Corporate
STATEMENT OF QUALIFICATIONS
Revision 12, Ver. 2

SPL Locations:

HOUSTON, TEXAS
(Corporate Office)
8880 Interchange Drive
Houston, Texas 77054
(800) 969-6775 / (713) 660-0901

LAFAYETTE, LOUISIANA
500 Ambassador Caffery Parkway
Scott, Louisiana 70583
(800) 304-5227 / (337) 237-4775

TRAVERSE CITY, MICHIGAN
459 Hughes Drive
Traverse City, Michigan 49686
(888) 775-6424 / (231) 947-5777

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EXECUTIVE SUMMARY

SPL, Inc. offers decades of staff and corporate experience in providing responsive environmental analytical services to many consulting firms, petroleum, chemical, pipeline, manufacturing, shipping and transportation service companies.

SPL, originally formed in 1944 to serve the needs of the petroleum industry, is a known and highly-respected national environmental laboratory company. SPL is a full-service analytical laboratory offering quality environmental, petroleum, and air services to our clients.

SPL offers decades of staff and corporate experience in providing responsive environmental analytical services to many consulting firms, government agencies (on federal, state, and local levels), petroleum, chemical, pipeline, manufacturing, shipping, & transportation service companies. In addition to our corporate office/laboratory in Houston, Texas, the SPL network includes laboratories located in Lafayette, Louisiana and Traverse City, Michigan.

SPL's environmental lab in Houston now offers EPA Method TO-15, TO-14A, & TO-3 for soil, gas, ambient and indoor air testing of volatile organic compounds & TPHG. Our certified air testing laboratory provides reliable, low-level reporting limits for characterizing site assessments and vapor intrusion pathways.

Providing quality analytical services requires responsive, economical integration of all analytical activities and systems. More specifically, the successful provision of these services requires an effective combination of analytical chemistry, instrumentation and computer systems; Quality Assurance and Quality Control (QA/QC); experienced management supported by a trained staff; and a facility specifically designed for trace-level analytical chemistry.

Flexibility toward customer-requested procedures, analytical performance reporting systems, and recommendations for improving our laboratory service. Our Quality of Service program stresses customer interaction and continuous improvement in all service areas. We understand the special needs of our clients for analytical data and specific data reporting formats which meet specific objectives for report structure, content and data that can withstand regulatory and public pressures affecting environmental monitoring programs.

Our procedures reflect the need to comply with quick turnaround times, accommodate special analysis requirements, and provide timely, legally defensible data under a variety of complex circumstances. SPL offers:

A technically competent staff, trained to work as a team. The SPL team is comprised of professionals who have broad experience in the environmental services industry. This excellence in our environmental chemistry staff is supported by a cadre of highly trained and experienced personnel in complementary disciplines including a dedicated computer staff devoted to electronic data transfer and generation of electronic deliverables; environmental safety and health (laboratory safety, staff exposure minimization); and regulatory compliant environmental waste management (e.e., packing and shipping of laboratory wastes and disposal).

We thoroughly understand the strengths and limitations of each method, as well as the most efficient procedures for providing data of known and evidentiary quality. Our ready-now capability and highly qualified staff ensure that our clients receive high-quality, reliable analytical data and services from day one of each project.

The SPL QA Program, documented by our Quality Assurance Plan (QAP), is supported by a system of approved and implemented standard operating procedures (SOPs) and operating manuals. These SOPs and manuals guide all phases of laboratory sample management and control, sample preparation and analysis, preparation of responsive sample data packages, and records management to ensure the availability of evidentiary quality data. Our QA Department continuously monitors implementation of our QA program elements through routine and scheduled quality assurance assessment activities to ensure data integrity and to verify that measurement

systems are in control. SPL has QA Officers at each laboratory location that are independent from laboratory operations and have a direct reporting line to the Corporate QA Director. Our QA Department has the authority to modify or shut down any system or procedure that does not conform to stringent QA Program specifications.

Our deliverable data reports undergo multiple layers of technical and contractual review. Data is collected and verified by the analyst, then by the section supervisor or a technical specialist, and then reviewed again by the Project Manager before release to the client. The QA Officers also perform an independent evaluation of selected data reports generated by SPL.

Laboratory operating procedures which adhere to regulatory methods and protocols and are designed to meet reporting requirements, holding times, sample loads, yet minimize costs. Our SOPs serve as the next, more detailed level of guidance to laboratory personnel and implement the policies contained in our QAP. Laboratory SOPs govern all aspects of the analysis of analytical samples from receipt and storage, through the analytical process to report validation and generation, and subsequent storage of data. Laboratory SOPs have also been prepared governing ancillary activities including but not limited to waste management, software validation and control, and contingency planning.

The SOPs describing our procedures have been prepared by our experienced technical staff, reviewed for method and regulatory compliance, and approved by senior laboratory management. SOPs are periodically reviewed for conformance and updated as necessary to ensure continued conformance with applicable methodology. SPL procedures define the requirements and our analytical, quality assurance, and management staffs rigorously uphold them.

Effective sample processing and control honed from years of experience. Upon receipt of samples, the shipping container is inspected for warning labels and security seals before opening. The sample shipping containers and sample bottles are checked for integrity before being affixed with a unique SPL barcode label with a unique SPL ID number. A Sample Receipt Checklist is completed which documents the condition of the sample shipment, the accompanying documentation and the temperature of the samples upon receipt. Any discrepancy between the samples received and the COC information (e.g., broken or leaking sample bottles or other abnormal situation) is noted on the Sample Protocol Non-Conformance Worksheet and is immediately reported to the Project Manager or Lab Manager. The client is informed of the problem and corrective action options are reviewed with the client and implemented. Notations of the problem and resolution/corrective action are made on the Sample Protocol Non-Conformance Worksheet. Assigning a bar code label and unique laboratory ID numbers to each bottle (which may be a subset of any given client sample ID number) ensures effective sample tracking and accurate data reporting.

Samples are then stored until the custodian releases them to the preparation staff or analyst for processing. Following documented analytical procedures contained in the SOPs, the analyst performs appropriate calibrations and QC checks, and analyzes the samples. After thorough data reviews, the hard-copy data packages and electronics data deliverables are prepared for transmission to the client.

Sample data reports are provided in electronic or paper format or both to meet client requirements. Data formats are tailored to meet specific client requirements. Unused samples and hazardous wastes generated during the analytical process are then stored pending disposal or return to the client in accordance with applicable regulations.

Houston, Texas Facility Description. SPL's Houston Environmental laboratory occupies approximately 53,000 square feet of a single-story building, located in a light industrial area in southern Houston. The laboratory is convenient to regional highway systems and is roughly 15 minutes from Houston's Hobby Airport. Adjoining the laboratory is an additional 5,000 square feet of office housing SPL's corporate accounting and MIS groups. The laboratory itself consists of 2 separate facilities, these are the Hydrocarbon laboratory and the Environmental laboratory.

Hydrocarbon Laboratory: This lab houses Hewlett Packard, Tracor, Gow-Mac and Varian gas chromatographs for the analysis of a variety of samples. The chromatographs are linked to a Nelson Analytical Data Systems which provides integration of component peaks and finished reports. Computer terminals are available to provide a complete link with the sample log-in and analysis database. An enclosed gas bottle rack is located outside of the lab and gases are piped into the building. Special electrical circuits are used to minimize upsets and background noise in the chromatographs. A separate building houses the oil testing lab, which performs ASTM, UOP, and other physical tests on liquid hydrocarbons.

Environmental Laboratory. This lab is equipped with a wide variety of modern instrumentation and other analytical equipment. The environmental laboratory has equipment dedicated exclusively for the analysis of UST samples on an expedited basis in addition to the equipment dedicated to environmental analytical work.

Lafayette, Louisiana Facility Description. SPL's Lafayette laboratory is located about ½ mile from Interstate 10, providing easy access to the laboratory. The facility consists of 25,000 square feet, of which 16,750 square feet is devoted to laboratory activities, 2,000 square feet is devoted to sample storage and 6,250 square feet is dedicated to administrative functions. The building is equipped with a special air conditioning system that controls the direction of air flow that prevents contamination of trace level samples.

Results are calculated using statistical software that provides a variety of algorithms. The laboratory is light cycle controlled and temperature controlled to meet EPA testing criteria.

Traverse City, Michigan Facility Description. The SPL Michigan laboratory consists of 10,600 square feet devoted to laboratory activities, sample storage and administrative functions. The building is equipped with a special air conditioning system that controls the direction of air flow that prevents contamination of trace level samples.

These state-of-the-art facilities include:

- Rigorous control of air and water emissions to the environment;
- Segregation of organic and inorganic laboratories;
- Control of standards, reference materials and separation from analytical samples;
- Sophisticated water purification systems to ensure continuous availability of ASTM Type II water for laboratory analyses;
- Facility controls to minimize potential background contamination levels and sample cross contamination; and
- Isolated waste handling and residue management laboratories.

These critical features ensure the availability of immediate analytical capability and capacity to meet present and future requirements for the provision of environmental analytical services.

A full complement of sophisticated analytical equipment fully integrated with a computerized laboratory data management system (LDMS). SPL operates a full complement of analytical instrumentation for organic and inorganic analyses. Wherever possible, the instrumental systems are equipped with auto samplers and data systems to ensure accurate analysis and efficient sample throughput to meet the turnaround time requirements of our clients.

A sample management program integrated into the design of the laboratory. Our Laboratory Information Management System (LIMS) accurately tracks samples and testing activities and provides an audit trail for control of sample analysis. This system uses electronic means to track each sample and associated data utilizing the unique bar coded ID number that is affixed to each sample container. This ID number follows the sample and the data generated during analytical processes so that the final data product has the highest integrity and defensibility.

Our LIMS is an integral part of the laboratory sample data reporting system. By using electronic transmission of data from sample analysis and associated sample QC, we minimize hand entry of analytical data in our data packages.

Impeccable laboratory safety programs. Because a comprehensive environmental contract laboratory facility must handle hazardous materials, laboratory safety is critical. Our sample receiving, handling, and waste management/pollution prevention programs comply with all federal and state regulations and Hazard Communication Act procedures. All activities are procedure driven, thoroughly documented and include rigorous safety-oriented checklists for control of hazardous activity, personnel exposure, and regular and unannounced safety inspections.

Effective, regulatory-compliant waste disposal programs. It is SPL's corporate policy to handle and dispose of unused sample volumes and laboratory generated wastes in strict compliance with applicable regulations. For those unused sample volumes that are to be returned to our clients, these are accumulated and returned in the original sample container. In absence of a client request to return samples, we have contracts in place to dispose of all unused sample volumes and laboratory generated wastes for which there is a disposal option available in the continental United States.

We utilize only those waste disposal firms and transporters that have completed a rigorous evaluation of their policies and procedures, are licensed and/or certified by the EPA and DOT, and have demonstrated financial stability.

SPL is focused on providing the absolute best analytical chemistry laboratory services available in the nation. We appreciate the necessity of obtaining and providing accurate, timely and legally defensible analytical results. SPL successfully demonstrates competence, experience, and provides:

- A corporate focus on responsive environmental analytical services.
- Financial stability represented by SPL's sixty-four (64) year history of providing responsive analytical chemistry services to a diversity of clients.
- Highly qualified, experienced technical and administrative staff focused on client services.
- Independent quality assurance oversight of laboratory analytical operations.
- Understanding of analytical methodologies and the application of these methodologies to the analyses of an environmental sample.
- Excellence in automated data management and electronic disk deliverable report generation.

SPL is immediately available and is fully capable of rapid sample and data turnaround of the highest quality at a competitive cost. Please feel free to contact our sales staff or any of our three (3) laboratories as to how we may be of service.

This Statement of Qualifications (SOQ) provides details of our organization, analytical methods, quality assurance and quality control, instrumentation and equipment, facilities, data processing systems and other attributes that contribute to the meeting and exceeding of the requirements of our clients.

1.0 ORGANIZATIONAL STRUCTURE

SPL is focused on responding to client specifications and organized to provide effective management of all analytical procedures to ensure management of internal analytical processes and products that meet the needs of our clients.

SPL is a laboratory corporation formed in 1944 to serve the needs of the petroleum industry. Over the ensuing years SPL expanded its service base to include supporting government agencies and associated contractors for environmental analytical services. SPL has three laboratories that serve the environmental and petroleum related analytical chemistry markets.

SPL is organized to focus on the individual needs of each client coupled with effective management of all analytical procedures and processes. The organization charts depicted in Figures 1-1, 1-2, 1-3, and 1-4 provide the framework in which management directives and operational procedures are implemented to impart flexibility of operations, control of analytical procedures, delegation of authority, and assignment of responsibility. We incorporate a system of checks and balances in the definition of functions, and a division of responsibilities and authorities to ensure effective oversight and interaction of SPL's staff and integration of all laboratory activities to meet client requirements.

The SPL managerial infrastructure is complemented by a team of experienced analytical and support personnel skilled in analytical chemistry, QA/QC, data management and processing, and program and project management.

The following descriptions provide an overview of the roles of our managers and key supervisory personnel, their areas of authority and responsibility, and our commitment to ensure generation of data and deliverables of the highest quality to meet all client specifications.

Laboratory Manager – This position reports directly to the Vice President of Environmental Analytical Services. The Laboratory Manager is responsible for the day to day activities, maintaining adequate staffing, implementing the SPL QAM and all corporate policies and procedures. Approves the Facility-Specific Appendix to the SPL QAM and facility specific SOPs and has the authority to sign Quality Assurance Project Plans, validation reports, narratives, training records, non-routine client communications and bids.

Quality Assurance Officer – This position reports to the Corporate Quality Assurance Director. Responsible for assessing and maintaining the SPL QAM within facility operations. Approves specific SOPs. Provides training to the laboratory staff. The QA Officer is responsible for approving QC data and test code changes on the LIMS, coordinating laboratory certifications, performing QA assessments and stopping sample processing when significant quality objectives are not met. This position has the authority to sign audit reports, SOPs, validated results, and nonconformance reports.

Project Manager – This position reports to the Client Services Supervisor and is responsible for initiating new projects and monitoring existing ones. Project Managers act as liaisons between the laboratory staff and the client. Project Managers review chain of custodies for accuracy; review the final report, write case narratives, and advise clients, and report client inquiries involving data quality issues to the facility QA Officer and to the operation personnel. The Project Managers are responsible for ensuring that all reports, documentation, invoices, and communications with clients are handled in accordance with the terms and conditions of the individual projects. Of special interest is the adherence to sample turnaround schedules, providing coolers and preservatives as needed, and scheduling analytical processing. This position has the authority to sign and authenticate analytical data or quality control data that has been validated. Also has the authority to sign narratives and other documents related to analytical work.

Sample Custodian – This position reports to the Client Services Supervisor and is responsible for the proper login of samples into the LIMS. The Sample Custodian assists the Waste Disposal Coordinator with sample disposal. Reports any nonconformance to the Project Managers. Maintains the chain of custody procedures. The Sample Custodian is responsible to storing samples according to SPL SOPs for sample handling and preservation.

Document Control Section – This section reports to the Client Services Supervisor and serves as the repository of analytical records and data generated by the laboratory. The Document Control staff controls, archives, and maintains files of completed deliverable reports, and the supporting documentation necessary to provide a complete record of the analysis of samples and sample sets, and associated QA. The Document Control Section maintains the legal integrity of these files and ensures that laboratory records are complete and prevents release of records to unauthorized personnel.

Laboratory Supervisor – These positions report to the Laboratory Manager and are responsible for the delegation of work and the supervision of the daily activities of analyses within the group, implementing the QAM policies and SOPs requirements, reporting non-conformances to the Laboratory Manager and QA Officer. Supervisors have the additional responsibility of checking data being produced by employees under their supervision to ensure accuracy, completeness, correctness and conformance to all prescribed regulatory and/or contract protocol. Supervisors also have the authority to sign and validate analytical training records.

Figure 1-1: SPL Corporate Organizational Chart

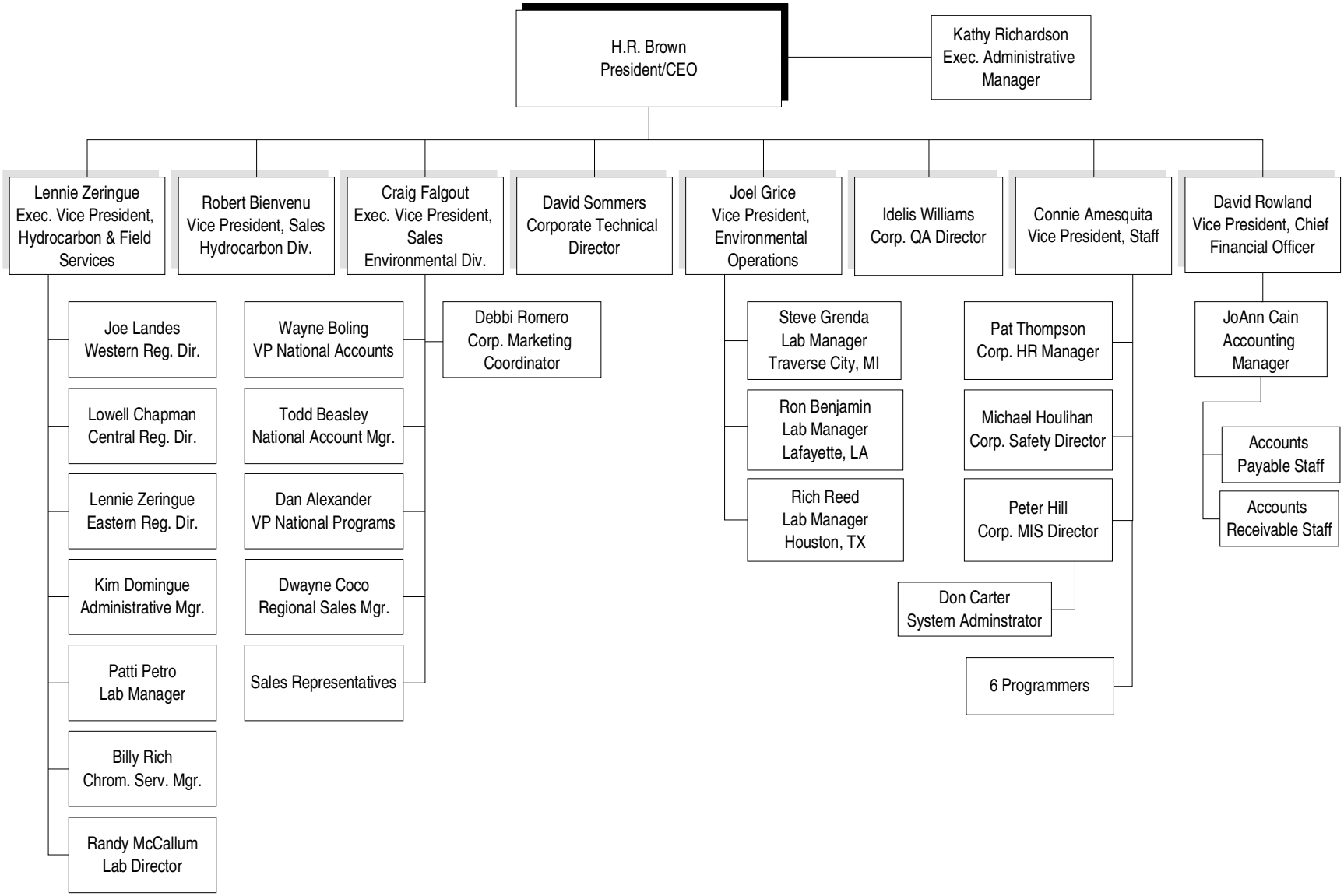


Figure 1-2: SPL Houston Organizational Chart

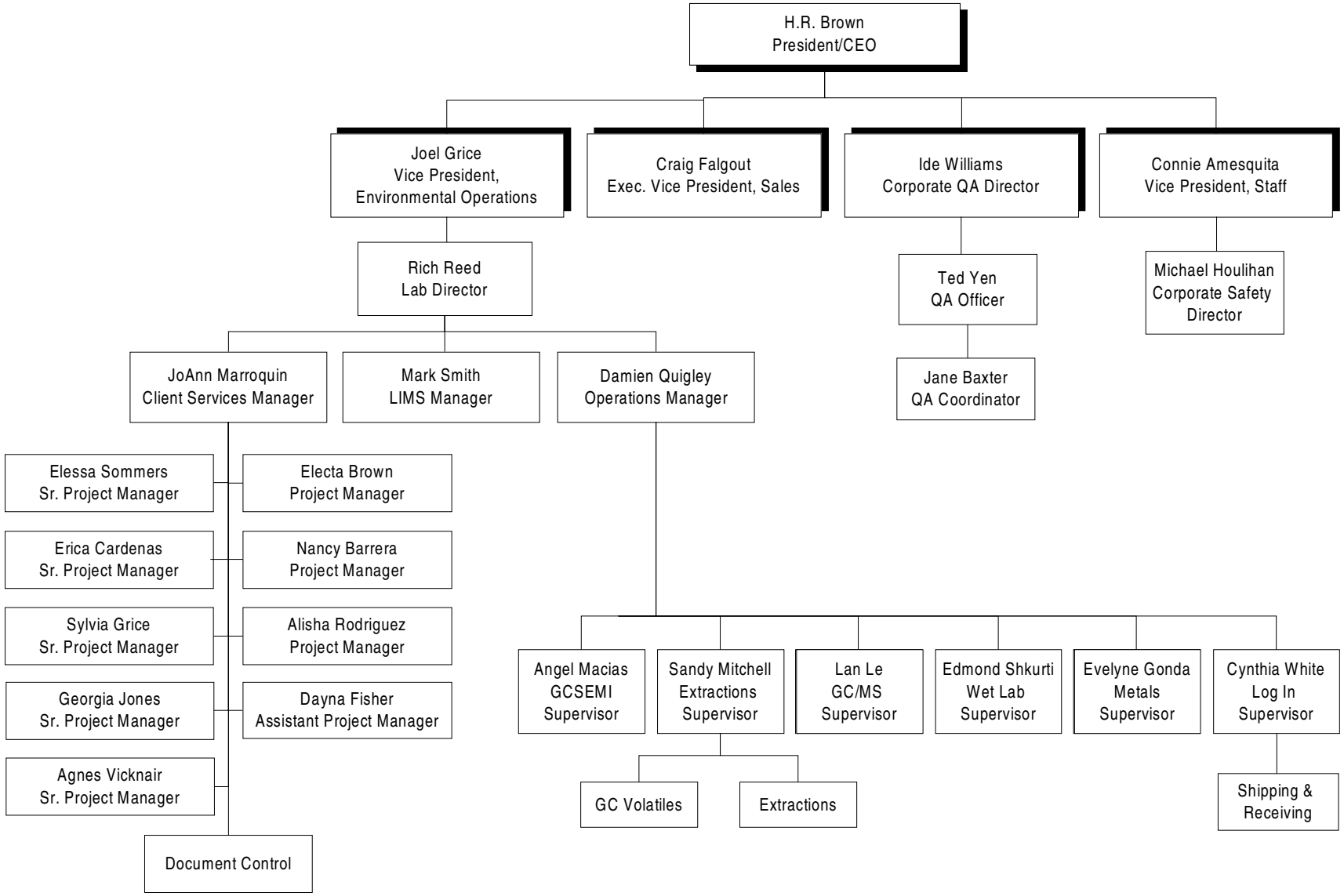


Figure 1-3: SPL Lafayette Organizational Chart

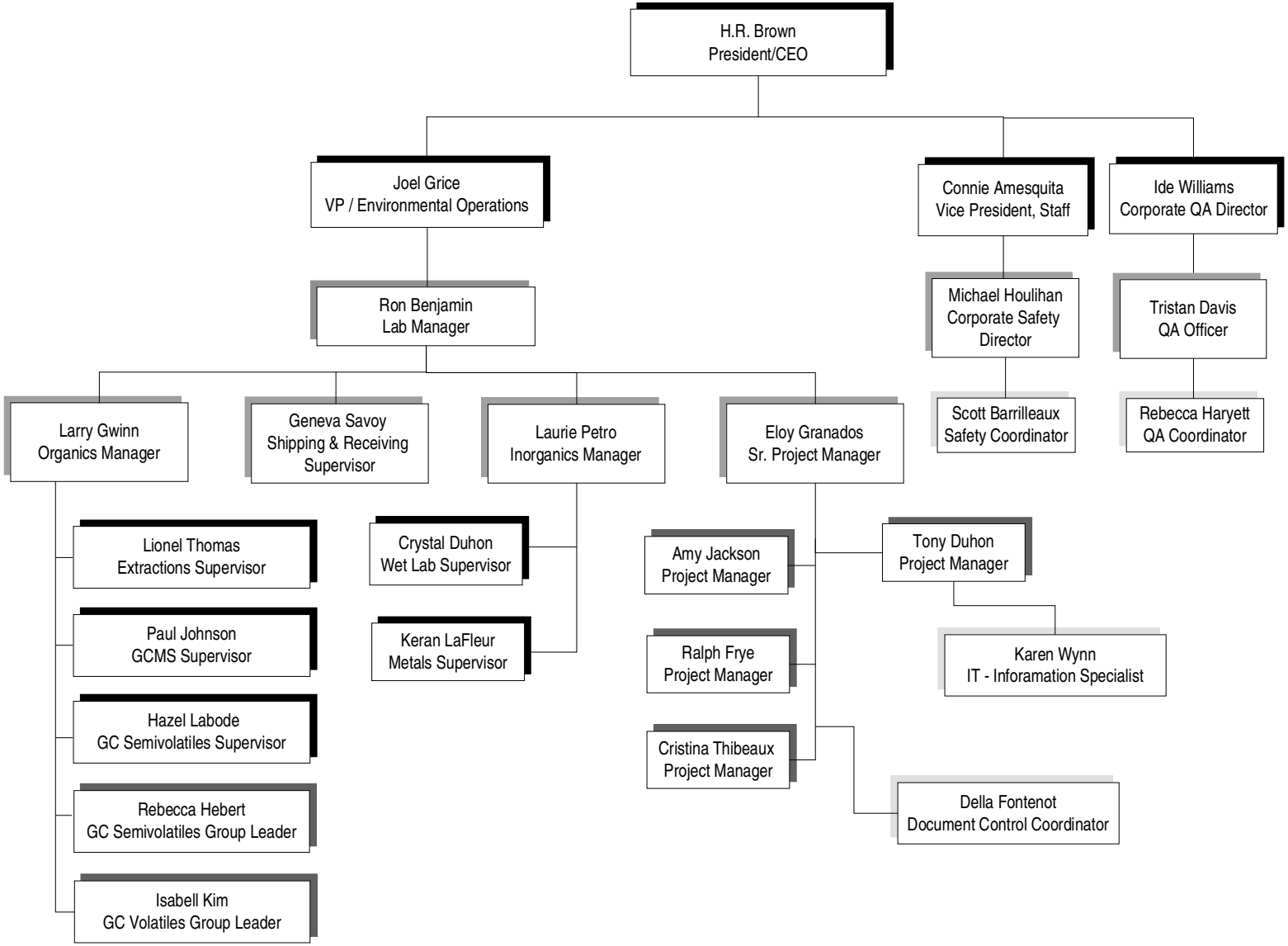
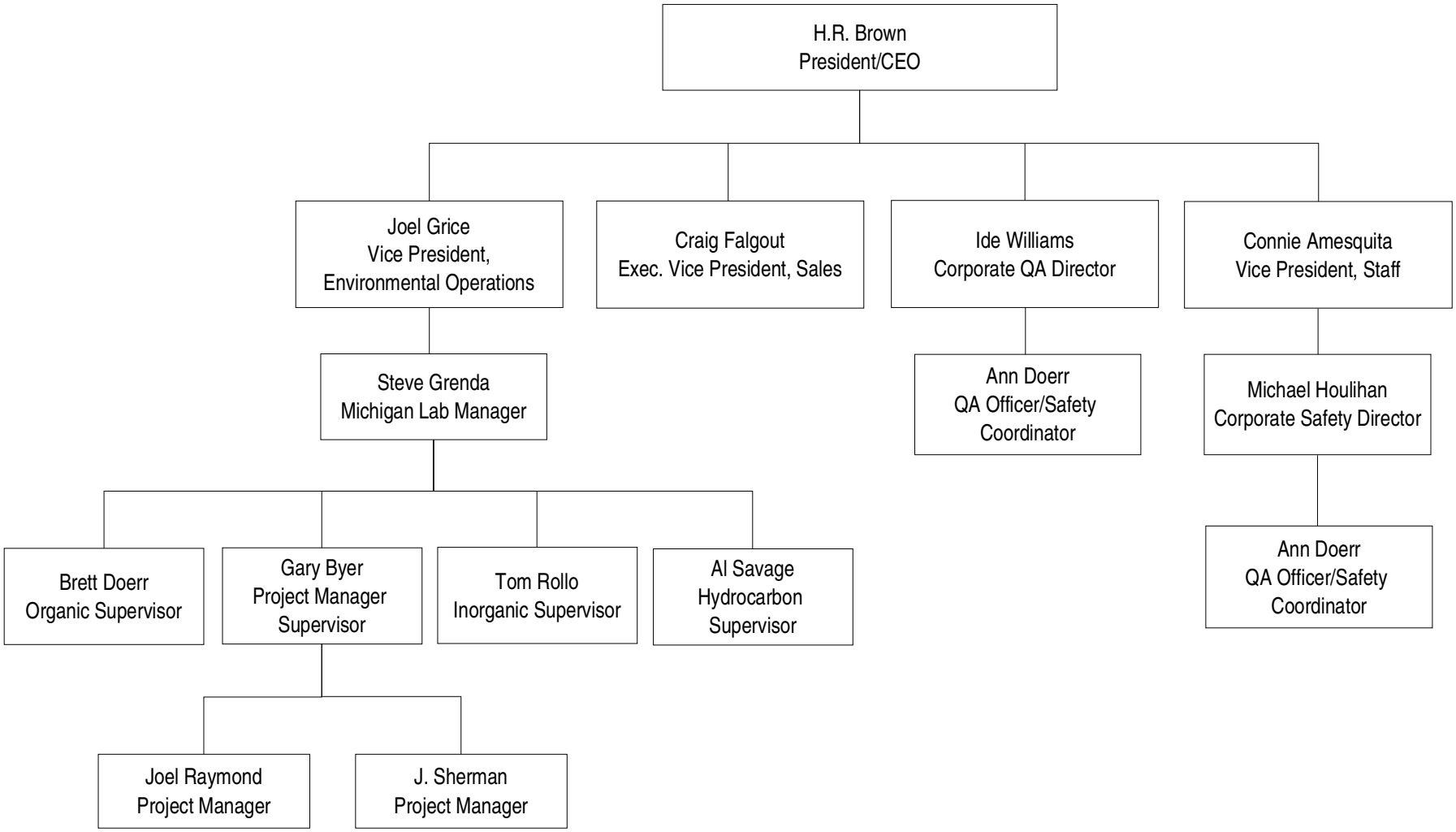


Figure 1-4: SPL Michigan Organizational Chart



2.0 EMPLOYEE TRAINING

We train and cross-train our staff to ensure continuing awareness of present policies and procedures, to develop new capabilities, and to ensure the availability of experienced environmental analytical chemists and support personnel.

Our training procedures ensure that SPL personnel provide high quality analytical data and products, are aware of present practices and trends in environmental analytical chemistry and are knowledgeable of federal, state and local analytical methodology; quality assurance and quality control programs and requirements. SPL provides training to its staff to achieve initial proficiency; maintain proficiency; and rapidly adapt to changes in technology, methods, or job responsibilities. We provide company indoctrination and orientation for new employees.

The laboratory operating managers, the QA Officer, and the Safety Director all provide in-house training for present staff concerning SPL procedures. These procedures include QA policy and practice, analytical methodology, general laboratory safety, proper sample and analytical residue waste management, method specific procedures, business ethics, and related topics.

We encourage and support formal education and outside professional training. We have programs in place to provide continued technical training, education, and professional development. These include tuition reimbursement for classes attended at institutions of higher learning, participation in vendor-provided training, attendance at conferences, workshops, and membership in professional organizations.

We provide Continuing Training in QA and Laboratory Policies and Procedures. The SPL QA Program requires training for all new and in-house laboratory personnel:

- SPL QA Manual
- Standard Operating Procedures
- SPL Guidelines for Maintaining Laboratory Logbooks and Records
- Proper use and frequency of blanks, duplicates, spikes, surrogates, and other QC samples and implementation of corrective actions
- Technical review of analytical data to be conducted by the analyst, supervisor or Project Manager
- Data completeness
- Proper receipt and handling of environmental samples (chain of custody)
- Data archival and retrieval practices
- Ethics and Data Responsibility

We Use an On-The-Job Training Approach. The operating managers, technical specialists and administrative specialists continually provide on-the-job training. Often training is conducted on a one-on-one basis by the supervisor or an experienced staff member designated by the supervisor. Using this hands-on approach, the employee quickly gains knowledge and experience of task requirements, appropriate procedures and methodologies, and safety and health issues.

The SPL staff is specifically trained in the following basic laboratory operations as applicable to their job responsibilities:

- Sample receipt and log-in
- Sample handling and measuring
- Measuring and weighing
- Instrument tuning and calibration
- Data transfer into the LIMS
- Data handling and reporting
- Waste management
- Environmental safety

We monitor the proficiency of each analyst through the analytical data generated from repetitive preparation and measurement of QC samples such as calibration verification standards, matrix spikes and matrix spike duplicates, replicates, materials, surrogate spikes, calibration (instrument) and method blanks, and blind internal and external

performance evaluation reference materials. Results are compared against method or SPL established limits. The results provide a practical demonstration of the ability of the analyses to achieve and maintain performance within established control limits. This approach also provides a means of identifying deficiencies in performance, assessing new methods, understanding new projects, and learning how to use a new instrument and solving associated problems.

We also provide training in preparation and use of standard operating procedures as the primary guide to laboratory operations in response to policies and procedures contained in our comprehensive Quality Assurance Plan. We ensure that all employees are aware of changes and updates to SOPs. When revisions of SOPs or new SOPs are approved by laboratory management, managers and supervisors brief the staff on the changes and/or new procedures. The new procedures are placed in the appropriate laboratory work space and incorporated in the SOP manual for reference.

We Ensure a Safe Work Environment. The SPL Corporate Safety Director or the Facility Safety Coordinator provides training to all newly hired or transferred employees who are exposed to hazardous substances prior to their initial work assignment. They schedule and present the hazardous materials awareness, and hazardous materials Phase I and Phase II training courses. Laboratory safety refresher training is provided to all employees on a continuing basis.

We Maintain Training Records on Each Employee. SPL training records are maintained in secure files in both hard copy and summarized in electronic formats. Each manager and supervisor provides inputs to the training records when each employee is trained on the latest procedure. This approach enables us to better cross-utilize our employees. Training is documented with attendance sign-in sheets, technical training records, resumes documenting education and experience, individual performance and proficiency records, hazard communication standard documentation, and certifications of external training.

3.0 ANALYTICAL METHODS

SPL offers extensive experience and comprehensive capabilities for the analysis of multimedia environmental samples using standardized and non-standardized procedures in both routine and challenging matrices.

Analytical methods are selected for a specific project based upon discussions with the client and state or federal regulatory requirements. SPL's SOPs are generally based on methods from the following references:

- Test Methods for Evaluating Solid Wastes, USEPA, SW-846, 3rd Ed., Final Update III.
- Methods for Chemical Analysis of Water and Wastes, USEPA-600/4-79-020, Revised March 1983.
- Methods for the Determination of Inorganic Substances in Environmental Samples, USEPA-600/R-93/100, August 1993.
- Methods for the Determination of Metals in Environmental Samples, USEPA-600/R-94-111.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (600 series methods), 40 CFR Part 136 Appendix A.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, USEPA-600/4-82-057, Revised October 26, 1984, CFR Vol. 49, No. 209.
- Standard Methods for the Examination of Water and Wastewater, 20th Ed., 1998.
- Specialized tests and procedures are taken from ASTM, USGS, AOAC, API and the American Society of Agronomy.

The analytical methods in these recognized procedural manuals and guidelines are further documented by a system of SPL SOPs which define exactly how the procedures are applied in our laboratory.

SPL regularly reviews and updates laboratory SOPs to maintain compliance with revisions of the reference methods. We recognize, however, that the reference methods and our SOPs will not be

applicable in all cases, and that modifications will sometimes be required. When this situation arises, we discuss the analytical requirements and proposed method modifications with our client, document the approach we agree on, formally approve the modification, and establish a schedule to implement the modified method. If the required changes are extensive, we prepare a modified SOP. Our procedure for accepting modified SOPs includes review by the immediate supervisor, SPL QA Officer, followed by the SPL laboratory manager. Our QAP requires that any modification to sample processing and analytical methods must have the approval of the SPL senior management. This flexibility is applied in our continuing efforts to ensure the best possible analytical services to clients.

3.1 SAMPLE PROCESSING

Sample processing is controlled and managed to ensure responsive services in accordance with recognized methodology, conformance to QA guidelines, and standard operating procedures.

Sample Receiving. Upon receipt of samples, the shipping container is inspected for warning labels and security seals before opening. A Sample Receipt Checklist is completed which documents the condition of the sample shipment, the accompanying documentation and the temperature of the samples upon receipt.

Once verified for completeness and accuracy, samples are affixed with barcode labels and client sample ID numbers, and the analyses required for each sample container. This and related information is entered into our Laboratory Information Management System (LIMS). The use of barcode labels with unique SPL sample ID numbers on each sample bottle becomes a tracking vehicle which is used to identify the sample and ties all data generated during the analysis process to the original sample container.

Organic Analyses. SPL organic analysis personnel are thoroughly trained in the preparation and analysis of environmental samples for organic constituents using RCRA SW-846, Wastewater 600 series, and other methods required for Toxic Substances Control Act (TSCA) and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) programs. Detailed procedures regarding the standardized methods are provided in our SOPs.

As samples are scheduled for preparation, custody is transferred from the sample custodian to the organic preparation custodian. Internal custody documentation is provided electronically or as hard copy. For those samples that do not require preparation (volatile organic analyses or direct injection samples) custody is transferred from the sample custodian to the analysis custodian.

Once analytical data is generated, the data is reviewed first by the analyst, then by the Technical Lead or supervisor. A completeness review is performed during data package preparation. The final review is performed by the Project Manager. If the data is acceptable and complete, a final report is generated and sent to the client or, at client direction, to the test generator. If the data are unacceptable, appropriate corrective action is instituted. The Organic Analysis Section Supervisor or the QA Officer can direct the corrective actions to include re-extraction and reanalysis of the sample.

After completion of all analyses, the residual samples and sample extracts are stored pending potential requests for reanalysis or a decision to dispose of these materials. Once the disposal decision is made these residuals and laboratory generated wastes are then processed for disposal in accordance with approved procedures and applicable regulations.
The combination of modern equipment, thoroughly documented and accurate procedures, a highly skilled senior staff, an ongoing training program, comprehensive data review, and automated data management give SPL an organic analysis capability that is matched by very few laboratories.

Inorganic Analyses. Our inorganic staff is proficient in standard methods including RCRA SW-846, and EPA Wastewater as well as other inorganic protocols.

Inorganic samples are received and processed according to procedures similar to those used for
Inorganic samples are received and processed according to procedures similar to those used for

organic samples, except that the requested inorganic protocols as specified in SPL SOPs are followed. These protocols also specify the QC samples to be included with each sample batch.

Next, inorganic preparation laboratory personnel perform acid digestions, toxicity characteristic leaching procedure (TCLP) extractions, synthetic precipitation leaching procedure (SPLP) extractions, distillations, filtrations, or simple physical characteristic determinations (total dissolved solids and percent solids) following applicable protocol. All prepared samples and aliquots are stored according to method specifications. When samples are scheduled for analysis, custody is transferred to the analysis custodian as indicated on the analysis worksheets.

Inorganic analytical data are reviewed and released first by the analyst, then by the Technical Lead or supervisor, and finally by the Project Manager. If the data is acceptable and complete, a final report is generated and sent to the client or, at client direction, to the test generator. If the data are unacceptable, appropriate corrective action is instituted. The Inorganics Supervisor or the QA Officer can direct the corrective actions to include re-digestion and/or reanalysis of the sample. Once the disposal decision is made these residuals and laboratory generated wastes are then processed for disposal in accordance with approved procedures and applicable regulations.

SPL has the equipment, procedures, and expertise to provide high throughput, high quality analytical services for inorganic analytes in the most difficult samples.

SPL reserves the right to reject samples for any of the following reasons:

- No Chain of Custody documentation included
- Discrepancies between the Chain of Custody and the sample labels
- Incomplete sample information provided
- Inappropriate sample containers for the analysis requested
- Inappropriate preservation for the analysis requested
- Sample received outside of holding time for analysis requested
- Inappropriate sample labeling (not using water resistant labels and indelible ink)
- Samples with signs of damage or contamination
- Samples containing high levels of potentially dangerous substances or vapors that may cause health or safety problems during sample preparation or analysis
- Samples with levels of radiation

These or any other discrepancies are discussed with the client and agreed upon action taken. The laboratory will retain any records concerning the final disposition of the sample rejected.

4.0 QUALITY ASSURANCE PROGRAM

Our exemplary QA program focuses on the generation of high-quality data, on time and responsive to client and regulatory requirements.

The SPL Quality Assurance Program documented in the Quality Assurance Plan (QAP), is designed to meet federal, state, and local regulatory guidelines and all available quality standards. The SPL QAP delineates the laboratory-wide policies, procedures, and organization and QA/QC activities incorporated in all SPL operations to ultimately ensure that analytical data meet intended uses. The objectives of our QA program are built into all activities of the laboratory. This is achieved by ensuring that:

- Quality policy is well documented and implemented in all aspects of SPL operations
- Personnel are well trained and knowledgeable in tasks assigned
- Officially approved analytical methods are followed
- Quality control is built into the analytical systems to ensure that they are in a state of statistical control
- High-purity standard reference materials (SRM) are routinely analyzed to ensure the production of accurate analytical results

- Data quality is known, documented and maintained
- Records are maintained to provide for reconstruction of all phases of the analytical processes
- Before any analysis can be initiated, performance-based data (detection limits, precision, and accuracy) are generated and documented

The QC procedures specific to analytical methods are detailed in the SPL method-specific SOPs. SOPs also document administrative and non-analytical processes such as sample receiving and log-in, data review and validation, report production and document control, waste management, and other related activities.

Rigorous QA measures, the foundation of SPL's operations, are incorporated into laboratory services offered by the facility. Every aspect of sample handling and analysis, data production, and documentation is monitored closely by knowledgeable, experienced QA personnel.

We ensure that sample integrity is maintained throughout the laboratory by following EPA chain-of-custody procedures, good laboratory practices (GLPs) and good measurement practices (GMPs) in the handling, preparation, and analysis of the environmental samples. To ensure sample integrity, chemical, and physical determinations of environmental samples are performed in a work environment free of sample contaminants and free of physical and chemical interferences.

SPL has in place a well-documented preventative maintenance program for maintenance and calibration of all major analytical instrumentation and support equipment. The analytical instruments and computers are routinely serviced. The performance of analytical support equipment including analytical balances, ovens, reagent-water systems, water baths, refrigerators and freezers, micropipettes and thermometers are verified and documented on a scheduled basis.

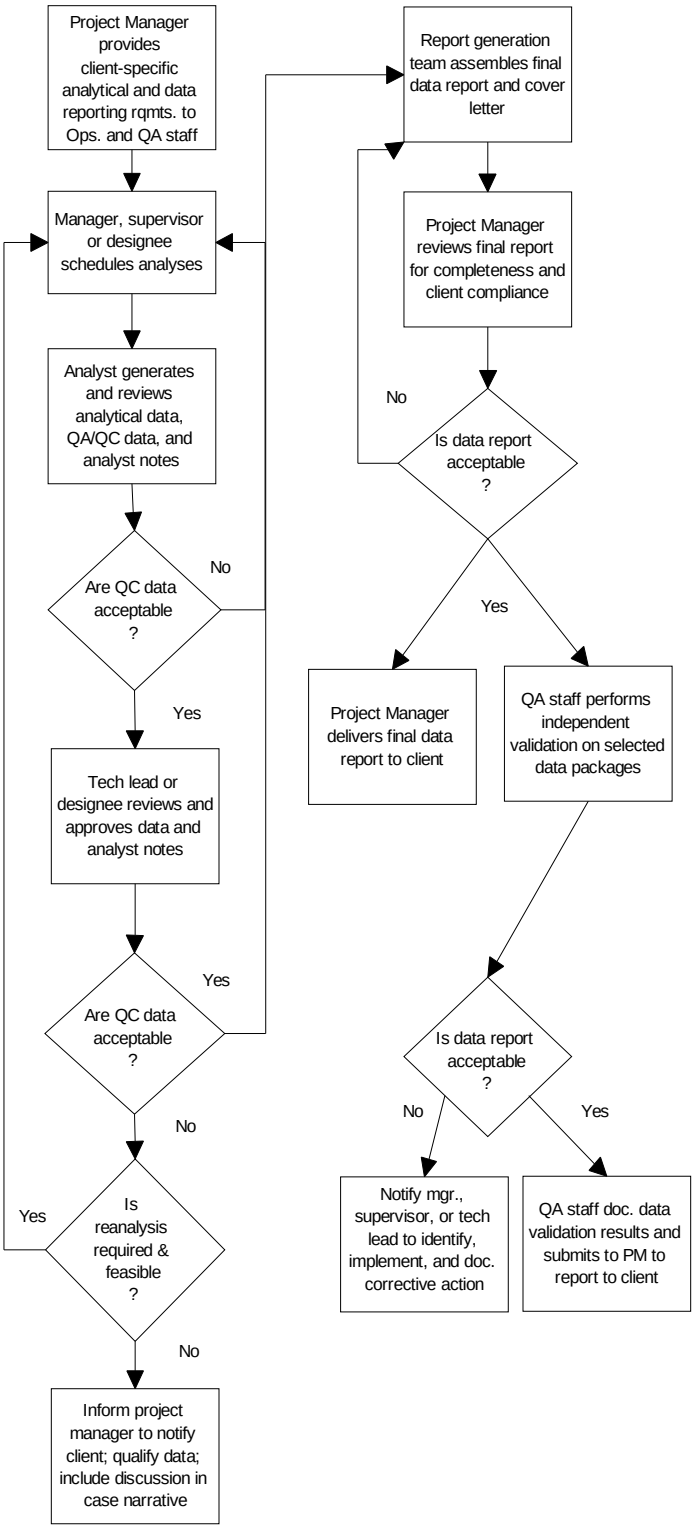


Figure 4-1: Data Review Process

Laboratory personnel analyze daily calibration, independent initial calibration, or QC check standard for all inorganic and organic analyses. Calibration accuracy is ensured through the use of independent standards traceable to NIST, or other recognized standards agencies. The initial calibrations are verified by using continuing calibration check samples and low-concentration standards. Precision is estimated by analyzing duplicate or replicate client samples and matrix spikes. Sample and reagent contamination are monitored through the use of calibration instrument and method blanks, accuracy is monitored using the data generated from the laboratory control samples (LCSs) and matrix spike and matrix spike duplicate samples. LCS data also serve as a basis to empirically determine QC acceptance limits and to detect any trends over time. The results of all daily and/or weekly check sources are compared to establish QC criteria, and are thoroughly documented. In the event that the method or project-specific QC criteria are not achieved, the analyst investigates the sources of the nonconformance and implements corrective action which may include reanalyzing the QC standard, retuning and/or re-calibration of the instrument, or reanalysis of the samples in question.

We use technical systems and performance evaluations as QA tools to further identify analytical systems that fail to meet the SPL-established or project-specified or method-specified criteria. If on the basis of internal or external systems or performance audits, routine monitoring of laboratory support equipment, or QC samples analysis results, analytical systems fail to be met the established criteria, an appropriate corrective action is identified and implemented. The Project Manager, QA Officer, cognizant laboratory manager, and the analyst may be involved in identifying the proper corrective action. If previously reported data are affected or if the corrective action will impact the project budget or schedule, the action directly involves SPL's Laboratory Manager. The corrective action employed may be formal or informal and depends on the nature of the problem. In either case, the corrective action employed, and verification that the problem has been eliminated is thoroughly documented on a nonconformance and corrective action record (NCAR). Clients are notified of quality issues as appropriate.

Prior to transmission to the client, analytical data reports undergo an in-depth, independent review process by the following staff members: (1) Analyst; (2) Technical Lead or peer; (3) Report Generation; and (4) Project Manager. Figure 4-1 provides an overview of SPL's data review process. Selected analytical data are also independently verified by the QA staff to ensure that both the data and deliverable reports are in conformance with method/project specific criteria. The analytical precision and accuracy is evaluated by using QC check standards, laboratory control samples, surrogate spikes, matrix spikes, matrix spike duplicates, and unspiked duplicates to estimate the degree of variance around the reported value as well as any bias introduced due to matrix or laboratory sample processing procedures.

Included in this extensive evaluation is a determination of the potential for background contamination resulting from sample containers, reagent water, reagents or solvents used during digestion or extraction, cross-examination during storage, or carryover during analysis. Random errors resulting from in-correct calculations, transcription errors are also examined by performing independent recalculations against the raw analytical data.

Sample data reports are available in hard-copy format. Formats can be tailored to meet specific client requirements. The QAP provides a detailed description of our comprehensive program designed to ensure the production of quality data that will withstand legal scrutiny and meet client specifications. Figure 4-2 provides the table of contents for our QAP.

Figure 4-2: QA Plan Table of Contents

SPL QAM
Section No: Table of Contents
Revision No: 11
Revision Date: 09/10/2008
Effective Date: OCT 20 2008
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5.0 SPL's INSTRUMENTATION, EQUIPMENT & CAPACITIES

Our state-of-the-art instrumentation and equipment provide comprehensive reliability, capability, capacity and redundancy in the provision of environmental data.

This section describes the equipment and analytical systems available for the processing of analytical samples and our analytical capacity.

5.1 INSTRUMENTATION & EQUIPMENT

Figures 5-1, 5-2, and 5-3 show the analytical instrumentation in place and operational at SPL's laboratories. All of this equipment is operational and available for analysis of environmental samples. Wherever possible, these instruments are fitted with autosamplers to improve efficiency and facilitate sample introduction to the instrumental system. Further the instruments are connected to a local area network to facilitate data transfer.

It is not enough to just have equipment available. This state-of-the-art equipment must be maintained. Our preventative maintenance program incorporates procedures such as periodic calibration, cleaning, changing oils and filters and monitoring areas of wear and degradation. The scope and frequency of preventative maintenance is determined based on manufacturer's recommendations, operator experience and historical data. This approach to laboratory instrument and systems services, decreases costly repairs and significantly increases instrument up-time.

5.2 ANALYTICAL CAPACITY

SPL's capacity is represented by our extensive suite of analytical instrumentation and excellence in staff. Figure 5-4 presents an estimate of SPL's ability to perform routinely requested sample analyses. This is based on our current instrumentation configuration, and operating shifts. The estimate takes into account a 20% downtime on instrumentation and does not include any additional instrumentation. To ensure that client project requirements are met SPL typically operates at 75% of the capacity indicated. In addition, our employee cross-training program and instrument redundancy provides SPL with the ability to handle peak analytical demands. If necessary, we can increase our overall analytical capacity as much as 20% by introducing multiple shifts and extended work weeks.

Figure 5-1:

SPL MAJOR INSTRUMENT LIST HOUSTON, TEXAS			
Instrument Type	**Manufacturer/Model**	**Detector**	**Analysis**
Auto Analyzer	Alpkem OI Analytical Flow IV Solution		Anions
Autoclave	ACCU Sterilizer A58		Bacteriology
Balances	American Scientific SP182		Gravimetric Analysis
Balances	Denver Instruments A-160		Gravimetric Analysis
Balances	Mettler PB3002		Gravimetric Analysis
Balances	Mettler PB302		Gravimetric Analysis
Balances	Mettler PB801		Gravimetric Analysis
Balances	Mettler PM300		Gravimetric Analysis
Balances	Mettler PM400		Gravimetric Analysis
Balances	Sautorius B3100S		Gravimetric Analysis
Balances	Sautorius E12000S		Gravimetric Analysis
Balances	Scientific Products 120P		Gravimetric Analysis
Balances	Scientific Products 120P		Gravimetric Analysis
Block Digestor	Environmental Express		Metals Digestions
Block Digestor	Environmental Express		Metals Digestions
Block Digestor	Environmental Express		Metals Digestions
Block Digestor	Hach COD Digestor Block		COD
Block Digestor	Kontes Mid VAP 2000		Cyanide
Block Digestor	VELP TK20 Digestor		TKN
Block Digestor	Tecator Digestion System 40		TKN
Conductivity Meter	Symphony SR40C		Conductivity
Distillation Apparatus	Labconco Rapid-Still II 65200		Ammonia, TKN
Evaporator	Zymark Evaporator ZW640-3		Semivolatile Organic Conc.
Evaporator	Zymark TurboVap II 46367/A		Semivolatile Organic Conc.
Evaporator	Zymark TurboVap II 46368/A		Semivolatile Organic Conc.
Evaporator	Zymark TurboVap II ZW80001		Semivolatile Organic Conc.
Evaporator	Zymark TurboVap II ZW8002		Semivolatile Organic Conc.
Evaporator	Zymark TurboVap II		Semivolatile Organic Conc.
Evaporator	Zymark TurboVap II		Semivolatile Organic Conc.
Flash Point Tester	Precision Science Pensky-Martens Flash Point (Closed Cup)		Flash Point
Wet Chemistry Analyzer	ThermoElectron Konelab Aqua20		Wet Chemistry
Flash Point Tester	Precision Science Pensky-Martens Flash Point (Open Cup)		Flash Point
Gas Chromatograph	Hewlett Packard 5890, Series 2	ECD	PCB
Gas Chromatograph	Hewlett Packard 5890, Series 2	ECD	PCB
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID-PID-FID	BTEX/GRO
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID-FID	BTEX/GRO AIR
Gas Chromatograph	Hewlett Packard 5890, Series 2	FID/FID	DRO
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID-ELCD	BTEX/Halogenated VOAs

SPL MAJOR INSTRUMENT LIST HOUSTON, TEXAS			
Instrument Type	**Manufacturer/Model**	**Detector**	**Analysis**
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID-PID/FID	BTEX
Gas Chromatograph	Hewlett Packard 5890, Series 2	FID/FID	DRO
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID/PID/FID	BTEX/GRO
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID/FID	BTEX
Gas Chromatograph	Hewlett Packard 5890, Series 2	FID/FID	Alcohols
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID/FID	BTEX/GRO
Gas Chromatograph	Hewlett Packard 5890, Series 2	FID	GLYCOLS
Gas Chromatograph	Hewlett Packard 5890, Series 2	PID/PID/FID	BTEX
Gas Chromatograph	Hewlett Packard 5890A, Series 2	PID/PID-FID	BTEX/GRO
Gas Chromatograph	Hewlett Packard 5890A, Series 2	PID/PID-FID	BTEX/GRO
Gas Chromatograph	Hewlett Packard 5890A, Series 2/EZFlash	FID/FID	TX 1005
Gas Chromatograph	Hewlett Packard 5890A, Series 2/EZFlash	FID/FID	DRO
VOAs	Hewlett Packard 6890	FID/PID/TCD	RSK Methods
VOAs	Hewlett Packard 6890	ECD/ECD	Pests/PCBs
VOAs	Varian 3400	ECD/ECD	Herbicides
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Semivolatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 5890/5971		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Semivolatiles
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 5890/5972		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 5890/5972		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Semivolatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Semivolatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5973		
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5975		Volatile Organics
Gas Chromatograph/ Mass Spectrometer	Hewlett Packard 6890/5972		PAH
High Performance Liquid Chromatograph	Hewlett Packard 1100	Fluorescence	Acrylamide
High Performance Liquid Chromatograph	Hewlett Packard 1100	Fluorescence	PNA
Incubator	Millipore Duel Chamber		Coliform Bacteria
Incubator	VWR Model 2005		BOD
Incubator	VWR Model 2020		BOD
Inductively Coupled Plasma Spectrometer	Thermo-Jarrel-Ash 61E		Metals
Inductively Coupled Plasma Spectrometer	Thermo-Jarrel-Ash 61E Trace		Metals
Inductively Coupled Plasma Mass-Spectrometer	Agilent Technologies 7500I		Metals
Ion Chromatograph	Dionex DX 500		Anions
Mercury Analyzer	Leeman HydraAA		Mercury
Mercury Analyzer	Leeman HydraAA		Mercury
Muffle Furnace	Lindbergh		Extractions
Muffle Furnace	Isotempoven		Extractions

SPL MAJOR INSTRUMENT LIST HOUSTON, TEXAS			
Instrument Type	**Manufacturer/Model**	**Detector**	**Analysis**
	Thermolyne		VSS
Nephlometer	HF Instruments DRT 100B 20012		Turbidity
Ovens	American Sciencific DX-68		TDS
Ovens	Thermolyne 9000		TSS
Ovens	Thelco Model 28		TSS
Oxygen Meter	YSI 5000		BOD
pH Meter	Orion 520A		pH
pH Meter	VWR SB709		PH
pH Meter	VWR SB20		pH
RAD Meter	Ludlum Model 19A Micro R Meter		NORM Analysis
RAD Meter	Victoreen Thyac V Survey Meter M190		NORM Analysis
Shaker	Lab-Line Instruments		Headspace Gases
Shaker	Therymolyne Maxi-Mix III Type 65800 M65825		
Single Wavelength Infrared Spectrometer	Buck Scientific HC-404	IR	Petroleum Hydrocarbons
Single Wavelength Infrared Spectrometer	Buck Scientific HC-404	IR	Petroleum Hydrocarbons
Sonic Disruptor	Misonix XL-2020		Organic Extractions of Soils
Sonic Disruptor	Tekmar TM250B		Organic Extractions of Soils
Sonic Disruptor	Tekmar TM300		Organic Extractions of Soils
Sonic Disruptor	Tekmar TM375		Organic Extractions of Soils
Sonic Disruptor	Tekmar TM500		Organic Extractions of Soils
Sonic Disruptor	Tekmar TM600		Organic Extractions of Soils
Sonic Disruptor	Tekmar TM600		Organic Extractions of Soils
Spectrophotometer	Hach DR 2000		Colorimetric Chemistry
Spectrophotometer	Milton Roy Genesys 5	UV/Vis	Colorimetric Chemistry
TCLP Tumbler	Environmental Express		TCLP Prep.
TCLP Tumbler	Environmental Express		TCLP Prep.
TCLP Tumbler	Environmental Express		TCLP Prep.
Thermometer	Kessler		Thermometer Calibrations
Total Organic Carbon	Shimadzu TOC 5050A	IR	TOC
Total Organic Carbon	Shimadzu TOC 5050	IR	TOC
Total Organic Halogens	Thermo Environmental Model 1200		TOH
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Weights, Class S	Troemner		Balance Calibration
Zero Headspace Tumblers	Associated Design & Manufacturing		TCLP and SPLP VOA Prep.
Zero Headspace Tumblers	Associated Design & Manufacturing		TCLP and SPLP VOA Prep.

Figure 5-2:

SPL MAJOR INSTRUMENT LIST LAFAYETTE, LOUISIANA				
Instrument Type	**Manufacturer/ Model/ (Quantity)**	**Dept**	**Serial #**	**Age**
EXTRACTIONS				
Autosampler	Waters 717 plus Automsampler	EXT	--	
Balance	A&D GF-3000	EXT	1463139S	
Balance	Mettler BD601	EXT	05311AB	
Balance	Satorius Analytical	EXT	400S0120	
Centrifuge	Beckman Coulter (Allegra 64R)	EXT	ALV01L2S	
IR	Buck Scientific 404	EXT	9S2	
Minivortexer	Fischer Scientific	EXT	070267075	2006
Oven	Quincy Lab Model 20 Oven	EXT	--	
Oven	Thermolyne Type 6000 Muffle Furnace	EXT	--	
pH Meter	Orion Model 520A pH meter	EXT	006129	
Rapidvap	Rapidvap Evaporation Station	EXT	070367960	2006
Rapidvap	Rapidvap Evaporation Station	EXT	070367959	2006
Rapidvap	Rapidvap Evaporation Station	EXT	070367961	2006
Rapidvap	Rapidvap Evaporation Station	EXT	070367957	2006
Rapidvap	Rapidvap Evaporation Station	EXT	070367958	2006
Shaker	Barnstead Labline Max-Q 2506	EXT	4579	2006
Sonicator	Fisher Scientific 500 Sonic Dismembrator	EXT	BBB02100417	2002
Sonicator	Fisher Scientific 500 Sonic Dismembrator	EXT	BBW03061543	2003
Sonicator	Fisher Scientific 500 Sonic Dismembrator	EXT	BBW03041458	2003
Sonicator	Fisher Scientiic 500 Sonic Dismembrator	EXT	BBW02090396	2002
Tumbler	36 position ZHE end-on-end tumbler	EXT	1579	
Soxtec	Foss-Soxtec 2055	EXT	--	
Soxtec	Foss-Soxtec 2055	EXT	--	
Soxtec	Foss-Soxtec 2055	EXT	--	
Waterbath	Boekel	EXT	1417070663195	2007
Waterbath	Boekel	EXT	034205702	
HYDROCARBONS				
Balance	Sartorius A200S	HY	40010123	
Balance	Denver A200D	HY	18603989	
Balance	Ohaus TS 400	HY	6479	
Bomb Calorimeter	PARR	ASTM	6301	
Oven	Thermolyne Type 1500 Muffle Furnace	HY	327990330336	
Centrifuge	Walker	ASTM	S815B97018	
Chilling Bath	Fisher Scientific	ASTM	107043043	
Cryette	Precision Systems	ASTM	GG02029	
Density Meter	PAAR	ASTM	192668	
Distillation	Precision Distillation	ASTM	--	
Distillation	Herzog	ASTM	06200107	
Distillation	Herzog	ASTM	92614	
Moisture	Kam Controls	ASTM	MM2000354	
Sulfur X-Ray	Horiba	ASTM	309014	
Viscosity Temp.	Koehler	ASTM	R03142005	
Wet Test Meter	Carl Poe	ASTM	12AD12	
METALS				
Atomic Absorption	Perkin Elmer AAnalyst 400	MT	201S7125101	02/12/08
Atomic Absorption	Perkin Elmer Flow Injection Mercury System (400)	MT	9019	06/28/94
Atomic Absorption	Perkin Elmer Optima 3000DV	MT	069N7062002	1996

SPL MAJOR INSTRUMENT LIST
LAFAYETTE, LOUISIANA

Instrument Type	Manufacturer/ Model/ (Quantity)	Dept	Serial #	Age
Autosampler	Perkin Elmer AS 90 Autosampler (2) fims (100/400)	MT	4099 & 9019	06/28/94
Autosampler	Perkin Elmer AS91 ICP-DV	MT	3582	1996
Autosampler	Perkin Elmer CETAX510 ICP-MS	MT	020419ASX	2004
Balance	Adventure Pro-AV212	MT	1203240450	1994
Class S Weights	Troemner Class S Weights	MT	16403	1994
Class S Weights	Troemner Class S Weights	MT	16404	1994
Digestion	Environmental Express Hot Block Model 54-slot	MT	2484CEC1311	2003
Digestion	Environmental Hot Block	MT	Rusted out	1998
Digestion	Thermolyne Type 2200 Hot Plate	MT	RC2240	1997
Mass Spectrometry	Perkin Elmer ELAN 9000 DRC	MT	W0640402	2004
Oven	Baxter Tempcon Oven	MT	0789-0514	1994
Oven	Blue M GS C-4855-Q	MT	SW-7433	1994
Digestion	Environmental Express Hot Block Model 54-slot	MT	424CEC0655	2000
Oven	Precision Economy Oven	MT	698031194	1994
Oven	Gravity Convection Oven Economy Model 18 EG	MT	10 AR-3	2006
QUALITY ASSURANCE				
Balance	Sartorius PT 600	QA	-	1996
Balance	Denver XS-410	QA	N0094733	1996
Balance	Mettler AE-200	QA	434669	2001
NIST Thermometer	NIST Thermometer	QA	1269	2003
NIST Thermometer	NIST Thermometer	QA	3268	2001
IR Gun	Raytek ITC45	QA	2770090101	
IR Gun	Raytek ITC45	QA	2778280101	
SHIPPING & RECEIVING				
Balance	Mettler BD202	S/R	11186AA	2002
Balance	Mettler BD202	S/R	2097673-224	
WET LAB				
Autosampler	Shimadzu A51-V	WL	H52104301496	2007
Balance	Sartorius CP2245S	WL	16750666	2004
Balance	Scaltec SBA31	WL	50104436	1996
Chiller	Fisher	WL	400378	1994
Conductivity Meter	YSI Model 3200 Conductance/Resistance Meter	WL	05F1840	2005
Distillation System	Glas-col	WL	161133A	2002
Distillation System	Kontes Midi Distillation System	WL	-	1995
Distillation System	Kontes Midi Distillation System	WL	-	1995
Distillation System	Reliance midi Distillation System	WL	-	1995
DO Meter	YSI Dissolved Oxygen Model 50 DO Meter	WL	89J008559	1995
DO Meter	YSI Model 50 DO Meter	WL	B9000984	1995
Ignitability Apparatus	Precision Scientific Troup Closed Cup Ignitability Apparatus	WL	BF-10	1994
Incubator	Polyscience Water Bath	WL	612833	1994
Incubator	Thermolyne Type 37900 Culture Incubator	WL	379000320703	1994
Incubator	VWR 2020 Incubator	WL	0305704	2004
Incubator	VWR Refrigerator	WL	W02G-350313-WG	2003
Oven	Blue M GS C-3991-Q	WL	46A049	1994
Oven	Fisher Scientific Isotemp Oven	WL	206N0110	1995
Oven	Forced Air Oven-VWR	WL	0200203	2003
pH Meter	Accumet pH Meter Model 20	WL	C0019196	1995
pH Meter	Orion Model 420A pH Meter	WL	005050	1995
pH Meter	Orion 3 Star	WL	018974	2007
Refrigerator	Estate	WL	EB4027463	1992
Refrigerator	General Electric	WL	DR111473	1994

SPL MAJOR INSTRUMENT LIST LAFAYETTE, LOUISIANA				
Instrument Type	**Manufacturer/ Model/ (Quantity)**	**Dept**	**Serial #**	**Age**
Shaker	Glas-col 3D Shaker	WL	284497	1994
Spectrophotometer	HACH DR 3000 Spectrophotometer	WL	910703061	1990
Spectrophotometer	Hach DR/4000V	WL	O240V0001789	2002
TOC	Shimadzu TOC Vcsh	WL	H51104135021	2007
Waterbath	Fisher Scientific Isotemp Waterbath	WL	307N0132	1994
Wet Chemistry	HACH Chemical Oxygen Demand Reactor	WL	030500024482	1990
Wet Chemistry	HACH Chemical Oxygen Demand Reactor	WL	871209956	1990
Wet Chemistry	VWR Turbidimeter 66120-200	WL	TUR8001958	2005
GC VOLATILES				
INST. A	HP 5890	GCVO	2750A19336	1987
INST. C	HP 5890A II	GCVO	2950A27157	1989
INST. D	HP 5890A II	GCVO	3223A42839	1992
INST. E	HP 5890A II	GCVO	3336A55313	1993
INST. N	HP 5890A II	GCVO	3203A40575	1992
INST. O	HP 5890A II	GCVO	3033A33619	1990
INST. P	HP 6890	GCVO	US00042888	2000
INST. Z	HP 5890A II	GCVO	3310A49105	1993
Autosampler	Varian Archon	GCVO	12266	1998
Autosampler	Varian Archon	GCVO	13925	2003
Autosampler	Varian Archon	GCVO	12264	1998
Autosampler	EST Centurion	GCVO	CENT187012606	2006
Autosampler	Varian Archon	GCVO	12152	1998
Autosampler	Varian Archon	GCVO	13202	1999
Autosampler	Varian Archon	GCVO	S507	2003
Detector	O.I. PID	GCVO	S961	
Detector	O.I. PID	GCVO	S3962	
Detector	O.I. PID	GCVO	S4140	
Detector	O.I. PID	GCVO	SN13	
Detector	O.I. PID	GCVO	S4160	
Detector	O.I. PID	GCVO	S2882	
Detector	O.I. PID	GCVO	S2513	
Detector	O.I. PID	GCVO	S135	
Detector	O.I. PID	GCVO	S1080	
Detector	O.I. PID	GCVO	S714	
Detector	O.I. PID	GCVO	S275	
Detector	O.I. PID	GCVO	S161	
Detector	O.I. PID	GCVO	S224	
Purge & Trap	EST Encon	GCVO	453081505P	1998
Purge & Trap	Tekmar 3100	GCVO	US01239001	2001
Purge & Trap	EST Encon	GCVO	363051904P	2004
Purge & Trap	EST Encon	GCVO	364052004E	2004
Purge & Trap	Tekmar 3000	GCVO	98061001	1998
Purge & Trap	Tekmar 3000	GCVO	97363016	1997
Purge & Trap	Tekmar 3000	GCVO	98280009	1998
Purge & Trap	Tekmar 3000	GCVO	97329005	1997
GC SEMI VOLATILES				
TPHA	HP 5890	GCSV	3126A36242	1991
TPHB	HP 6890	GCSV	US00029772	2000
TPHC	HP 6890	GCSV	US00005933	1990
PAHI	HP 5890A	GCSV	3033A31272	1993
PEST	HP 5890A II	GCSV	3336A56689	1990

SPL MAJOR INSTRUMENT LIST LAFAYETTE, LOUISIANA				
Instrument Type	**Manufacturer/ Model/ (Quantity)**	**Dept**	**Serial #**	**Age**
PCBA	HP 5890A	GCSV	3033A30727	1992
PCBB	HP 5890A II	GCSV	3223A42299	1992
GCSVE5	HP 5890A II	GCSV	3235A45691	2000
PEST2	Agilent 6890A	GCSV	US00035012	1994
HPLC #1	HP 1050	HPLC	3405A03208	1994
HPLC #3	HP 1100 Pump	HPLC	US53700414	1995
HPLC #4	HP 1100 Pump	HPLC	US70601651	1997
Autosampler	HP 7673B	GCSV	3410A38163	1994
Autosampler	HP 7673B	GCSV	3429A39430	1994
Autosampler	HP 7683	GCSV	US92908247	2000
Autosampler	HP 7683	GCSV	US93108540	2000
Autosampler	HP 6890	GCSV	US00002168	2000
Autosampler	HP 6890	GCSV	US00002173	2000
Autosampler	HP 6890	GCSV	3318A34854	1993
Autosampler	HP 7673B	GCSV	3033A23122	1990
Autosampler	HP 7673	GCSV	3120A26320	1991
Autosampler	Agilent 7683	GCSV	US04215751	2004
Autosampler	Agilent 7683	GCSV	US04315790	2004
Autosampler	HP 7673B	GCSV	3114A25717	1991
Autosampler	HP7673	GCSV	3327A35468	
Autosampler	HP7673	GCSV	3250A3333	
Autosampler	HP7673	GCSV	3120A26711	
Autosampler	HP 7673B	GCSV	3335A36049	1993
Autosampler	HP 1050	HPLC	3141A01234	1991
Autosampler	HP 1100 HPLC 3	HPLC	US80603581	1998
Autosampler	HP 1100 HPLC 4	HPLC	US72101881	1997
Detector	HP FID w/Racer	GCSV	053151	
Detector	HP FID w/Racer	GCSV	053171	
Detector	HP FID w/Racer	GCSV	-	
Detector	HP FID w/Racer	GCSV	-	
Detector	HP FID w/Racer	GCSV	-	
Detector	HP FID w/Racer	GCSV	-	
Detector	HP ECD	GCSV	YA279	2003
Detector	HP ECD	GCSV	K1742	1995
Detector	HP ECD	GCSV	YA320	2003
Detector	HP ECD	GCSV	F6098	1993
Detector	HP ECD	GCSV	M1076	2006
Detector	HP ECD	GCSV	F2402	2006
Detector	HP ECD	GCSV	F5348	2006
Detector	HP ECD	GCSV	YA278	2006
Detector	Agilent ECD	GCSV	U2136	2000
Detector	Agilent ECD	GCSV	U9953	2006
Detector	DAD	HPLC	3436A00498	1994
Detector	FLD	HPLC	3137G02450	1991
Detector	HP UV	HPLC	JP73705669	1997
Detector	FLD	HPLC	DE83700525	1998
Detector	HP UV HPLC 3	HPLC	JP55101479	1995
Detector	FLD	HPLC	3337G02981	1993
Detector	FLD HPLC 3	HPLC	DE82200188	
GCMS VOLATILES				
INST. G	HP 6890	GCMS VOA	US00023739	2000

SPL MAJOR INSTRUMENT LIST LAFAYETTE, LOUISIANA				
Instrument Type	**Manufacturer/ Model/ (Quantity)**	**Dept**	**Serial #**	**Age**
INST. H	HP 7890A	GCMS VOA	CN10717049	2007
INST. I	HP 5890A II	GCMS VOA	3336A53059	1993
INST. X	HP 5890E	GCMS VOA	3310A48945	1993
INST. Q	HP 6890	GCMS VOA	US10505048	2004
Autosampler	Varian Archon	GCMS VOA	12274	1998
Autosampler	Varian Archon	GCMS VOA	12265	1998
Autosampler	Varian Archon	GCMS VOA	12273	1998
Autosampler	Varian Archon	GCMS VOA	13203	2003
Autosampler	Varian Archon	GCMS VOA	13637	2003
Autosampler	Varian Archon	GCMS VOA	15137	2007
Autosampler	Varian Archon	GCMS VOA	15119	2007
Autosampler	EST Centurion	GCMS VOA	C139051304	2004
Detector	HP 5975C	GCMS VOA	US71216250	2007
Detector	HP 5973	GCMS VOA	US82311376	2000
Detector	HP 5972A	GCMS VOA	3314A01250	1993
Detector	HP 5972A	GCMS VOA	3329A00563	1993
Detector	HP 5973	GCMS VOA	US44610678	2004
Purge & Trap	Tekmar 3100	GCMS VOA	US01248010	2001
Purge & Trap	Tekmar 3000	GCMS VOA	97174007	1997
Purge & Trap	Tekmar 3100	GCMS VOA	US01298005	2001
Purge & Trap	Tekmar 3000	GCMS VOA	98026008	1998
Purge & Trap	Tekmar 3100	GCMS VOA	US101298003	2001
Purge & Trap	EST Encon	GCMS VOA	379082504E	2004
Purge & Trap	EST Encon	GCMS VOA	381082504E	2004
Purge & Trap	EST Encon	GCMS VOA	SS4082707	2007
Purge & Trap	EST Encon	GCMS VOA	--	2007
GCMS SEMI VOLATILES				
INST. A	HP 6890	GCMS SEMI	US00023620	2000
INST. B	HP 5890E II	GCMS SEMI	3310A48947	1993
INST. D	HP 6890N	GCMS SEMI	US10202047	2002
INST. E	HP 5890A II	GCMS SEMI	3235A46176	1992
INST. L	HP 6890	GCMS SEMI	US53931417	2008
Autosampler	HP 7683	GCMS SEMI	US83502101	2000
Autosampler	HP 7673B	GCMS SEMI	3120A26711	1991
Autosampler	HP 7683A	GCMS SEMI	CN14222665	2002
Autosampler	HP 7673B	GCMS SEMI	3250A33333	1992
Detector	HP 5973	GCMS SEMI	US82311379	2000
Detector	HP 5972	GCMS SEMI	3329A00565	1993
Detector	HP 5973A	GCMS SEMI	US10441938	2002
Detector	HP 5972A	GCMS SEMI	3341A01152	1993
Detector	HP 5975	GCMS SEMI	CN10731017	2008

Figure 5-3:

SPL MAJOR INSTRUMENT LIST TRAVERSE CITY, MICHIGAN		
Instrument ID	**Manufacturer/Model**	**Department**
Oven B	Fisher Muffle Oven	Extraction
Conc. A	Zymark TurboVap	Extraction
Conc. B	Zymark TurboVap	Extraction
Conc. C	Zymark TurboVap	Extraction
Son A	Fisher Scientific	Extraction
Son B	Fisher Scientific	Extraction
HB-A	Environmental Express Hot Block	Digestion
HB-B	Environmental Express Hot Block	Digestion
ZHE	Zero Headspace Extractor	Digestion
Tumbler	TCLP Tumbler	Digestion
Oven B	Equatherm 120-915	Digestion
DIG A	HACH COD Reactor	Wet Lab
DIG B	HACH Digesdahl Digestion Apparatus	Wet lab
SPEC A	Sequoia-Turner Spectrophotomer 690A	Wet Lab
SPEC B	Buck Scientific HC 404	Wet Lab
SPEC C	Konelab 20	Wet Lab
Meter A	PH meter Orion 901	Wet Lab
Meter B	DO Meter Orion	Wet Lab
Meter C	Conductivity Beckman RC-16C	Wet Lab
Turbidimeter	HF Scientific	Wet Lab
Oven C	Thermoline 142300 Incubator Oven	Wet Lab
Oven	Yamamoto	Digestions
Flash A	GCA Model AT	Wet Lab
Flash B	Precision	Wet Lab
1-GC	Hewlett Packard 5890	GC
1-Autosampler	EST 8100	GC
1-Concentrator	Encon	GC
2-GC	Hewlett Packard 5890	GC
2-Autosampler	Varian Archon	GC
2-Concentrator	OI 4560	GC
3-GC	Hewlett Packard 5890	GC
3-Autosampler	Dynatech Archon	GC
3-Concentrator	OI 4560	GC
4-GC	Hewlett Packard 5890	GC
4-Autosampler	Varian Archon	GC
4-Concentrator	Encon	GC
6-GC	Hewlett Packard 5890	GC
6-Autosampler	OI-MPM-16	GC

SPL MAJOR INSTRUMENT LIST TRAVERSE CITY, MICHIGAN		
Instrument ID	**Manufacturer/Model**	**Department**
6-Concentrator	OI-4560	GC
8-GC	Hewlett Packard 5890	GC
8-Oven	EZFlash	GC
8-Autosampler	Hewlett Packard 7673	GC
9 GC	Hewlett Packard 5890	GC
9-Autosampler	Hewlett Packard 7673	GC
3-HPLC	Agilent 1100	Wet Lab
	Pump System	
	Autosampler	
	MWD	
	FLD	
	Degasser	
2-HPLC	Hewlett Packard 1050	Wet Lab
	Pump System	
	Autosampler	
	UV-Detector	
	Flourescent Detector	
	Degasses	
ICPMS	Hewlett Packard 4500	Metals
7 – MS	Hewlett Packard 5890/5972	MS
7-Autosampler	Hewlett Packard 7673	MS
4-VOA	Hewlett Packard 6890/5973	Cass
4-Autosampler	Archon	Cass
4-Concentrator	Tekmar 3000	Cass
5-VOA	Hewlett Packard 6890/5973	Cass
5-Autosampler	Varian Archon	Cass
5-Concentrator	Tekmar 3000	Cass
3-VOA	Hewlett Packard 6890-5973	Cass
3-Autosampler	Varian Archon	Cass
3-Autosampler	Varian Archon	Cass
3-Concentrator	Tekmar 3100	Cass
3-Concentrator	Tekmar 3100	Cass
7-MS	Hewlett Packard 5973 inert	Cass
7-GC	Hewlett Packart 6890N	Cass
7-Autosampler	Centurion	Cass
7-ConcentratorA	Encon	Cass
7-ConcentratorB	Encon	Cass
6-MS	Hewlett Packard5890/ 5971	MS
6-Autosampler	Hewlett Packard	MS

Figure 5-4: SPL Capacity Chart

Parameter	SPL-Houston	SPL-Lafayette	SPL-Traverse City
Volatiles (GC/MS)	2,390 Capacity	3,377 Capacity	2,143 Capacity
Semivolatiles (GC/MS)	1,503 Capacity	1,472 Capacity	801 Capacity
BTEX	4,101 Capacity	3,464 Capacity	3,044 Capacity
TPH by GC	2,628 Capacity	3,031 Capacity	2,100 Capacity
PNAs by HPLC	303 Capacity	250 Capacity	411 Capacity
Purgeable Halocarbons	468 Capacity	NA	N/A
Metals (8) RCRA	6,521 Capacity	4,642 Capacity	1,732 Capacity
PCBs	2,091 Capacity	2,511 Capacity	303 Capacity
TCLP-ZHE	392 Capacity	392 Capacity	112 Capacity
TCLP-Other	672 Capacity	672 Capacity	224 Capacity

6.0 DELIVERABLES AND REPORTING

Our reports document the results of our analytical services in a variety of responsive formats. They are supported by extensive in-house QA/QC, and backed by systems of comprehensive records available for future review by clients or regulatory bodies.

SPL provides analytical services, quality data and deliverables that are responsive to the needs of clients. Regardless of the content and level of detail contained in the reports transmitted to our clients, the data provided are supported by a rigorous QA/QC program that ensures the accuracy of the information provided. Further, SPL maintains complete files and records of all reports generated, and archives all related analytical data for future review and support of any litigation or enforcement action.

We have the capability to, and routinely provide, analytical data reports in client specified formats such as those required for specific analytical protocols of the various government agencies. In the absence guidance from clients regarding report format, SPL has defined four specific types of reports to meet the special needs of our clients. More specifically, our various report types are suitable for:

- Clients interested only in the concentration of specific analytes of interest;
- Clients interested in data to be presented to federal, state or local regulatory bodies;
- Analytical services to support RIFS programs in such detail and with such documentation that lend themselves to complete data validation protocols as "stand alone" data packages.

Electronic Deliverables. Our quality of service program coupled with the extensive computing and data management capabilities of SPL's laboratories can also be applied to generate customized reports to meet specific client specifications. Electronic deliverables are available in ASCII, dBASE, Excel and Access formats to name a few, and on either 3.5 inch diskette or CD. Our quality of service program coupled with our extensive computing capability allows for other data formats as well to meet client specifications.

We provide electronic deliverables in a variety of client defined formats. In the absence of a client-defined format, we also offer a format that is compatible to most if not all applications.

7.0 DOCUMENT CONTROL

Our effective records management and document control program ensures maintenance of records and integrity of evidentiary quality data.

Our Document Control staff is responsible for all technical records. Our technical records are housed in a controlled access room in the administrative building. Because our mission is to support clients that are potentially subject to regulations or litigation, the quality of the records that support SPL report generation activities and client data reports is as important as the actual data report submitted to clients. Excellence in laboratory services must include a system of controlled records that support the data report received by clients. Document control programs protect data integrity and provide unimpeachable records maintenance.

Our Document Control Section provides the official repository of hard-copy deliverables provided to our clients. These data deliverable reports and associated data, provided to the client are used to respond to client inquiries related to previously completed work. SPL's Document Control staff fulfills this important function in protecting data integrity and providing consistent and accurate records for our customers.

The records maintained by Document Control include copies of the reports transmitted to the client, all raw data, control charts, chain-of-custody documentation, sample tracking records, sample worksheets, bench sheets and original logs.

All laboratory notebooks and the results of studies to determine instrument and method detection limits, traceability certificates provided with analytical standards and reference materials, records related to daily refrigerator temperature checks, performance statistics for precision and accuracy, and other records demonstrating our compliance with applicable permits and federal regulators are kept and controlled by the QA Department. The QA Department also maintains files related to licenses and certifications, and the originals of SPL's SOPs.

Reports and supporting records maintained in the Document Control Section are not released to persons without approval from laboratory management. We do not release records to persons or organizations outside of SPL unless directed by competent authority in the client's organization. If directed by courts of law, we will provide records as necessary and notify the client of the request, the identification of the requestor and the records that were released.

In addition to hardcopy records maintained by the Document Control Section, our Computer Section archives the original and processed analytical data in electronic format. Storage of these records in the SPL building ensures redundancy of records management.

8.0 STATE CERTIFICATIONS

We maintain an impressive array of licenses and certifications and participate in recognized environmental performance evaluation sample programs.

SPL has accumulated an impressive array of licenses and certifications during its sixty-four year existence. Figure 8-1 reflects the states and SPL laboratories that hold the certifications.

In order to assess the accuracy and precision of the laboratory procedures and results, performance check samples (PE samples) from several external programs are utilized. All SPL laboratories analyze blind aqueous samples semi-annually and two soil blind annually. These samples are purchased from commercial sources.

Several of SPL's regular clients and regulatory agencies also submit annual PE samples to SPL's laboratories.

Monthly QA teleconferences are held to review current QA issues and to evaluate ongoing QA activities. Additionally, some SPL clients hold regular QA meetings with SPL laboratory management staff to review and discuss QA activities that affect the clients' and SPL's work relationships.

Figure 8-1: State Certifications

LISTING OF STATE CERTIFICATIONS

Revision 12/04/2008

STATE(CWA, RCRA, CAA, UST)	SPL LABORATORY LOCATION		
	Houston	Lafayette	Michigan
Alabama	NR	NR	NR
Alaska-UST	N	N	N
Arizona	C	N	N
Arkansas	C	C	N
California*	C	N	N
Colorado	NR	NR	NR
Connecticut	C	C	N
Delaware	NR	NR	NR
Florida*	C	C	N
Georgia	A	A	A
Hawaii	NR	NR	NR
Idaho	NR	NR	NR
Illinois*	C	N	C
Indiana	NR	NR	NR
Iowa-UST	C	N	C
Kansas*	C	N	N
Kentucky-UST	A	A	A
Louisiana*	C	C	N
Maine	C	N	N
Maine-UST	N	N	N
Maryland	NR	NR	NR
Massachusetts	N	C	N
Michigan	NR	NR	NR
Minnesota	N	N	C
Mississippi	NR	NR	NR
Missouri	NR	NR	NR
Montana-UST	N	C	N
Navy NAVSEA program	C	N	N
Nebraska	NR	NR	NR
Nevada	C	N	N
New Hampshire*	C	N	N
New Jersey	C	N	N
New Mexico	NR	NR	NR
New York*	C	N	N
North Carolina	C	C	N
North Dakota	C	N	N
Ohio	NR	NR	NR
Ohio-VAP	N	N	N
Oklahoma	C	N	N
Oregon*	C	N	N
Pennsylvania*	C	N	C
Rhode Island	N	N	N
South Carolina	C	C	N
South Dakota	NR	NR	NR
Tennessee	NR	NR	NR
Texas*	C	C	N
Utah*	C	N	N
Utah-UST	C	N	N
Vermont	NR	NR	NR
Virginia	N	N	N
Washington	C	N	N
West Virginia	C	C	C
Wisconsin	N	N	C
Wyoming-UST	N	N	N

P = Pending Certification,contact laboratory for status
NR = No Certification Required
N = Not Certified
C = Certified
* = NELAP

A = Approved
R=Registered
CWA = Waste Water
UST = Underground Storage Tank

CAA= Air & Emissions
RCRA = Solid Waste

Note: Certifications are subject to change
Please check each state certificate for specific approved parameters.