6304-47603-54F-AF	1	yes	107	VOC	VOC	Silver	Agawam,MA
UPS	hpv1	APC	Smart-UPS 2200US	WS1217180241	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv2	Dell	OptiPlex 755	94QKZF1	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv2	Dell	1908WFPt	CN-0NY134-71618-7BK-71	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv3	Dell	OptiPlex 745	D2TX4D1	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv3	Philips	170S	BZ000508218971	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv4	Dell	OptiPlex 780	3Q16WN1	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv4	ViewSonic	VA702b	PSX052502229	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv5	HP	DC5000	MXL527083B	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv5	Dell		CN-OJ6642-71618-52E-A9	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv7	Dell	OptiPlex 745	794TFD1	1	yes	107	VOC	VOC	Silver	Agawam,MA

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LCD	hpv7	ViewSonic	VA1903wb	PSX053616878	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv8	HP	DC5700	MXM74406YL	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv8	NEC	AccuSync LCD72VX	75D11876NA	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	hpv9	HP	DC5100	MXL62302CW	1	yes	107	VOC	VOC	Silver	Agawam,MA
LCD	hpv9	ViewSonic	VA703b	QAG073863490	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	mlamberto2	HP	4000 Pro SFF	2UA20514ZV	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	mlamberto2	ViewSonic	VA1903wb	QJ0070521728	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	mlamberto2	LG	Flatron E2411	208NDTC58233	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Computer	mpicard	HP	DC5700	MXM71606X6	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	mpicard	NEC	AccuSync LCD72VX	73F34462NA	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	mpicard	LG	Flatron E2411	208NDDM58498	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Computer	nalmeida	HP	4000 Pro SFF	MXL15129DJ	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	nalmeida	LG	Flatron W2442PA-BF	201NDXQ8R274	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	nalmeida	ViewSonic	VA703b	Q85074961947	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Computer	sbara	HP	4000 Pro SFF	2UA20514P7	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	sbara	ViewSonic	VA703b	QAG073863985	1	yes	107	Cubes	VOC	Silver	Agawam,MA
LCD	sbara	LG	Flatron E2411	208NDMT58499	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Computer	wbryon	HP	4000 Pro SFF	MXL1370CSB	1	yes	107	Office	VOC	Silver	Agawam,MA
LCD	wbryon	ViewSonic	V1903WB	QJ0072359402	1	yes	107	Office	VOC	Silver	Agawam,MA
LCD	wbryon	LG	Flatron W2442PA-BF	109NDVWE8287	1	yes	107	Office	VOC	Silver	Agawam,MA
Printer		HP	LaserJet 9040	JPFL6DP0FS	1	yes	107	Cubes	VOC	Silver	Agawam,MA
Printer		HP	LaserJet 2420	CNGKC98332	1	yes	107	VOC	VOC	Silver	Agawam,MA
Computer	ic2	Compaq	Evo D510	6X27-KN9Z-B683	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	ic2	ViewSonic	VA703b	Q85074961873	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	ic3	Dell	Optiplex 7020	BZYMT12	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	ic3	Dell	E2011H	CN0NDMRP7426128H2KK	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	lachat	Gateway	LP Mini Tower TB3 Performance 500	0016417771	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	lachat	ViewSonic	VA703b	Q85074961905	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	lachat2	Compaq	Evo D5pS	X203JYHZA930	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	lachat2	ViewSonic	VA703b	Q85074961892	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	solids1	Compaq	Evo D510	6X31-KN9Z-G01V	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	solids1	ViewSonic	VA703b	Q85073961571	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	solids2	Compaq	Evo D510	V302KN9ZB700	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	solids2	ViewSonic	VA703b	QAG073863518	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	spec1	Compaq	Evo D510	6X31-KN9Z-G02B	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	spec1	ViewSonic	VA703b	Q85074962138	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	tdunn	HP	4000 Pro SFF	2UA20514XK	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
LCD	tdunn	LG	Flatron E2411	403MXVW1Q119	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
Computer	titrator	HP	DC7700	MXL73130J	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	titrator	ViewSonic	VA703b	QAG073522596	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	toc1	HP	DC5000	2UB5520CNC	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	toc1	ViewSonic	VA703b	Q85074961877	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	toc2	Compaq	Evo D5pS	X203JYHZA935	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	toc2	ViewSonic	VA703b	QAG073863962	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
LCD	toc2	ViewSonic	VA703b	Q85074961869	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	wetchem_lab	HP	4000 Pro SFF	MXL21416BW	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
LCD	wetchem_lab	ViewSonic	Flatron E2411	211NDXQCR530	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Computer	wetchem1	HP	DC7800 USDT	MXL80705JY	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
LCD	wetchem1	ViewSonic	VA703b	Q85074961912	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
Computer	wetchem2	HP	DC5700	MXM74406Y4	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
LCD	wetchem2	ViewSonic	VA703b	Q85074961867	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
Computer	wetchem3	HP	4000 Pro SFF	MXL220168H	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
LCD	wetchem3	ViewSonic	VG2228wm-LED	STB131041143	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
Computer	wetchem4	HP	4000 Pro SFF	2UA1410G21	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
LCD	wetchem4	ViewSonic	VA703b	Q85074961936	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
Printer		HP	LaserJet 4250	CNRXX06377	1	yes	107	Office	Wet Chem	Almgren	Agawam,MA
Printer		HP	LaserJet 4200	USDNX03566	1	yes	107	Wet Chem	Wet Chem	Almgren	Agawam,MA
Vehicle	1	Ford	Transit Cargo	NM0LS7DNXAT015026	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	2	Nissan	NV200	3N6CM0KN3EK701087	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	3	Ford	Transit Cargo	NMOLS7DN1BT052709	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	5	Ford	Transit Cargo	NM0LS7E76F11190280	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	6	Ford	Transit Cargo	NM0LS7F78E1134807	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	8	Nissan	NV200	3N6CM0KN9DK692765	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	9	Ford	Econoline	1FTNE14WX7DB39504	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	10	Nissan	NV200	3N6CM0KN7DK696636	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	11	Ford	Transit Cargo	NM0LS7DN9CT090108	1	yes		Parking lot	Courier	Almgren	Agawam,MA
Vehicle	12	Ford	Explorer	1FM5K8F85DGB02284	1	yes		Parking lot	Courier	NJ	NJ
Vehicle	4	Ford	Transit Cargo	NM0LS7DN6CT117779	1	yes		Parking lot	Courier	NY	NY
Vehicle	7	Ford	Transit Cargo	NM0LS7DN9CT101351	1	yes		Parking lot	Courier	Almgren	Agawam,MA
iCAP	iCAP5	Thermo	7400	IC74DC160411	1	yes	107	Metals	Metals	Almgren	Agawam,MA
Chiller	iCAP5	Thermo	ThermoFlex900	0111013301160328	1	yes	107	metals	Metals	Almgren	Agawam,MA
Autosampler	iCAP5	Teledyne CETAC	ASX-560	011612A560	1	yes	107	metals	Metals	Almgren	Agawam,MA

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Metrohm IC	IC4	Metrohm	761	1761002121195	1	yes	126	Wet Chem	Wet Chem	Almgren	Agawam,MA
Metrohm IC	IC5	Metrohm	761	1761002021130	1	yes	126	Wet Chem	Wet Chem	Almgren	Agawam,MA
Metrohm IC Autosampler	IC4 or IC5	Metrohm	813	1813001007188	1	yes	126	Wet Chem	Wet Chem	Almgren	Agawam,MA
Microwave	SVOC microwave 2	CEM	230/60 910900	MJ7141	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
RocketVap	RocketVap 1	Thermo	RKTS-12060-SPW	RK0504	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
RocketVap	RocketVap 2	Thermo	RKTS-12060-SPW	RK0547	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
RocketVap	RocketVap 3	Thermo	RKTS-12060-SPW	RK0545	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
RocketVap	RocketVap 4	Thermo	RKTS-12060-SPW	RK0546	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
RocketVap	RocketVap 5	Thermo	RKTS-12060-SPW	RK0548	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
RocketVap	RocketVap 6	Thermo	RKTS-12060-SPW	RK0554	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Speed Trap	Speed Trap 1	Thermo	MST12020-C00	MST06161021	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Speed Trap	Speed Trap 2	Thermo	MST12020-C00	MST06161020	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Speed Trap	Speed Trap 3	Thermo	MST12020-C00	MST06161015	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Speed Trap	Speed Trap 4	Thermo	MST12020-C00	MST06161017	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Speed Trap	Speed Trap 5	Thermo	MST12020-C00	MST06161022	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA
Speed Trap	Speed Trap 6	Thermo	MST12020-C00	MST06161019	1	yes	122	SVOC Prep	SVOC	Almgren	Agawam,MA

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APPENDIX H

Section 12 Attachments

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Table 12.1
Concentration Levels for QC Samples

Sample Type	Purpose	Concentration Level	Method Reference
Matrix Spike (MS)	Accuracy	Mid Level	EPA 500 & 600 Series; EPA SW-846 Methods
Matrix Spike Duplicate (MSD)	Precision/Accuracy	Mid Level	EPA 500 & 600 Series; EPA SW-846 Methods
Blank Spike	Accuracy	Mid Level	EPA 500 & 600 Series; EPA SW-846 Methods EPA TO Methods
Duplicate	Precision	Mid Level	EPA SW-846 Methods EPA TO Methods
QC Checks	Accuracy	Low/Mid/High Level	EPA 500 & 600 Series: EPA SW-846 Methods EPA TO Methods

Notes:

Low Level = Concentrations from the minimum detection limit to a level five times the MDL
Mid Level = Mean level between the minimum detection level and the upper end of the linear range
High Level = Concentrations at the upper end of the linear range

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Table 12.2
QC Frequency Information: Method Blanks

Laboratory Department	Method	Frequency
Air	APH	Minimum 5%
Air	TO-15	Minimum 5%
Air	TO-18	Minimum 5%
Volatile	524.2/624	Minimum 5%
Volatile	8260	Minimum 5%
Volatile	VPH MA DEP Method/GRO	Minimum 5%
Semi-volatile	504.1/625	Minimum 5%
Semi-volatile	608 (PCBs/Pesticides)	Minimum 5%
Semi-volatile	8270	Minimum 5%
Semi-volatile	NJ EPH/MA DEP EPH/ Method/DRO/ 8100M/8015D/TPH 1664B/TPH 8100 by GC	Minimum 5%
Semi-volatile	8151, 8081, 8082, Herbicides/Pesticides/PCB	Minimum 5%
Organic Characterization	Oil & Grease - EPA 1664	Minimum 5%
Organic Characterization	SM5310B Total Organic Carbon (TOC)	Minimum 10%
Inorganic	200.7, 6010 ICP, 200.8, 6020 ICP-MS Metals	Minimum 5%
Inorganic	245.1, 7470, 7471 Mercury by CV-AAS (A)	Minimum 5%
Inorganic	300.0 Sulfate	Minimum 10%
Inorganic	300.0 Chloride	Minimum 10%
Inorganic	300.0 Fluoride	Minimum 10%
Inorganic	300.0 Nitrate/Nitrite	Minimum 10%

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Table 12.2
QC Frequency Information: Method Blanks

Laboratory Department	Method	Frequency
Inorganic	9012B/335.4 Cyanide	Minimum 10%

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Table 12.3
QC Frequency Information: Fortified Blank Spikes also known as Laboratory Control Samples (BS/BSD)*
and Standard Reference Materials (SRM)**

Laboratory Department	Method	Frequency
Air	APH	Minimum 5% (BS)
Air	TO-15	Minimum 5% (BS)
Air	TO-18	Minimum 5% (BS)
Volatile GC/MS	524.2	Minimum 5% (BS)
Volatile GC/MS	624/8260	Minimum 5% (BS/BSD pair)
Volatile GC	VPH MA DEP Method/GRO	Minimum 5% (BS/BSD pair)
Semi-volatile GC/MS	625	Minimum 5% (BS)
Semi-volatile GC/MS	504.1	Minimum 10% (BS)
Semi-volatile GC	608 (PCBs, Pesticides)	Minimum 5% (BS/BSD pair)
Semi-volatile GC/MS	8270	Minimum 5% (BS/BSD pair)
Semi-volatile GC	NJ EPH/MA DEP EPH Method	Minimum 5% (BS/BSD pair)
Semi-volatile GC	DRO/8100M /8015D/ TPH 8100 by GC	Minimum 5% (BS)
Semi-volatile GC	8081/8082 (Pesticides/PCBs)	Minimum 5% (BS/BSD pair)
Semi-volatile GC	8151A (Herbicides)	Minimum 5% (BS/BSD pair)
Organic Characterization	TPH by 1664B, Oil & Grease EPA 1664B	Minimum 5% (BS)
Organic Characterization	SM5310B Total Organic Carbon	Minimum 5% (BS)

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Table 12.3
QC Frequency Information: Fortified Blank Spikes also known as Laboratory Control Samples (BS/BSD)*
and Standard Reference Materials (SRM)**

Laboratory Department	Method	Frequency
Inorganic	200.7 ICP, 200.8 ICP-MS Metals	Minimum 5% (Aqueous BS) (Soil SRM)
Inorganic	6010 ICP/6020 ICP-MS Metals	Minimum 5% (Aqueous BS/BSD) (Soil SRM)
Inorganic	245.1, 7470, 7471 Mercury by CV-AAS (A)	Minimum 5% (Aqueous BS) (Soil SRM)
Inorganic	300.0 Sulfate	Minimum 10% (BS/SRM)
Inorganic	300.0 Chloride	Minimum 10% (BS/SRM)
Inorganic	300.0 Fluoride	Minimum 10% (BS/SRM)
Inorganic	300.0 Nitrate/Nitrite	Minimum 10% (BS/SRM)
Inorganic	9012B/335.4 Cyanide	Minimum 10% (Aqueous BS) (Soil SRM)

Notes: * BS sample = deionized water fortified with target compounds and surrogate standards.
**SRM sample = deionized water fortified with SRM solution.
Note that QC frequencies may vary depending on matrix and/or specific federal or state agency requirements (as noted in QC box on Chain of Custody). QCs are the same for both soil and aqueous samples, except where noted.

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Table 12.4
QC Frequency Information:
Matrix Spikes (MS), Matrix Spike Duplicates (MSD)* and/or Post Spikes (PS)**

Laboratory Department	Method	Frequency
Air	APH	N/A
Air	TO-15	N/A
Air	TO-18	N/A
Volatile	524.2/624/8260	Minimum 5% (MS/MSD pair)
Volatile	VPH MADEP Method/GRO	Minimum 5% (MS)
Semi-volatile	504.1/625.2/8270	Minimum 5% (MS/MSD pair)
Semi-volatile	608 (PCBs, Pesticides)	Minimum 10% (MS)***
Organic Characterization	NJ EPH/MADEP EPH	Minimum 5% (MS) EPH only if client requested, then (MS/MSD pair)
Semi-volatile	8151A/8081/8082 (Herbicides/Pesticides/ PCB)	Minimum 5% (MS)***
Organic Characterization	Oil & Grease EPA 1664B	Minimum 5% (MS/MSD pair)***
Organic Characterization	SM5310B Total Organic Carbon (TOC)	Minimum 10%
Inorganic	6010 ICP, 6020 ICP-MS Metals	Minimum 5% (MS/MSD/PS)
Inorganic	200.7 ICP, 200.8 ICP-MS Metals	Minimum 10% (MS/PS)
Inorganic	7470, 7471 Mercury by CV-AAS (A)	Minimum 5% (MS/MSD/PS)
Inorganic	245.1 Mercury by CV-AAS (A)	Minimum 10% (MS/ PS)
Inorganic	300.0 Sulfate	Minimum 10% (MS/MSD)

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Table 12.4
QC Frequency Information:
Matrix Spikes (MS), Matrix Spike Duplicates (MSD)* and/or Post Spikes (PS)**

Laboratory Department	Method	Frequency
Inorganic	300.0 Chloride	Minimum 10% (MS/MSD)
Inorganic	300.0 Fluoride	Minimum 10% (MS/MSD)
Inorganic	300.0 Nitrate/Nitrite	Minimum 10% (MS/MSD)
Inorganic	9012B/335.4 Cyanide	Minimum 10% (MS/MSD/PS)

Notes:

* MS/MSD sample – sample spiked with target compounds used for Precision/Accuracy and to determine if there is matrix interference.

** PS sample – sample spiked with target compounds after digestion/extraction to determine if there is matrix interference due to the digestion/extraction procedure.

***Submittal of sufficient sample volume/weight is required to run QC sample spikes and duplicates.

Note that QC frequencies may vary depending on matrix and/or specific federal or state agency requirements (as noted in QC box on Chain of Custody).

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Table 12.5
QC Frequency Information: Duplicates*

Laboratory Department	Method	Frequency
Air	APH	Minimum 5%
Air	TO-15	Minimum 5%
Air	TO-18	Minimum 5%
Semi-volatile	625.2/8270	Minimum 5%
Semi-volatile	608 (PCBs, Pesticides)	Minimum 5%
Semi-volatile	8081/8082 (Pesticides/PCBs)	Minimum 5%
Semi-volatile	8151A (Herbicides)	Minimum 5%
Inorganic	200.7, 6010 ICP, 200.8, 6020 ICP-MS Metals	Minimum 5%
Inorganic	245.1, 7470, 7471 Mercury by CV-AAS (A)	Minimum 5%
Inorganic	300.0 Chloride	Minimum 5%
Inorganic	300.0 Sulfate	Minimum 5%
Inorganic	300.0 Nitrate/Nitrite	Minimum 5%
Inorganic	300.0 Fluoride	Minimum 5%
Organic Characterization	NJ EPH/MADEP VPH /GRO/DRO/8100M/ 8015D/TPH 8100 by GC	Minimum 5% (Soils: only if sufficient sample is submitted)

Notes:

Note that QC frequency may vary depending on matrix and/or specific federal or state agency requirements (as noted in QC box on Chain of Custody).

*Submittal of sufficient sample volume/weight is required to run duplicates and QC sample spikes.

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APPENDIX I

Section 13 Attachments

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Table 13.1
QC Sample Acceptance Criteria and Corrective Action: Method Blanks

Department	Method	Acceptance Criteria	Corrective Action
Air	APH	All surrogates within control limits (CL); TCL<DL	Reanalyze and/or flag non-conforming data, as appropriate.
Air	TO-15	All surrogates within control limits (CL); TCL<DL	Reanalyze and/or flag non-conforming data, as appropriate.
Air	TO-18	All surrogates within control limits (CL); TCL<DL	Reanalyze and/or flag non-conforming data, as appropriate.
Volatile	524.2	All surrogates within control limits (CL) All Target Compound Lists (TCLs) <1/2 Detection Limit (DL) All non-target compound lists (non-TCLs) <25% of Internal Standard (IS) peak height	Decontaminate lines & traps. Flush trap and column. Reanalyze until blank meets criteria.
Volatile	624	All surrogates within control limits (CL) All TCLs <1/2 Detection Limit (DL) All non-target compound lists (non-TCLs) <25% of Internal Standard (IS) peak height	Decontaminate lines & traps. Flush trap and column. Reanalyze until blank meets criteria.
Volatile	8260	All surrogates within CLs; TCLs < DL	Decontaminate lines and trap. Flush column. Reanalyze until blank meets all criteria.
Volatile	VPH/GRO	All surrogates within CLs; TCL common lab solvents < DL	Decontaminate lines and trap. Flush column. Reanalyze until blank meets all criteria
Semi-volatile	504.1	TCL < DL	Halt analysis until the problem is identified and corrected. Re-extract entire batch.
Semi-volatile	608	Surrogates within Cls All TCLs <DL	Halt analysis until the problem is identified and corrected. Re-extract entire batch.

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Table 13.1
QC Sample Acceptance Criteria and Corrective Action: Method Blanks

Department	Method	Acceptance Criteria	Corrective Action
Semi-volatile	625	All surrogates within CLs TCL phthalate <2 x DL No more than 3 non-TCLs (excluding solvent by-products >25% Internal Standard (IS) peak height.	Halt analysis until the problem is identified and corrected. Re-extract entire batch.
Semi-volatile	8270	All surrogates within CLs TCL phthalate <2 x DL Other TCLs < ½ DL. No more than 3 non-TCLs > 10% IS peak height	Halt analysis until the problem is identified and corrected. Re-extract entire batch.
Semi-volatile	8100	Surrogates within CLs All TCLs <DL	Halt analysis until the problem is identified and corrected. Re-extract entire batch.
Semi-volatile	8151A, 8081/8082	Surrogates within CLs All TCLs <DL	Halt analysis until the problem is identified and corrected. Re-extract entire batch.
Organic Charact.	TPH/EPH/ DRO	≤ 1.0 ppm ≤ 25 ppm	Prepare and reanalyze entire batch.
Organic Charact.	NJ EPH	Surrogates within CLs All TCLs <DL	Prepare and reanalyze entire batch.
Organic Charact.	Oil & Grease	≤ 1.0 ppm	Prepare and reanalyze entire batch.
Organic Charact.	Total Organic Carbon (TOC)	≤ 1.0 ppm ≤ 50 ppm	Prepare and reanalyze samples.
Inorganic	200.7, 6010 ICP Metals; 200.8, 6020 ICP-MS Metals	<CRDL or reporting limit*	Prepare and reanalyze entire batch.
Inorganic	Mercury	<CRDL or reporting limit*	Prepare and reanalyze entire batch.
Inorganic	Sulfate	<reporting limit	Prepare and reanalyze entire batch.

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Table 13.1
QC Sample Acceptance Criteria and Corrective Action: Method Blanks

Department	Method	Acceptance Criteria	Corrective Action
Inorganic	Chlorides	<reporting limit*	Prepare and reanalyze entire batch.
Inorganic	Fluoride	<CRDL or reporting limit	Prepare and reanalyze entire batch.
Inorganic	Nitrate/Nitrite	<reporting limit*	Prepare and reanalyze batch.
Inorganic	Cyanides	<CRDL or reporting limit	Prepare and reanalyze entire batch.

Notes: *If sample concentration is 10 times the concentration of the preparation blank, do not prepare samples again.

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Table 13.2
QC Sample Acceptance Criteria and
Corrective Action: Blank Spikes/Laboratory Control Samples (BS/BSD) and Standard Reference Materials (SRM)***

Department	Method	Acceptance Criteria	Corrective Action
Air	APH	70-130% Recovery	Reanalyze and/or flag non-conforming data, as appropriate.
Air	TO-15	70-130% Recovery	Reanalyze and/or flag non-conforming data, as appropriate.
Air	TO-18	70-130% Recovery	Reanalyze and/or flag non-conforming data, as appropriate.
Volatile	524.2	70-130% for ketones; 80-120% for all other TCLs.	Analytes that do fall outside of acceptable limits are qualified. Samples that contain compounds outside of acceptable limits are reanalyzed with acceptable QCs.
Volatile	624	All spike recoveries must be within method set control limits (see lab for specific analyte limits). RPD ≤ 30%	Analytes that do fall outside of acceptable limits are qualified. Samples that contain compounds outside of acceptable limits are reanalyzed with acceptable QCs.
Volatile	8260*	No more than 10% target analytes outside of control limits (70-130%; difficult analytes may be 40-160%). RPD ≤ 25%	Analytes that do fall outside of acceptable limits are qualified. Samples that contain compounds outside of acceptable limits are reanalyzed with acceptable QCs.
Volatile	VPH/GRO	70-130% Recovery; RPD ≤ 25%	Reanalyze entire batch.
Semi-volatile	504.1	70-130% Recovery	If a second BS fails, locate and correct the source of the problem and re-extract/reanalyze.
Semi-volatile	608	All spike recoveries must be within method set control limits (see lab for specific analyte limits). RPD ≤ 20%	Analytes that do fall outside of acceptable limits are qualified. Samples that contain compounds outside of acceptable limits are reanalyzed with acceptable QCs.

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Table 13.2
QC Sample Acceptance Criteria and
Corrective Action: Blank Spikes/Laboratory Control Samples (BS/BSD) and Standard Reference Materials (SRM)***

Department	Method	Acceptance Criteria	Corrective Action
Semi-volatile	625	All spike recoveries must be within method set control limits (see lab for specific analyte limits).	Flag non-conforming data.
Semi-volatile	8270	All spike recoveries must be within control limits (40-140% for base compounds and 30-130% for acids). RPD ≤ 20% for waters; ≤ 30% for soils.	Flag non-conforming data.
Semi-volatile	8100M	40-140% Recovery	Flag non-conforming data.
Semi-volatile	8151A/8081/ 8082	All spike recoveries must be within control limits (not greater than 40-140%).	Halt analysis until the problem is identified and corrected. Re-extract/reanalyze entire batch to verify system control restored.
Organic Charact.	TPH/EPH/ DRO	40-140% Recovery; RPD not greater than 30%	Prepare and reanalyze entire batch.
Organic Charact.	NJ EPH	40-140% Recovery; RPD not greater than 25%	Prepare and reanalyze entire batch.
Organic Charact.	Oil & Grease 1664	83-101%, RPD ≤ 11%	Correct problem, re-extract entire analytical batch and repeat the ongoing precision and recovery test.
Organic Charact.	Total Organic Carbon (TOC)	75-125% Recovery for Soils; 85-115% Recovery for Aqueous	Prepare and reanalyze calibration.
Inorganic	200.7/6010 ICP Metals	± 15% true	Prepare and reanalyze entire batch.
Inorganic	200.8/6020 ICP-MS Metals	± 15% true	Prepare and reanalyze entire batch.
Inorganic	Mercury	± 15% true	Prepare and reanalyze entire batch.
Inorganic	Sulfate	± 10% true	Flag non-conforming data.
Inorganic	Chlorides	± 10% true	Flag non-conforming data.

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Table 13.2
QC Sample Acceptance Criteria and
Corrective Action: Blank Spikes/Laboratory Control Samples (BS/BSD) and Standard Reference Materials (SRM)***

Department	Method	Acceptance Criteria	Corrective Action
Inorganic	Fluoride	± 10% true	Flag non-conforming data.
Inorganic	Nitrate/Nitrite	± 10% true	Flag non-conforming data.
Inorganic	Cyanides	± 10% true	Prepare and reanalyze entire batch.

Notes: * 8260 difficult analytes are Acetone, Bromomethane, Chloroethane, Dichlorodifluoromethane, Ethyl ether, Hexachlorobutadiene, MEK, MIBK 1,4-Dioxane, Trichlorofluoromethane.

**The criteria listed is for the CCC, there is no difference from the Laboratory Fortified Blank or Blank Spike (BS) and the CCC as noted in the applicable method.

***QC sample acceptance criteria may vary for Department of Defense work; these limits are available upon request.

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Table 13.3
QC Sample Acceptance Criteria and
Corrective Action: Matrix Spikes (MS), MS/MSD Pair*

Department	Method	Acceptance Criteria	Corrective Action
Volatile	524.2	80-120% Recovery; RPD ≤20%	Flag non-conforming data.
Volatile	624	Method set recovery; RPD ≤ 30%	Flag non-conforming data.
Volatile	8260	70-130% Recovery; RPD ≤30%	Flag non-conforming data.
Volatile	VPH/GRO	70-130% Recovery; RPD ≤ 30%	Flag non-conforming data.
Semi-volatile	504.1	65-135% Recovery	Flag non-conforming data.
Semi-volatile	608	All spike recoveries must be within method set control limits (see lab for specific analyte limits); RPD ≤ 50%	Flag non-conforming data.
Semi-volatile	625	30-140% Recovery	Flag non-conforming data.
Semi-volatile	8270	40-140% recovery for base compounds and 30-130% for acids; RPD ≤20%	Flag non-conforming data.
Semi-volatile	8151A/8081/ 8082	Recovery not greater than 30-150%; ≤30% RPD	Analyze CCC. If CCC is acceptable, report MS/MSD and LCS with data qualifier.
Organic Charact.	TPH/EPH/ DRO	40-140% recovery; ≤25% RPD	Analyze LCS or re-prepare and reanalyze MS/MSD
Organic Charact.	NJ EPH	40-140% recovery; ≤50% RPD	Analyze LCS or re-prepare and reanalyze MS/MSD
Organic Charact.	Oil & Grease 1664	78-114% recovery; ≤18% RPD	Analyze LCS or re-prepare and reanalyze MS/MSD
Organic Charact.	TOC	85-125% recovery; ≤25% RPD	Analyze LCS or re-prepare and reanalyze MS/MSD.
Inorganic	200.7/200.8 ICP/ICP-MS Metals	70-130% recovery **	Flag non-conforming data.
Inorganic	6010/6020 ICP/ICP-MS Metals	75-125% recovery**	Flag non-conforming data.

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Table 13.3
QC Sample Acceptance Criteria and
Corrective Action: Matrix Spikes (MS), MS/MSD Pair*

Department	Method	Acceptance Criteria	Corrective Action
Inorganic	Mercury	80-120% recovery**	Flag non-conforming data.
Inorganic	Sulfate	90-110% recovery***	Flag non-conforming data.
Inorganic	Chlorides	90-110% recovery***	Flag non-conforming data.
Inorganic	Fluoride	90-110% recovery**	Flag non-conforming data.
Inorganic	Nitrate/Nitrite	90-110% recovery***	Flag non-conforming data.
Inorganic	Cyanide	90-110% recovery**	Flag non-conforming data.

Notes:

* Submittal of sufficient sample volume/weight is required to run QC sample spikes and duplicates.

** A majority of percent recoveries (%R) must fall within the acceptance range, or representation of the batch must occur. If recovery is not within acceptance criteria, the batch quality control data is flagged with a qualifier. If the sample concentration exceeds the spike concentration the data is not flagged, even if the spike recovery is outside the acceptance range.

*** Based on a standard aqueous sample matrix or documented methods for solid preparations. Unusual practices may create interference that require different acceptance criteria. The batch quality control data will be flagged with a qualifier.

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Table 13.4
QC Sample Acceptance Criteria and Corrective Action: Duplicates*

Department	Method	Acceptance Criteria**	Corrective Action
Air	APH	≤30% RPD	Flag non-conforming data.
Air	TO-15	≤30% RPD	Flag non-conforming data.
Air	TO-18	≤30% RPD	Flag non-conforming data.
Volatile	524.2	≤30% for ketones; ≤20% for all other TCLs	Flag non-conforming data.
Volatile	624	≤30% RPD	Flag non-conforming data.
Volatile	8260	≤30% RPD	Flag non-conforming data.
Volatile	VPH/GRO	≤50% RPD	Flag non-conforming data.
Semi-volatile	608	≤30% RPD	Flag non-conforming data.
Semi-volatile	625	≤30% RPD	Flag non-conforming data.
Semi-volatile	8270	≤50% RPD	Flag non-conforming data.
Semi-volatile	8100	≤50% RPD	Flag non-conforming data.
Semi-volatile	8151A/8081	≤30% RPD	Flag non-conforming data.
Semi-volatile	8082	≤40% RPD	Flag non-conforming data.
Organic Charact.	NJ EPH/MA EPH/ DRO	≤50% RPD	Flag non-conforming data.
Organic Charact.	TOC	≤20% RPD	Flag non-conforming data.
Inorganic	200.7/6010 ICP metals	≤20% RPD	Flag non-conforming data.
Inorganic	200.8/6020 ICP-MS Metals	≤20% RPD	Flag non-conforming data.
Inorganic	Mercury	≤20% RPD	Flag non-conforming data.
Inorganic.	Sulfates	≤20% RPD	Flag non-conforming data.
Inorganic	Chlorides	≤20% RPD	Flag non-conforming data.
Inorganic	Fluoride	≤20% RPD	Flag non-conforming data.
Inorganic	Nitrate/Nitrite	≤20% RPD	Flag non-conforming data.
Inorganic	Cyanide	≤20% RPD	Flag non-conforming data.

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Table 13.4
QC Sample Acceptance Criteria and Corrective Action: Duplicates*

Department	Method	Acceptance Criteria**	Corrective Action

Notes:

* Submittal of sufficient sample volume/weight is required to run QC sample spikes and duplicates.

** The majority of RPDs must meet acceptance criteria. Data will be accepted if the RPD of the batch LCS/LCSD and/or MS/MSD is within 20%. All RPD exceedances will be flagged with a qualifier.

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APPENDIX J

List of Acronyms

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Appendix J
Acronyms & Abbreviations

AA	Atomic Absorption
ACS	American Chemical Society
APHA	American Public Health Association
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BOD	Biological Oxygen Demand
BRL	Below Reporting Limit
^{o}C	degree(s) Celsius
CAR	Corrective Action Report
CEO	Chief Executive Officer
COC	Chain of Custody
COD	Chemical Oxygen Demand
conc	concentration
CMR	Code of Massachusetts Regulations
d	day
DEP	(State of Massachusetts) Department of Environmental Protection
DER	(State of Florida) Department of Environmental Regulation
DI	De-ionized
DO	Dissolved Oxygen
DoD	Department of Defense
DOH	(State of New York) Department of Health
ECD	Electron Capture Detector
ELAP	Environmental Laboratory Approval Program
EMSL	(City of Cincinnati) Environmental Monitoring Systems Laboratory
EPA	Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbons
FID	Flame Ionization Detector
FTIR	Infrared Spectrophotometer
g	gram(s)
GC	Gas Chromatograph
GC / MS	Gas Chromatograph / Mass Spectrometer
h	hour
HAAs	Haloacetic Acids
IC	Ion Chromatograph
ICP	Inductively Coupled Plasma
ICV	Initial Calibration Verification
Id	Identification
IS	Internal Standard
kg	kilogram(s)
L	liter(s)
LIMS	Laboratory Information Management System
LOD	Limit of Detection, also known as MDL
LOQ	Limit of Quantitation, also known as MRL and PQL
m	meter(s)
MCL	Maximum Contaminant Level

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MDL	Minimum Detection Limit, also known as LOD
MRL	Minimum Reporting Limit, also known as PQL and LOQ
mg	milligram(s)
min	minute
mL	milliliter(s)
mm	millimeter(s)
MS	Mass Spectrometer
MS	Matrix Spike
MSD	Matrix Spike Duplicate
*u*m	micrometer(s)
NBS	National Bureau of Standards
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Approval Program
NTU	Nephelometric Turbidity Units
OSHA	Occupational Safety and Health Administration
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
ppb	parts per billion
ppm	parts per million
PID	Photo Ionization Detector
PQL	Practical Quantitation Limit, also known as LOQ and MRL
QA	Quality Assurance
QA / QC	Quality Assurance / Quality Control
QAO	Quality Assurance Officer
QC	Quality Control
QMP	Quality Management Program
R	Recovery (%R: Percent Recovery)
RDL	Reportable Detection Limit
RSD	Relative Standard Deviation
SD	Standard Deviation
SDI	Sludge Density Index
s	second(s)
SVI	Sludge Volume Index
SM	Standard Method
SOP	Standard Operating Procedure
SMART	Self Monitoring Analytical Report Tracking
SRM	Standard Reference Material
SW	Solid Waste
TCL	Target Compound List
THM	Trihalomethane(s)
TOC	Total Organic Carbon
TOX	Total Organic Halogen
TPH	Total Petroleum Hydrocarbons
TPH-GC	Total Petroleum Hydrocarbons by Gas Chromatography
TPH-IR	Total Petroleum Hydrocarbons by Infrared
u	units
USEPA	United States Environmental Protection Agency
VOA	Volatile Organic Amber

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VOC	Volatile Organic Compound
VPH	Volatile Petroleum Hydrocarbons
WS	Water Supply
WP	Water Pollution
WPA	Water Potability Analysis

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APPENDIX K

Definitions

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Appendix K
Definitions

Accuracy: The closeness of agreement between an observed value and an accepted reference value. When applied to a set of observed values, accuracy will be a combination of a random component and of a common systematic error (or bias) component.

Batch: A group of samples which behave similarly with respect to the sampling or the testing procedures being employed and which are processed as a unit.

Bias: The deviation due to matrix effects of the measured value (X_s - X_u) from a known spike amount. Bias can be assessed by comparing a measured value to an accepted reference value in a sample of known concentration or by determining the recovery of a known amount of a contaminant spiked into a sample (a matrix spike). Thus, the bias (B) due to matrix effects based on a matrix spike is calculated as:

$$B = (X_s - X_u) - K$$

where:

X_s = measured value for a spike sample,
X_u = measured value for unspiked sample, and
K = known value of the spike sample.

Using the following equation yields the percent recovery (%R).

$$\%R = 100 \ (X_s - X_u) / K$$

Blank: see Equipment Blank, Method Blank, Trip Blank.

Calibration Check: Verification of the ratio of instrument response to analyte amounts

Carry Over: Contamination which is transmitted from one sample to another, typically from improperly or insufficiently cleaned glassware or equipment or highly contaminated samples.

Control Sample: A QC sample introduced into the process to monitor the performance of the system.

Duplicate: see Matrix Duplicate, Field Duplicate, Matrix Spike Duplicate.

Equipment Blank: A sample of analyte-free media which has been used to rinse the sampling equipment. It is collected after completion of decontamination and prior to sampling. This blank is useful in documenting adequate decontamination of sampling equipment.

Field Duplicate: Independent samples which are collected as close as possible to the same point in space and time. They are two separate samples taken from the same source,

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stored in separate containers, and analyzed independently. These duplicates are useful in documenting the precision of the sampling process.

ICV — Initial calibration verification: A standard obtained or prepared from a source independent of the source of standards for the initial calibration. Its concentration should be at or near the middle of the calibration range. It is done after the initial calibration.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes. This is used to document laboratory performance also known as a Blank Spike (BS).

Matrix: The component or substrate (e.g., waste water, drinking water) which contains the analyte of interest.

Matrix Duplicate: An intra laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Matrix Spike Duplicates: Intra laboratory split of samples spiked with identical concentrations of target analyte(s). The spiking occurs prior to sample preparation ana analysis. They are used to document the precision and bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

For a method blank to be acceptable for use with the accompanying samples, the concentration in the blank of any analyte of concern should not be higher than the highest of either:

1 - The method detection limit, or

2 - Five percent of the regulatory limit for that analyte, or

3 - Five percent of the measured concentration in the sample.

Method Detection Limit (MDL/LOD): The minimum concentration of a substance 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 type containing the analyte.

Practical Quantitation — The lowest concentration that can be reliably achieved within specified

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Limit (PQL/LOQ): limits of precision and accuracy during routine laboratory operating conditions. The PQL is generally 5 to 10 times the MDL. However, it may be nominally chosen within these guidelines to simplify data reporting. For many analytes the PQL analyte concentration is selected as the lowest non-zero standard in the calibration curve. Sample PQLs are highly matrix-dependent. PQL also known as the Minimum Reporting Limit (MRL) or Limit of Quanitation (LOQ).

Precision: The agreement among a set of replicate measurements without assumption of knowledge of the true value. Precision is estimated by means of duplicate/replicate analyses. These samples should contain concentrations of analyte above the MDL, and may involve the use of matrix spikes. The Relative Percent Difference (%RPD) is used to estimate the precision between two samples. The formula for determining %RPD is:

$$\%RPD = \frac{(\text{value 1} - \text{value 2})}{\text{average value}} * 100\%$$

Reagent Blank: see Method Blank.

Reagent Grade: Analytical reagent (AR) grade, ACS reagent grade, and reagent grade are synonymous terms for reagents which conform to the current specifications of the Committee on Analytical Reagents of the American Chemical Society.

Reagent Water: Water that has been generated by any method which would achieve the performance specifications for ASTM Type II water.

Split Samples: Aliquot of samples taken from the same container and analyzed independently. In cases where aliquot of samples is impossible to obtain, field duplicate samples should be taken for the matrix duplicate analysis.

Standard Addition: The practice of adding a known amount of an analyte to a sample immediately prior to analysis. It is typically used to evaluate interferences.

Standard Curve: A plot of concentrations of known analyte standards versus the instrument response to the analyte. Calibration standards are prepared by successively diluting a standard solution to produce working standards which cover the range of the instrument.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Trip Blank: A sample of analyte-free media taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document

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contamination attributable to shipping and field handling procedures. This type of blank is useful in documenting contamination of volatile organic samples.

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APPENDIX L

Analytical Method References

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Analytical Method References	
SW 846	Test Methods for Evaluating Solid Waste. Third edition, 1998
40 CFR 136	Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act
40 CFR 141	National Primary Drinking Water Regulations
40 CFR 143	National Secondary Drinking Water Regulations
40 CFR 160	Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Good Laboratory Practice Standards
310 CMR 42.00	Massachusetts. Department of Environmental Protection. 310 CMR 42.00: Certification and Operation of Environmental Analysis Laboratories, 10/05/2007.
APHA-AWWA-WPCF	Standard Methods for the Examination of Water and Wastes
ASTM D 3328	Standard Methods for the Comparison of Waterborn Petroleum Oils by Gas Chromatography
EPA 540/G-87/003	Data Quality Objectives for Remediation Response Activities, Development Process
EPA 600/4-79-012	Quality Assurance Handbook for Analytical Quality Control in Water and Wastewater Laboratories
EPA 600/4-79-019	Handbook for Analytical Quality Control in Water and Wastewater Laboratories
EPA 600/4-79-020	Method for the Chemical Analysis of Water and Wastes
EPA 600/4-82-057	Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater
EPA 600/4-85/056	Choosing Cost-Effective QA/QC (Quality Assurance/Quality Control) Programs for Chemical Analysis
EPA 600/4-88/039	Method for the Determination of Organic Compounds in Drinking Water
MADEP EPH	Method for the Determination of Extractable Petroleum Hydrocarbons (EPH)
MADEP VPH	Method for the Determination of Volatile Petroleum Hydrocarbons (VPH)
NELAC	National Environmental Laboratory Accreditation Conference. NELAC Standard., Quality Systems, 06/05/2003 and 09/08/2009.
NJ EPH	Method for the Determination of Extractable Petroleum Hydrocarbons (EPH)
DOD	Department of Defense Quality Systems Manual for Environmental Laboratories, most current revision

Analytical Method References	
QAMS 004/80	Guidelines and Specifications for Preparing Quality Assurance Program Plans, USEPA Office of Monitoring System and Quality Assurance
USACE RIM	US Army Corp of Engineers, Regional Implementation Manual
US Coast Guard GC-D-52-77	Oil Spill Identification System

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