Figure 24-6.

Example: Cooler Receipt Form

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Project Receipt Checklist
(Single Cooler)

Client Name: _____ Project: _____

Received by: _____ Date/Time Received: _____

Delivered by : ☐ Client ☐ TA ☐ DHL ☐ Fed Ex ☐ UPS ☐ Other _____

Custody Seal and Temperature	**Initial / Date**
Custody Seal Status Cooler: ☐Intact ☐Broken ☐None	
Custody Seal Status Samples: ☐Intact ☐Broken ☐None	
Custody Seal #(s): _____ ☐No Seal #	
Sampler Signature on COC ☐ Yes ☐No ☐N/A	
Therm # ____ Correction Factor _____°C	
Temperature - **BLANK** _____°C _____ CF = _____°C	
Cooler #1 ID _____	
Samples outside temperature criteria but received within 6 hours of final sampling ☐ Yes ☐N/A	

Sample Fraction Listing and Preservation Check
Completed: ☐ Yes ☐N/A _____
See attached Summary

Notification of Discrepancy (NOD) form
Anomalies: ☐ Yes ☐N/A _____
If, YES, see attached NOD form

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09/18/07

Figure 24-7.

Example: Notification of Discrepancy Form (NOD)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NOTIFICATION OF DISCREPANCY

DATE: _____ TIME: _____ PM: _____ SC INITIALS: _____

CLIENT/PROJECT NAME:

Rush/Short Hold? ☐ Yes ☐ No | WORK ORDER #:

☐ Project Not Set Up in Element ☐ New Client ☐ COC Received ON HOLD
☐ Analysis Requested on COC – Not Listed for Project in Element
PM To Add Analysis: _____
☐ Clarification of Analysis: _____
☐ Hold Time Expired: (Analysis) _____
☐ Turnaround Time Not Checked: _____
☐ Did Not Receive Sample(s) Listed on COC: _____
_____
☐ Received Extra Sample(s) Not Listed on COC: _____
_____
☐ Sample Collector's name missing on COC: _____
☐ Sample Description(s) or Date/Time Sampled Do Not Match COC:
_____
_____
_____
☐ Improper Preservative: _____
☐ VOAs have headspace (bubble>6mm): _____
☐ Sample Received Broken: _____
☐ Improper Temperature (_____°) (Comments): _____
☐ Insufficient Sample Volume: _____
☐ Other:
_____
_____
_____
_____

PROJECT MANAGER RESOLUTION: (Date & Time when returned to SC)

Approval By: Date: Time:

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SECTION 25.0

ASSURING THE QUALITY OF TEST RESULTS
(NELAC 5.5.9)

25.1 OVERVIEW

In order to assure our clients of the validity of their data, the laboratory continuously evaluates the quality of the analytical process. The analytical process is controlled not only by instrument calibration as discussed in Section 21, but also by routine process quality control measurements (e.g. Blanks, Laboratory Control Samples (LCS), Matrix Spikes (MS), duplicates (DUP), surrogates, Internal Standards (IS)). These quality control checks are performed as required by the method or regulations to assess precision and accuracy. In addition to the routine process quality control samples, Proficiency Testing (PT) Samples (concentrations unknown to laboratory) are analyzed to help ensure laboratory performance.

25.2 CONTROLS

Sample preparation or pre-treatment is commonly required before analysis. Typical preparation steps include homogenization, grinding, solvent extraction, sonication, acid digestion, distillation, reflux, evaporation, drying and ashing. During these pre-treatment steps, samples are arranged into discreet manageable groups referred to as preparation (prep) batches. Prep batches provide a means to control variability in sample treatment. Control samples are added to each prep batch to monitor method performance and are processed through the entire analytical procedure with investigative/field samples.

25.3 NEGATIVE CONTROLS

25.3.1 **Method Blanks** are used to assess preparation and analysis for possible contamination during the preparation and processing steps.

25.3.1.1 The method blank is prepared from a clean matrix similar to that of the associated samples that is free from target analytes (e.g., Reagent water, Ottawa sand, glass beads, etc.) and is processed along with and under the same conditions as the associated samples.

25.3.1.2 The method blank goes through all of the steps of the process (including as necessary: filtration, clean-ups, etc.).

25.3.1.3 The specific frequency of use for method blanks during the analytical sequence is defined in the specific standard operating procedure for each analysis. Generally it is 1 for each batch of samples; not to exceed 20 environmental samples.

25.3.1.4 Evaluation criteria and corrective action for method blanks is defined in the specific standard operating procedure for each analysis. Generally, corrective action is taken if the concentration of a target analyte in the blank is at or above the reporting limit as established by the method or regulation:

- The source of contamination is investigated

- Measures are taken to minimize or eliminate the source of the contamination
- Affected samples are reprocessed or the results are qualified on the final report.

25.3.2 **Calibration Blanks** are prepared and analyzed along with calibration standards where applicable. They are prepared using the same reagents that are used to prepare the standards. In some analyses the calibration blank may be included in the calibration curve.

25.3.3 **Instrument Blanks** are blank reagents or reagent water that may be processed during an analytical sequence in order to assess contamination in the analytical system. In general, instrument blanks are used to differentiate between contamination caused by the analytical system and that caused by the sample handling or sample prep process. Instrument blanks may also be inserted throughout the analytical sequence to minimize the effect of carryover from samples with high analyte content.

25.3.4 **Trip Blanks** are required to be submitted by the client with each shipment of samples requiring aqueous and solid volatiles analyses. A trip blank is prepared by the laboratory by filling a clean container with pure deionized water that has been purged to remove any volatile compounds. Appropriate preservatives are also added to the container. The trip blank is sent with the bottle order and is intended to reflect the environment that the containers are subjected to throughout shipping and handling and help identify possible sources if contamination is found. The field sampler returns the trip blank in the cooler with the field samples. Trip Blanks are also sometimes referred to as Travel Blanks.

25.3.5 **Field Blanks** are sometimes used for specific projects by the field samplers. A field blank prepared in the field by filling a clean container with pure reagent water and appropriate preservative, if any, for the specific sampling activity being undertaken. (EPA OSWER)

25.3.6 **Equipment Blanks** are also sometimes created in the field for specific projects. An equipment blank is a sample of analyte-free media which has been used to rinse common sampling equipment to check effectiveness of decontamination procedures. (NELAC)

25.3.7 **Holding Blanks**, also referred to as refrigerator or freezer blanks, are used to monitor the sample storage units for volatile organic compounds during the storage of VOA samples in the laboratory (refer to section 24.)

25.3.8 **Field blanks**, equipment blank and trip blanks, when received, are analyzed in the same manner as other field samples. When known, blanks should not be selected for matrix QC, as it does not provide information on the behavior of the target compounds in the field samples. Usually, the client sample ID will provide information to identify the field blanks with labels such as "FB", "EB", or "TB".

25.4 POSITIVE CONTROLS

Control samples (e.g., QC indicators) are analyzed with each batch of samples to evaluate data based upon (1) Method Performance (Laboratory Control Sample (LCS) or Blank Spike (BS)), which entails both the preparation and measurement steps; and (2) Matrix Effects (Matrix Spike (MS) (Matrix spikes are not applicable to air) or Sample Duplicate (MD, DUP), which evaluates field sampling accuracy, precision, representativeness, interferences, and the effect of the matrix on the method performed. Each regulatory program and each method within those programs specify the control samples that are prepared and/or analyzed with a specific batch

Note that frequency of control samples vary with specific regulatory, methodology and project specific criteria. Complete details on method control samples are as listed in each analytical SOP and in Appendix 4 for select methods.

25.4.1 Method Performance Control - Laboratory Control Sample (LCS)

25.4.1.1 The LCS measures the accuracy of the method in a blank matrix and assesses method performance independent of potential field sample matrix affects in a laboratory batch.

25.4.1.2 The LCS is prepared from a clean matrix similar to that of the associated samples that is free from target analytes (for example: Reagent water, Ottawa sand, glass beads, etc.) and is processed along with and under the same conditions as the associated samples. The LCS is spiked with verified known amounts of analytes or is made of a material containing known and verified amounts of analytes, taken through all preparation and analysis steps along with the field samples. Where there is no preparation taken for an analysis (such as in aqueous volatiles), or when all samples and standards undergo the same preparation and analysis process (such as Phosphorus), a calibration verification standard is reported as the LCS. In some instances where there is no practical clean solid matrix available, aqueous LCS's may be processed for solid matrices; final results may be calculated as mg/kg or ug/kg, assuming 100% solids and a weight equivalent to the aliquot used for the corresponding field samples, to facilitate comparison with the field samples.

25.4.1.3 Certified pre-made reference material purchased from a NIST/A2LA accredited vendor may also be used for the LCS when the material represents the sample matrix or the analyte is not easily spiked (e.g. solid matrix LCS for metals, TDS, etc.).

25.4.1.4 As stated in the opening of this section, the LCS goes through all of the steps of the process (including as necessary: filtration, clean-ups, etc.).

25.4.1.5 The specific frequency of use for LCS during the analytical sequence is defined in the specific standard operating procedure for each analysis (see Appendix 4). It is generally 1 for each batch of samples; not to exceed 20 environmental samples.

25.4.1.6 If the mandated or requested test method, or project requirements, do not specify the spiking components, the laboratory shall spike all reportable components to be reported in the Laboratory Control Sample (and Matrix Spike) where applicable (e.g.

no spike of pH). However, in cases where the components interfere with accurate assessment (such as simultaneously spiking chlordane, toxaphene and PCBs in Method 608), the test method has an extremely long list of components or components are incompatible, at a minimum, a representative number of the listed components (see below) shall be used to control the test method. The selected components of each spiking mix shall represent all chemistries, elution patterns and masses, permit specified analytes and other client requested components. However, the laboratory shall ensure that all reported components are used in the spike mixture within a two-year time period.

25.4.1.6.1 For methods that have 1-10 target analytes, spike all components.

25.4.1.6.2 For methods that include 11-20 target analytes, spike at least 10 or 80%, whichever is greater.

25.4.1.6.3 For methods with more than 20 target analytes, spike at least 16 components.

25.4.1.6.4 Exception: Due to analyte incompatibility in pesticides, Toxaphene and Chlordane are only spiked at client request based on specific project needs.

25.4.1.6.5 Exception: Due to analyte incompatibility between the various PCB aroclors, aroclors 1016 and 1260 are used for spiking as they cover the range of all of the aroclors. Specific aroclors may be used by request on a project specific basis.

25.4.1.7 **Accuracy Calculation**: Percent Recovery (%R) Calculation (applies to LCS, CCV, Surrogates, and Matrix Spikes.

$$\%R = \frac{AV}{TV} \times 100$$

Where: AV = Analyzed Value
TV = True Value

25.5 SAMPLE MATRIX CONTROLS

25.5.1 Matrix Spikes (MS)

25.5.1.1 The Matrix spike is used to assess the effect sample matrix of the spiked sample has on the precision and accuracy of the results generated by the method used.

25.5.1.2 An MS is essentially a sample fortified with a known amount of the test analyte(s). At a minimum, with each matrix-specific batch of samples processed, an MS is carried through the complete analytical procedure. Unless specified by the client, samples used for spiking are randomly selected and rotated between different client projects.

25.5.1.3 If the mandated or requested test method does not specify the spiking components, the laboratory shall spike all reportable components to be reported in the Laboratory Control Sample and Matrix Spike. However, in cases where the components interfere with accurate assessment (such as simultaneously spiking chlordane,

toxaphene and PCBs in Method 608), the test method has an extremely long list of components or components are incompatible, a representative number of the listed components (see LCS analytes 25.4.1.6 above) may be used to control the test method. The selected components of each spiking mix shall represent all chemistries, elution patterns and masses, permit-specified analytes and other client requested components. However, the laboratory shall ensure that all reported components are used in the spike mixture within a two-year time period.

25.5.1.4 The percent recovery calculation for matrix spikes is essentially the same as the calculation shown in 25.2.1.7 except that:

AV = Sp – Sa

Where: Sp = Spike result
Sa = Sample result

25.5.2 Surrogate Spikes

25.5.2.1 Surrogate Spikes are similar to matrix spikes except the analytes are compounds with properties that mimic the analyte of interest and are unlikely to be found in environment samples.

25.5.2.2 Surrogate compounds are added to all samples, standards, and blanks, for all organic chromatography methods except when the matrix precludes its use or when a surrogate is not available. The recovery of the surrogates is compared to the acceptance limits for the specific method (also refer to Section 25.5). Poor surrogate recovery may indicate a problem with sample composition and shall be reported, with data qualifiers, to the client whose sample produced poor recovery.

25.5.3 Duplicates

25.5.3.1 For a measure of analytical precision, with each matrix-specific batch of samples processed, a matrix duplicate (MD or DUP) sample, matrix spike duplicate (MSD), or LCS duplicate (LCSD) is carried through the complete analytical procedure. Duplicate samples are usually analyzed with methods that do not require matrix spike analysis. LCSD's are normally not performed except when regulatory agencies or client specifications require them. The recoveries for the spiked duplicate samples must meet the same laboratory established recovery limits as the accuracy QC samples. If an LCSD is analyzed both the LCS and LCSD must meet the same recovery criteria and be included in the final report. The precision measurement is reported as "Relative Percent Difference" (RPD). Poor precision between duplicates (except LCS/LCSD) may indicate non-homogeneous matrix or sampling.

25.5.3.2 **Precision Calculation** (Relative Percent Difference - RPD)

$$RPD = \frac{|S - D|}{\frac{(S + D)}{2}} \times 100$$

Where: S=Sample Concentration
D=Duplicate Concentration

25.5.4 Internal Standards

25.5.4.1 In most organic analyses, internal standards are spiked into all environmental and quality control samples (including the initial calibration standards). An internal standard is also used with some metals analyses. It is added to sample extracts after the extraction (post-prep). The acceptance criteria in most methods are 50% to 200% of the responses in the mid-point of the corresponding calibration curve. Consult the method-specific SOPs for details on the internal standard compounds, calculations and acceptance criteria.

25.5.4.2 When the internal standard recoveries fall outside these limits, if there are not obvious chromatographic interferences, reanalyze the sample to confirm a possible matrix effect. If the recoveries confirm or there was obvious interference, results are reported from the original analysis and a qualifier is added. If the reanalysis meets internal standard recovery criteria, the second run is reported (or both are reported if requested by the client).

25.6 ACCEPTANCE CRITERIA (CONTROL LIMITS)

25.6.1 Each individual analyte in the LCS, MS, or Surrogate Spike are evaluated against the control limits as published in the test method. Where there are no established acceptance criteria, the laboratory calculates control limits with the use of control charts or, in some cases, utilizes client project specific or regulatory mandated control limits. When this occurs, the regulatory or project limits will supersede the laboratory's in-house limits.

Note: For methods, analytes and matrices with very limited data (e.g., unusual matrices not analyzed often), interim limits are established using available data or by analogy to similar methods or matrices.

25.6.2 Once control limits have been established, they are verified, reviewed, and updated if necessary on an annual basis unless the method requires more frequent updating (e.g. EPA SW846 8000 series methods). Control limits are established per method (as opposed to per instrument) regardless of the number of instruments utilized.

25.6.2.1 The lab should consider the effects of the spiking concentration control limits, and to avoid censoring of data. The acceptance criteria for recovery and precision are often a function of the spike concentration used. Therefore, caution must be used when pooling data to generate control limits.

25.6.2.2 Not only should the results all be from a similar matrix, but the spiking levels should also be approximately the same (within a factor of 2). Similarly, the matrix spike and surrogate results should all be generated using the same set of extraction, cleanup and analysis techniques. For example, results from solid samples extracted by ultrasonic extraction are not mixed with those extracted by Soxhlet.

25.6.2.3 The laboratory should try and avoid discarding data that do not meet a preconceived notion of acceptable performance. This results in a censored data set, which, when used to develop acceptance criteria, will lead to unrealistically narrow criteria. For a 99% confidence interval, 1 out of every 100 observations likely will still fall outside the limits. For methods with long analyte lists this may mean occasional failures every batch or two. While professional judgment is important in evaluating data to be used to develop acceptance criteria, specific results are not discarded simply because they do not meet one's expectations. However, data points shall be discarded if they were the result of human or mechanical error or sample concentration exceeded spike level by > 4x.

25.6.3 Laboratory generated % Recovery acceptance (control) limits are generally established by taking $\pm$ 3 Standard Deviations (99% confidence level) from the average recovery of a minimum of 20-30 data points (more points are preferred).

25.6.3.1 Regardless of the calculated limit, the limit should be no tighter than the Calibration Verification (ICV/CCV). (Unless the analytical method specifies a tighter limit).

25.6.3.2 In-house limits cannot be any wider than those mandated in a regulated analytical method.

25.6.3.3 The lowest acceptable recovery limit will be 10% (the analyte must be detectable). Exception: The lowest acceptable recovery limit for Benzidine will be 5% and the analyte must be detectable.

25.6.3.4 The maximum acceptable recovery limit will be 150%.

25.6.3.5 The maximum acceptable RPD limit will be 35% for waters and 40% for soils. The minimum RPD limit is 10%.

25.6.3.6 If either the high or low end of the control limit changes by $\leq$ 5% from previous, the control chart is visually inspected and, using professional judgment, they may be left unchanged if there is no affect on laboratory ability to meet the existing limits.

25.6.4 The lab must be able to generate a current listing of their control limits and track when the updates are performed. In addition, the laboratory must be able to recreate historical control limits.

25.6.4.1 The QA department generates a Quality Control Limit Summary that contains tables that summarize the precision and accuracy acceptability limits for analyses performed at TestAmerica Irvine. This summary includes an effective date, is updated each time new limits are generated and is located in the QA directory of the laboratory computer network. Unless otherwise noted, limits within these tables are laboratory generated. The analysts are instructed to use the current limits in the laboratory (dated and approved by the Technical Director and QA Manager) and entered into the Laboratory Information Management System (LIMS). The Quality Assurance department maintains an archive of all limits used within the laboratory.

25.6.5 A LCS that is within the acceptance criteria establishes that the analytical system is in control and is used to validate the process. Samples that are analyzed with an LCS with recoveries outside of the acceptance limits may be determined as out of control and should be reanalyzed if possible. If reanalysis is not possible, then the results for all affected analytes for samples within the same batch must be qualified when reported. The internal corrective action process (see Section 13) is also initiated if an LCS exceeds the acceptance limits. Sample results may be qualified and reported without reanalysis if:

25.6.5.1 The analyte results are below the reporting limit and the LCS is above the upper control limit.

25.6.5.2 If the analytical results are above the relevant regulatory limit and the LCS is below the lower control limit.

[DD17]
25.6.6 If the MS/MSDs do not meet acceptance limits, the MS/MSD and the associated spiked sample is reported with a qualifier for those analytes that do not meet limits. If obvious preparation errors are suspected, or if requested by the client, unacceptable MS/MSDs are reprocessed and reanalyzed to prove matrix interference. A more detailed discussion of acceptance criteria and corrective action can be found in Appendix 4 and in Section 13.

25.6.7 If a surrogate standard falls outside the acceptance limits, if there is not obvious chromatographic matrix interference, reanalyze the sample to confirm a possible matrix effect. If the recoveries confirm or there was obvious chromatographic interference, results are reported from the original analysis and a qualifier is added. If the reanalysis meets surrogate recovery criteria, the second run is reported (or both are reported if requested by the client). Under certain circumstances, where all of the samples are from the same location and share similar chromatography, the reanalysis may be performed on a single sample rather than all of the samples and if the surrogate meets the recovery criteria in the reanalysis, all of the affected samples would require reanalysis.

25.7 METHOD DETECTION LIMITS (MDLs)

MDLs, calculated as described in Section 20.7, are updated or verified annually, or more often if required by the method.

25.8 ADDITIONAL PROCEDURES TO ASSURE QUALITY CONTROL

25.8.1 The laboratory has written procedures to assure the accuracy of the test method including calibration (see Section 21), use of certified reference materials (see Section 22) and use of PT samples (see Section 16).

25.8.2 A discussion regarding MDLs, Limit of Detection (LOD) and Limit of Quantitation (LOQ) can be found in Section 20.

25.8.3 Use of formulae to reduce data is discussed in the method standard operating procedures and in Section 21.

25.8.4 Selection of appropriate reagents and standards is included in Section 9 and 22.

25.8.5 A discussion on selectivity of the test is included in Section 5.

25.8.6 Constant and consistent test conditions are discussed in Section 19.

25.8.7 The laboratories sample acceptance policy is included in Section 24.

25.8.8 A listing of the type of test result correlations that are looked at during report review (e.g. Total Chromium should be greater or equal to Hexavalent Chromium) is included in Section 20.13.4.5.

SECTION 26.0

REPORTING RESULTS
(NELAC 5.5.10)

26.1 OVERVIEW

The results of each test are reported accurately, clearly, unambiguously, and objectively in accordance with State and Federal regulations as well as client requirements. Analytical results are issued in a format that is intended to satisfy customer and laboratory accreditation requirements as well as provide the end user with the information needed to properly evaluate the results. Where there is a conflict between the client requested formats and accreditation requirements or data usability information, accreditation requirements and data usability information will take precedence over client requests. A variety of report formats are available to meet specific needs.

In cases where a client asks for simplified reports, there must be a written request from the client. There still must be enough information that would show any analyses that were out of conformance (QC out of limits) and there should be a reference to a full report that is made available to the client.

Review of reported data is included in Section 20.

26.2 TEST REPORTS

Analytical results are reported in a format that is satisfactory to the client and meets all requirements of applicable accrediting authorities and agencies. A variety of report formats are available to meet specific needs. The report is printed on laboratory letterhead, reviewed, and signed by the appropriate project manager. At a minimum, the standard laboratory report shall contain the following information:

26.2.1 A report title (e.g. Analytical Report For Samples) with a "sample results" column header.

26.2.2 Each report page printed on company letterhead, which includes the laboratory name, address and telephone number.

26.2.3 A unique identification of the report (e.g. work order number) and on each page an identification in order to ensure the page is recognized as part of the report and a clear identification of the end.

Note: Page numbers of report are represented as page # of ##. Where the first number is the page number and the second is the total number of pages.

26.2.4 A copy of the chain of custody (COC).

- Any COCs involved with Subcontracting are included.

- In most cases, the applicable COC is not paginated but is an integral part of the report. If the COC is not a paginated portion of the report then there will be a statement on the front of the report to effect of "The Chain of Custody, X page(s), is included and is an integral part of this report.". The number of pages of the CoC (X) is entered into Element so that it is correct for each report.

- Any additional addenda to the report must be treated in a similar fashion so it is a recognizable part of the report and cannot accidentally get separated from the report (eg. Sampling information).

26.2.5 The name and address of client and a project name/number, if applicable.

26.2.6 Client project manager or other contact

26.2.7 Description and unambiguous identification of the tested sample(s) including the client identification code.

26.2.8 Date of receipt of sample, date and time of collection, and date(s) of test preparation and performance, and time of preparation or analysis if the required holding time for either activity is less than or equal to 72 hours.

26.2.9 Date reported or date of revision, if applicable.

26.2.10 Method of analysis including method code (EPA, Standard Methods, etc).

26.2.11 Reporting limit.

26.2.12 Method detection limits (if requested)

26.2.13 Definition of Data qualifiers and reporting acronyms (e.g. ND).

26.2.14 Sample results.

26.2.15 QC data consisting of method blank, surrogate, LCS, and MS/MSD recoveries and control limits.

26.2.16 Condition of samples at receipt including temperature (noted on COC.) This may also be accomplished in a narrative or by attaching sample login sheets (Refer to Sec. 26.2.4 – Item 3 regarding additional addenda).

26.2.17 A statement expressing the validity of the results, that the source methodology was followed and all results were reviewed for error.

26.2.18 A statement to the effect that the results relate only to the items tested and the sample as received by the laboratory.

26.2.19 A statement that the report shall not be reproduced except in full, without prior express written approval by the laboratory coordinator.

26.2.20 A signature and title of the person(s) accepting responsibility for the content of the report and date of issue. Signatories are appointed by the Lab Director. For applying an electronic signature refer to the Electronic Signature Policy (Section 26.4).

26.2.21 When NELAC accreditation is required, the lab shall certify that the test results meet all requirements of NELAC or provide reasons and/or justification if they do not. Examples: At the time of analysis the laboratory was in compliance with the current NELAC standards and held accreditation for all analyses performed unless noted by a qualifier. The labs accreditation number is _____. OR The report meets all applicable NELAC standards and shall not be reproduced except in full, without the written approval of the laboratory.

26.2.22 Where applicable, a narrative to the report that explains the issue(s) and corrective action(s) taken in the event that a specific accreditation or certification requirement was not met.

26.2.23 When Soil samples are analyzed, a specific identification as to whether soils are reported on a “wet weight” or “dry weight” basis.

26.2.24 Appropriate laboratory certification number for the state of origin of the sample, if applicable.

26.2.25 If only part of the report is provided to the client (client requests some results before all of it is complete), it must be clearly indicated on the report (e.g., partial report, or how your lab identifies it), and that a complete report will follow once all of the work has been completed.

26.2.26 Any out of network subcontracted analysis results are provided as a separate report on the official letterhead of the subcontractor. All in-network subcontracting is clearly identified on the report as to which laboratory performed a specific analysis.

26.3 REPORTING LEVEL OR REPORT TYPE

TestAmerica Irvine offers three levels of quality control reporting. Each level, in addition to its own specific requirements, contains all the information provided in the preceding level. The packages provide the following information in addition to the information described above:

- Level II is a report with the features described in Section 26.2 above plus summary information, including results for the method blank reported to the laboratory MDL, percent recovery for laboratory control samples and matrix spike samples, and the RPD values for all MSD and sample duplicate analyses.
- Level III contains all the information supplied in Level II, but presented on the CLP-like summary forms, and relevant calibration information. No raw data is provided.
- Level IV is the same as Level III with the addition of all raw supporting data.

In addition to the various levels of QC packaging, the laboratory also provides reports in diskette deliverable form. Initial reports may be provided to clients by facsimile. All faxed reports are followed by hardcopy. Procedures used to ensure client confidentiality are outlined in Section 26.7.

26.3.1 Electronic Data Deliverables (EDDs)

EDDs are routinely offered as part of TestAmerica's services. TestAmerica Irvine offers a variety of EDD formats including Environmental Restoration Information Management System (ERPIMS), New Agency Standard (NAS), Format A, Excel, Dbase, GISKEY, and Text Files.

EDD specifications are submitted to the IT department by the PM for review and undergo the contract review process. Once the facility has committed to providing data in a specific electronic format, the coding of the format may need to be performed. This coding is documented and validated. The validation of the code is retained by the IT staff coding the EDD.

[DD18]
EDDs shall be subject to a review to ensure their accuracy and completeness. If EDD generation is automated, review may be reduced to periodic screening if the laboratory can demonstrate that it can routinely generate that EDD without errors. Any revisions to the EDD format must be reviewed until it is demonstrated that it can routinely be generated without errors. If the EDD can be reproduced accurately and if all subsequent EDDs can be produced error-free, each EDD does not necessarily require a review.

26.4 ELECTRONIC REPORTING AND SIGNATURE POLICY

Following the lead of the Federal Paperwork Reduction Act, TestAmerica has implemented policies and procedures to help reduce paper usage. One of these procedures is to generate final reports and provide them to clients in pdf format.

Laboratory Director appointed representatives may approve final reports using an electronic signature that is applied to the report at the time of generation. This policy is prepared to state that the electronically applied signatures on TestAmerica Analytical Testing Corp. reports are as legally binding as a handwritten "wet signature". This policy is intended to prevent the possibility of non-repudiation (denial that an individual signed the document) and to insure authenticity and security. In order to ensure the electronic signatures are valid and unequivocally represent the identity of the signer, TestAmerica uses 21 CFR Part 11 "Electronic Records; Electronic Signatures" from the FDA as well as EPA's procurement policy (EPS 00-01) as guidance documents for this policy.

In order to ensure authenticity of the reports, the following conditions must be met:

26.4.1 Report Content

- State that the report was electronically signed.
- The printed name and title of the signer must be underneath the signature

- The date and time when the signature was executed is represented in the "Report Issued" entry on the cover page of the report.

- The meaning of the signature: (e.g. reviewed and approved)

In order to insure the integrity of the signatures, the following security features have been implemented.

26.4.2 General Requirements

- The identity of the signatory must be verified before an electronic signature can be created for that person.

- Each electronic signature shall be unique to a single individual and shall not be reused by or assigned to another individual

- Persons using an electronic signature shall certify that the electronic signatures in the system are intended to be the legally binding equivalent to their traditional handwritten signature. On this certification, the signatory will state that their passwords are to remain completely confidential and can only be used by the genuine owner of the password and the sign-off may not take place until each page has been viewed. Refer to Figure 26-1.

26.4.3 Components and Controls

Two distinct identification components are utilized for each individual. The components are a) user name b) password. Each signing will require the entry of the username and the password must be reentered. The signatures may not be copied, excised or transferred from the report by ordinary means.

The report may not be changed once the signature has been applied and the pdf files are stored on the file server with security as well as password protected to ensure no changes may be made to the file.

In the case where a client requests that the pdf be unsecure so that the report may be inserted into their reports, the client must sign an agreement stating that they will not alter the report. This can be achieved by requiring agreement each time it is accessed on the web or by signing off on an agreement (refer to Figure 26-2). The lab can determine the best approach for this to be done:

- On a report by report basis
- On a client basis (all reports to a client would be an exception)
- On a project basis (all reports for a project would be an exception

Pdf reports must be backed up on a Magnetic tape or other durable storage media (e.g., DVD) and maintained secure for up to 5 years.

26.5 SUPPLEMENTAL INFORMATION FOR TEST

The lab identifies any unacceptable QC analyses or any other unusual circumstances or observations such as environmental conditions and any non-standard conditions that may have affected the quality of a result. This is typically in the form of a footnote or a qualifier and/or a narrative explaining the discrepancy in the front of the report. Refer to Appendix 7 for a list of the laboratory's standard footnotes and qualifiers.

26.5.1 Numeric results with values outside of the calibration range, either high or low are qualified as 'estimated'.

26.5.2 Where quality system requirements are not met, a statement of compliance/non-compliance with requirements and/or specifications, including identification of test results derived from any sample that did not meet NELAC sample acceptance requirements such as improper container, holding time, or temperature.

26.5.3 Where applicable, a statement on the estimated uncertainty of measurements; information on uncertainty is needed when a client's instructions so require.

26.5.4 Opinions and Interpretations - The test report contains objective information, and generally does not contain subjective information such as opinions and interpretations. If such information is required by the client, the Laboratory Director will determine if a response can be prepared. If so, the Laboratory Director will designate the appropriate member of the management team to prepare a response. The response will be fully documented, and reviewed by the Laboratory Director, before release to the client. There may be additional fees charged to the client at this time, as this is a non-routine function of the laboratory.

Note: Review of data deliverable packages for submittal to regulatory authorities requires responses to non-conforming data concerning potential impact on data quality. This necessitates a limited scope of interpretation, and this work is performed by the QA Department. This is the only form of "interpretation" of data that is routinely performed by the laboratory.

When opinions or interpretations are included in the report, the laboratory provides an explanation as to the basis upon which the opinions and interpretations have been made. Opinions and interpretations are clearly noted as such and where applicable, a comment should be added suggesting that the client verify the opinion or interpretation with their regulator.

26.6 ENVIRONMENTAL TESTING OBTAINED FROM SUBCONTRACTORS

If TestAmerica Irvine is not able to provide the client the requested analysis, the samples would be subcontracted following the procedures outlined in Section 8.

Data reported from analyses performed by a subcontractor laboratory are clearly identified as such on the analytical report provided to the client. Results from a subcontract laboratory outside of the TestAmerica network are reported to the client on the subcontract laboratory's original report stationary and the report includes any accompanying documentation.

26.7 CLIENT CONFIDENTIALITY

In situations involving the transmission of environmental test results by telephone, facsimile or other electronic means, client confidentiality must be maintained.

TestAmerica will not intentionally divulge to any person (other than the Client or any other person designated by the Client in writing) any information regarding the services provided by TestAmerica or any information disclosed to TestAmerica by the Client. Furthermore, information known to be potentially endangering to national security or an entity's proprietary rights will not be released.

Note: This shall not apply to the extent that the information is required to be disclosed by TestAmerica under the compulsion of legal process. TestAmerica will, to the extent feasible, provide reasonable notice to the client before disclosing the information.

Note: Authorized representatives of an accrediting authority are permitted to make copies of any analyses or records relevant to the accreditation process, and copies may be removed from the laboratory for purposes of assessment.

26.7.1 Report deliverable formats are discussed with each new client. If a client requests that reports be faxed or e-mailed, the reports are faxed with a cover sheet or e-mailed with the following note that includes a confidentiality statement similar to the following:

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at the 1-800-765-0980 (or for e-mails: please notify us immediately by e-mail or by phone (1-800-765-0980) and delete this material from any computer).

26.8 FORMAT OF REPORTS

The format of reports are designed to accommodate each type of environmental test carried out and to minimize the possibility of misunderstanding or misuse.

26.9 AMENDMENTS TO TEST REPORTS

Corrections, additions, or deletions to reports are only made when justification arises through supplemental documentation. Justification is documented using the laboratory's corrective action system (refer to Section 13).

The revised report is retained on the Archive data server, as is the original report. The revised report is stored in the Archive data server under the sample number followed by "Revision". The revised report will have the word "revised" or "amended" next to the date rather than the word "reported".

When the report is re-issued, a notation of "revised " is placed on the cover/signature page of the report *or at the top of the narrative page* with a brief explanation of reason for the re-issue.

26.10 POLICIES ON CLIENT REQUESTS FOR AMENDMENTS

26.10.1 Sample Reanalysis Policy

Because there is a certain level of uncertainty with any analytical measurement a sample reanalysis may result in either a higher or lower value from an initial sample analysis. There are also variables that may be present (e.g. sample homogeneity, analyte precipitation over time, etc.) that may affect the results of a reanalysis. Based on the above comments, the laboratory will reanalyze samples at a client's request with the following caveats. Client specific arrangements for reanalysis protocols can be established.

- Homogenous samples: If a reanalysis agrees with the original result to within the RPD limits for MS/MSD or Duplicate analyses, or within $\pm$ 1 reporting limit for samples $\leq$ 5x the reporting limit, the original analysis will be reported. At the client's request, both results may be reported on the same report but not on two separate reports.

- If the reanalysis does not agree (as defined above) with the original result, then the laboratory will investigate the discrepancy and reanalyze the sample a third time for confirmation if sufficient sample is available.

- Any potential charges related to reanalysis are discussed in the contract terms and conditions or discussed at the time of the request. The client will typically be charged for reanalysis unless it is determined that the lab was in error.

- Due to the potential for increased variability, reanalysis may not be applicable to Non-homogenous, Encore, and Sodium Bisulfate preserved samples. See the QA Manager or Laboratory Director if unsure.

26.10.2 Policy on Data Omissions or Reporting Limit Increases

Fundamentally, our policy is simply to not omit previously reported results (including data qualifiers) or to not raise reporting limits and report sample results as ND. This policy has few exceptions. Exceptions are:

- Laboratory error.
- Sample identification is indeterminate (confusion between COC and sample labels).
- An incorrect analysis (not analyte) was requested (e.g., COC lists 8315 but client wanted 8310). A written request for the change is required.
- Incorrect limits reported based on regulatory requirements.
- The requested change has absolutely *no possible* impact on the interpretation of the analytical results and there is *no possibility* of the change being interpreted as misrepresentation by anyone inside or outside of our company.

26.10.3 Multiple Reports

TestAmerica does not issue multiple reports for the same workorder where there is different information on each report (this does not refer to copies of the same report) unless required to meet regulatory needs and approved by QA.

Figure 26-1.

Read and Understand Memo for
Electronic Reporting and Electronic Signatures Policy

I have read and understand the TestAmerica Policy on Electronic Reporting and Electronic Signatures and agree to follow procedures stated in this document. Futhermore, I agree to maintain my password secure and confidential and will not divulge this password to anyone. I am aware that my electronic signature is as legally binding as that of my signature signed with a pen. I will not apply my signature until I have reviewed each page.

Employee:

Signature: _____

Date: _____

Return this signed form to HR within 5 days for filing in your Personnel File

Figure 26-2.

AGREEMENT FOR ELECTRONIC REPORTS

TestAmerica provides laboratory services and certified lab reports ("Reports") to the undersigned client ("Client"). Client desires to receive the Reports in both written hard copy and electronic format. Both TestAmerica and the Client desire to protect and preserve the integrity of the Reports.

TestAmerica agrees to provide Client with the Reports in both hard copy and electronic format. Client agrees to accept all responsibility for and indemnify and hold TestAmerica harmless from all claims or demands from third parties, including attorneys' fees and costs incurred by TestAmerica, due to alterations or deletions to the Reports by Client, or the use of incomplete Reports by Client.

Client agrees not to alter any Reports whether in the hard copy or electronic format and to use reasonable efforts to preserve the Reports in the form and substance originally provided by TestAmerica.

Date: _____Company Name: _____

Completed By: _____

Title/Position: _____

Client Signature: _____ _____

Date: _____Company Name: _____TestAmerica Location

Received By: _____

Title/Position: _____

Signature: _____

Please sign and FAX to xxx-xxx-xxxx

Appendix 1.

TESTAMERICA
ETHICS POLICY No. CA-L-P-001

Refer to CA-L-P-001 for complete policy.

TestAmerica
EMPLOYEE ETHICS STATEMENT

I understand that TestAmerica is committed to ensuring the highest standard of quality and integrity of the data and services provided to our clients. I have read the Ethics Policy of the Company.

- *With regard to the duties I perform and the data I report in connection with my employment at the Company, I agree that:*
- *I will not intentionally report data values that are inconsistent with the actual values observed or measured.*
- *I will not intentionally report the dates, times, sample or QC identifications, or method citations of data analyses that are not the actual dates, times, sample or QC identifications, or method citations.*
- *I will not intentionally misrepresent another individual's work as my own or represent my own work as someone else's.*
- *I will not intentionally misrepresent any data where data does not meet Method or QC requirements. If it is to be reported, I will report it with all appropriate notes and/or qualifiers; I shall not modify data (either sample or QC data) unless the modification can be technically justified through a measurable analytical process, such as one deemed acceptable to the laboratory's Standard Operating Procedures, Quality Assurance Manual or Technical Director. All such modifications must be clearly and thoroughly documented in the appropriate laboratory notebooks/worksheets and/or raw data and include my initials or signature and date.*
- *I shall not make false statements to, or seek to otherwise deceive, members of Management or their representatives, agents, or clients/customers. I will not, through acts of commission, omission, erasure, or destruction, improperly report measurement standards, quality control data, test results or conclusions.*
- *I shall not compare or disclose results for any Performance Testing (PT) sample, or other similar QA or QC requirements, with any employee of any other laboratory, including any other TestAmerica laboratory, prior to the required submission date of the results to the person, organization, or entity supplying the PT sample.*
- *I shall immediately inform my supervisor or other member of management regarding any intentional or unintentional reporting of my own inauthentic data. Such report shall be given both orally and in writing to the supervisor or other member of management contacted and to the local Quality Assurance Manager. The Quality Assurance Manager will initial and date the information and return a copy to me. I shall not condone any accidental or intentional reporting of inauthentic data by other employees and will immediately report its occurrence. If I have actual knowledge of such acts committed by any other employees, and I do not report such information to designated members of Management, it shall be considered as serious as if I personally committed the offense. Accordingly, in that event, I understand that I may be subject to immediate termination of employment.*
- *I understand that if any supervisor, manager, or representative of TestAmerica management instructs, requests, or directs me to perform any of the aforementioned improper laboratory practices, or if I am in doubt or uncertain as to whether or not such laboratory practices are proper, I will not*

comply. In fact, I must report such event to all appropriate members of Management including, but not limited to, the Lab Director, all supervisors and managers with direct line reporting relationship between me and the Lab Director, and the local Quality Assurance representative, excluding such individuals who participated in such perceived improper instruction, request, or directive. In addition, I may contact Corporate Quality Assurance / Ethics Compliance Officer(s) for assistance.

- *I understand the critical importance of accurately reporting data, measurements, and results, whether initially requested by a client, or retained by TestAmerica and submitted to a client at a later date, or retained by TestAmerica for subsequent internal use;*
- *I will not share the pricing or cost data of Vendors or Suppliers with anyone outside of the TestAmerica family of companies.*
- *I shall not accept gifts of a value that would adversely influence judgment.*
- *I shall avoid conflicts of interest and report any potential conflicts to the management (e.g. employment or consulting with competitors, clients, or vendors).*
- *I shall not participate in unfair competition practices (e.g. slandering competitors, collusion with other labs to restrict others from bidding on projects).*
- *I shall not misrepresent certifications and status of certifications to clients or regulators.*
- *I shall not intentionally discharge wastes illegally down the drain or onto the ground.*
- *I understand that any attempt by management or an employee to circumvent these policies will be subject to disciplinary action.*

As a TestAmerica employee, I understand that I have the responsibility to conduct myself with integrity in accordance with the ethical standards described in the Ethics Policy. I will also report any information relating to possible kickbacks or violations of the Procurement Integrity Act, or other questionable conduct in the course of sales or purchasing activities. I will not knowingly participate in any such activity and will report any actual or suspected violation of this policy to management.

I understand that if my job includes supervisory responsibilities, I shall not instruct, request, or direct any subordinate to perform any laboratory practice which is unethical or improper. Also, I shall not discourage, intimidate, or inhibit an employee who may choose to appropriately appeal my supervisory instruction, request, or directive which the employee perceives to be improper, nor retaliate against those who do.

The Ethics Policy has been explained to me by my supervisor or at a training session, and I have had the opportunity to ask questions if I did not understand any part of it. I understand that any violation of this policy subjects me to disciplinary action, which can include termination of my employment. In addition, I understand that any violation of this policy which relates to work under a government contract or subcontract could also subject me to the potential for prosecution under federal law.

EMPLOYEE SIGNATURE _____ Date _____

Supervisor/Trainer: _____ Date _____

TestAmerica
CONFIDENTIALITY AND PROPRIETARY INFORMATION AGREEMENT

TestAmerica and their predecessors, in their businesses, have developed and use commercially valuable technical and non-technical information and to guard the legitimate interests of TestAmerica and its clients, it is necessary to protect certain information as confidential and proprietary.

I, _____ , understand and acknowledge that during the term of my employment by TestAmerica, I will be privy to and entrusted with certain confidential information and trade secrets of TestAmerica and its clients.

Confidential information and trade secrets include, but are not limited to: customer and client lists; price lists; marketing and sales strategies and procedures; operational and equipment techniques; standard operating procedures; business plans and systems; quality control procedures and systems; special projects and technological research, including projects, research and reports for any government entity or client; client's plans and processes; client's manner of operation; the trade secrets of clients; client's data; vendor or supplier pricing; employee lists and personal information, and any other records, data, files, drawings, inventions, discoveries, applications, or processes which are not in the public domain.

I agree as follows:

1. I will not in any way, during the term of my employment, or at any time thereafter, except as authorized in writing by the Legal Department of TestAmerica or the client where client data is involved, disclose to others, use for my own benefit, remove from TestAmerica's premises (except to the extent off-site work is approved by my supervisor), copy or make notes of any confidential information and/or trade secrets of TestAmerica or its clients, excepting only that information which may be public knowledge. Technical and business information of any previous employer or other third party which I may disclose to TestAmerica shall be limited to that which was acquired legitimately and disclosed to me without restriction as to secrecy.

2. I agree that all inventions (whether or not patentable) conceived or made by me during the period of my employment by TestAmerica shall belong to TestAmerica, provided such inventions grow out of my work for TestAmerica and are related to the business of TestAmerica. I agree to disclose and assign such inventions to TestAmerica. In California, this provision shall not apply to any invention which qualifies fully under Section 2870 of the California Labor Code.

3. On termination of my employment from TestAmerica, I will deliver to TestAmerica all documents, records, notes, data, memoranda, files, manuals, equipment and things of any nature which relate in any way to confidential information and/or trade secrets of TestAmerica or its clients and which are in my possession or under my control.

4. I agree that during the period of my employment and for one (1) year from and after the termination (for any reason) of my employment with TestAmerica, I shall not directly or indirectly (without first obtaining the written permission of TestAmerica), recruit for employment, or induce to terminate his or her employment with TestAmerica, any person who is an active employee of TestAmerica on the last day of my employment with TestAmerica.

5. I acknowledge that if I were to breach any provision of this Confidentiality Agreement, money damages will be inadequate, and I hereby agree that TestAmerica shall be entitled, where appropriate, to specific performance and/or injunctive relief (i.e. to require me to comply with this Agreement). I further acknowledge that the willingness of TestAmerica to hire me or to continue my employment constitutes full and adequate consideration for the agreements, and obligations to which I have agreed as set forth in this document.

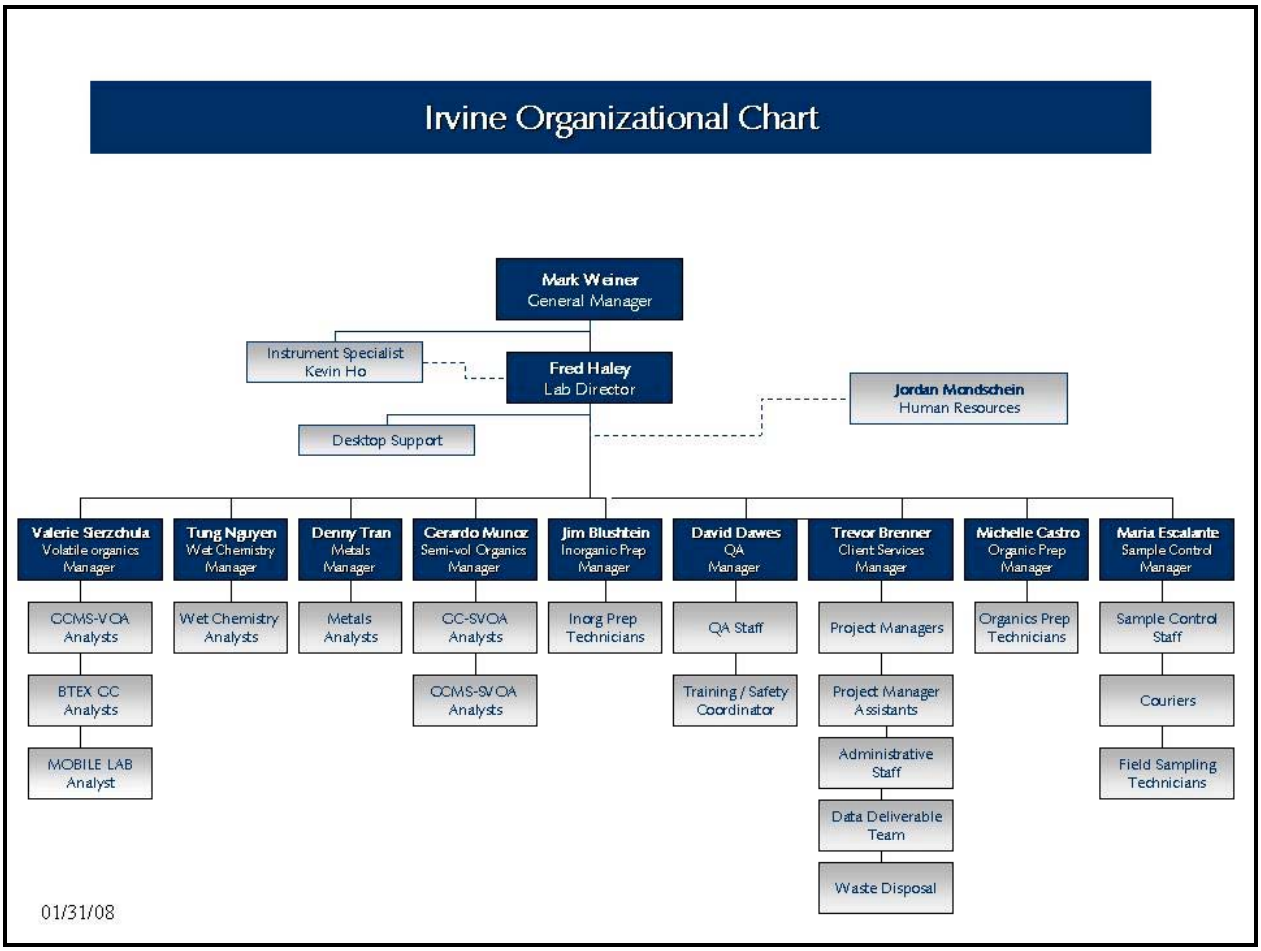
I have executed this Agreement, intending to be legally bound.

_____	_____	_____
Printed Name	*Signature*	*Date*

Appendix 2.

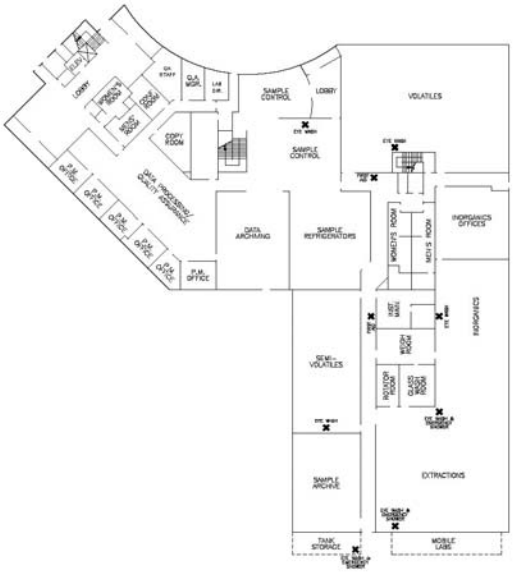
Example Laboratory Organization Chart

(The most current chart can be obtained from the QA Manager or Lab Director)



Appendix 3.

Laboratory Floor Plan



FIRST FLOOR
IRVINE LABORATORY

SECOND FLOOR
CORPORATE OFFICES

Appendix 4: Summary of Calibration and QC Procedures

The following tables are summaries of select method-specified calibration and QC requirements for select laboratory methods. For more information, actual limits, and any method-deviations, please see the current revision of the laboratory's SOP.

QC Acceptance Criteria for Method EPA 8260B

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 8260B	Volatile Organic Compounds	BFB tuning	Prior to initial calibration and calibration verification	Table 2 criteria met (Method 8260B – Table4)	Retune instrument and verify
		5-point initial calibration for all analytes. (6-point for quadratic regression)	Initial calibration prior to sample analysis.	SPCCs minimum RFs: > 0.10 (BF, CM, DM) and > 0.30 (CB, TE). %RSD of RFs: < 30(for CCCs, Ketone and Alcohols); < 15for others. Calibration Curve (If %RSD > 15): coefficient factor, r > 0.99	Correct problem then repeat initial calibration.
		Retention time window calculated for each analyte	Each initial calibration and calibration verifications	± 3 times standard deviation for each analyte retention time from 72-hour study	Correct problem then reanalyze all samples analyzed since the last retention time check
		2nd source Calibration verification (same as LCS)	Daily, before sample analysis and every 12 hours of analysis time	SPCCs minimum RFs met. CCCs: < 20% drift from initial calibration. Others: in-house recovery limits.	Correct problem then repeat initial calibration
		Method blank	One per analytical batch of 20 samples	No analytes detected ≥ RL.	Correct problem and re-analyze method blank and all samples processed with the contaminated blank unless sample results are

QC Acceptance Criteria for Method EPA 8260B

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
					ND for the contamination compound or sample results are > 20 times the level found in the blank
		LCS for all analytes (2nd source)	One LCS per analytical batch	In-house statistical limits	If sufficient sample is available for re-analysis, correct problem and re-analyze the LCS and all samples in the affected analytical batch unless samples are ND for the affected compound(s) and LCS is biased high
EPA 8260B	Volatile Organic Compounds	MS/MSD	One MS/MSD per every 20 project samples per matrix	In-house statistical limits	Qualifier to indicate matrix interfernce
		Internal standard	Every sample, calibration check, method blank, LCS, MS/MSD	Retention time within ±30 seconds from last mid-point calibration standard Absolute areas within 50-200% of level in last mid-point calibration standard	Determine, correct problem and re-analyze samples
		Surrogate spike	Every sample, calibration check, method blank, LCS, MS/MSD	In-house statistical limits	Determine, correct problem and re-analyze samples. For matrix effect, flag result accordingly. For other causes, fill out a CAR
		MDL study	One full MDL run originally. Verification every quarter.	MDLs established per 40CFR – Part 136	None

QC Acceptance Criteria for Method EPA 8260B					
Method	**Applicable Parameter**	**QC Check**	**Minimum Frequency**	**Acceptance Criteria**	**Corrective Action**
		Initial Demonstration of Capability (4 replicates of LCS)	Once per analyst	Average recovery and precision within in-house statistical limits	Recalculate results; determine and correct problem with the system and then rerun demonstration for those analytes that did not meet criteria

QC Acceptance Criteria for Method EPA 8270C					
Method	**Applicable Parameter**	**QC Check**	**Minimum Frequency**	**Acceptance Criteria**	**Corrective Action**
EPA 8270C	Volatile Organic Compounds	DFTPP tuning	Prior to initial calibration and calibration verification	Table 3 of method 8270C DDT degradation < 20%, Benzidine and Pentachlorophenol tailing factors < 3 and < 5 respectively	Retune instrument and verify
		5-point initial calibration for all analytes. (6-point for quadratic regression)	Initial calibration prior to sample analysis.	SPCCs minimum RFs: > 0.05 %RSD of RFs: < 30(for CCCs); < 15 for others. Calibration Curve (If %RSD > 15): coefficient factor, r > 0.99	Correct problem then repeat initial calibration.
		Retention time window calculated for each analyte	Each initial calibration and calibration verifications	± 3 times standard deviation for each analyte retention time from 72-hour study	Correct problem then reanalyze all samples analyzed since the last retention time check
		2nd source Calibration verification (same as LCS)	Once, after ICAL	SPCCs minimum RFs met. CCCs: < 20% drift from initial calibration. Others: in-house recovery limits.	Correct problem then repeat initial calibration
		Method blank	One per analytical	No analytes detected ≥ RL.	Correct problem, re-extract and/or re-analyze

QC Acceptance Criteria for Method EPA 8270C

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
			batch of 20 samples		method blank and all samples processed with the contaminated blank unless sample results are ND for the contamination compound or sample results are > 20 times the level found in the blank
		LCS for all analytes (2nd source)	One LCS per analytical batch	In-house statistical limits	If sufficient sample is available for re-analysis, correct problem and re-analyze the LCS and all samples in the affected analytical batch unless samples are ND for the affected compound(s) and LCS is biased high
		MS/MSD	One MS/MSD per every 20 project samples per matrix	In-house statistical limits	Qualifier to indicate matrix interfernce
		Internal standard	Every sample, calibration check, method blank, LCS, MS/MSD	Retention time within ±30 seconds from last mid-point calibration standard Absolute areas within 50-200% of level in last mid-point calibration standard	Determine, correct problem and re-analyze samples
		Surrogate spike	Every sample, calibration check, method blank, LCS, MS/MSD	In-house statistical limits	Determine, correct problem and re-analyze samples. For matrix effect, flag result accordingly. For other causes, fill out a CAR
		MDL study	One full MDL run originally. Verification every quarter.	MDLs established per 40CFR – Part 136	None

QC Acceptance Criteria for Method EPA 8270C					
Method	**Applicable Parameter**	**QC Check**	**Minimum Frequency**	**Acceptance Criteria**	**Corrective Action**
		Initial Demonstration of Capability (4 replicates of LCS)	Once per analyst	Average recovery and precision within in-house statistical limits	Recalculate results; determine and correct problem with the system and then rerun demonstration for those analytes that did not meet criteria

QC Acceptance Criteria for Method EPA 8081A

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 8081A	DDT, BHC and other Organochlorine Pesticides	5-point initial calibration for all analytes.	Initial calibration prior to sample analysis.	%RSD of RFs (or Average of %RSD): < 20 for all compounds Calibration Curve (If %RSD > 20 and <50): Correlation coefficient, r > 0.99	1. % RSD may be used if the average % RSD of all compounds is 20% and sample results are ND for any target compound with %RSD > 20% 2. Correct problem then repeat initial calibration
		Second-source calibration verification for all analytes	Once per five-point initial calibration	All target analytes within ±15% of expected value	1. If the average recovery of all compounds is within 15% and sample results are ND, then the results will be reported with an additional form indicating the individual compounds exceeding the 15% limit 2. Otherwise, correct problem then repeat initial calibration
		Retention time window calculated for each analyte	Every 6 months	± 3 times standard deviation for each analyte retention time from 72-hour study	None
		Continuing calibration verification	After every 20 samples and at the end of the analysis sequence	All target analytes within ±15% of expected value and all compounds correctly identified by RT	1. If the average recovery of all compounds is within 15% and sample results are ND, then the results will be reported with an additional form indicating the individual compounds exceeding the 15% limit.

QC Acceptance Criteria for Method EPA 8081A

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
					2. Correct problem then repeat initial calibration verification and reanalyze all samples since last successful calibration verification.
EPA 8081A	DDT, BHC and other Organochlorine Pesticides	Method blank	One per analytical batch	No analytes detected ≥ RL	Correct problem then reprep and analyze method blank and all associated samples unless sample results are ND for the contamination compound or sample results are >x 10 times the level found in the blank
		LCS for all analytes	One LCS per analytical batch	In-house statistical limits	If sufficient sample is available for re-extraction correct problem then reprep and analyze the LCS and all samples in the affected analytical batch unless samples are ND for the affected compound(s) and LCS is biased high
		Surrogate spike	Every sample, spiked sample, standard, and method blank	In-house statistical limits	1. Re-analyze the sample one time. Evaluate data and, if matrix effects are indicated, report results and Flag surrogate recovery 2. If sample is available for re-extraction, correct problem then re-extract and analyze samples 3. Otherwise report results with a corrective action report indicating the cause of the problem
		MS/MSD	One MS/MSD per every 20 project samples per matrix	In-house statistical limits	Qualify samples to indicate matrix interference

QC Acceptance Criteria for Method EPA 8081A

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
		MDL study	One full MDL run originally. Verified every quarter	MDLs established per 40CFR – Part 136	None
		Initial Demonstrattion of Capability (4 replicates of LCS)	Once per analyst	Average recovery and precision within in-house statistical limits	Recalculate results; locate and fix problem with system and then rerun demonstration for those analytes that did not meet criteria

QC Acceptance Criteria for Method EPA 8082

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 8082	PCBs	Minimum 5-point initial calibration Aroclors 1016 and 1260 (Additional 3-point calibrations are to be created and maintained whenever other Aroclors are identified in samples	Initial calibration prior to sample analysis.	%RSD of RFs : ≤ 20 for each compound Calibration Curve (If %RSD > 20): Linear, NOT forced through zero, r ≥ 0.990	Correct problem then repeat initial calibration.
		Retention time window calculated for each analyte	Each initial calibration	± 3 times standard deviation for each analyte retention time from 72-hour study	None

QC Acceptance Criteria for Method EPA 8082

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
		Second-source calibration verification for all analytes	Once per initial calibration	All analytes within ±15% of expected value	4. Re-analyze once to confirm. 5. Correct problem then repeat initial calibration.
		Retention time window check	All CCVs	Each congener is within established absolute RT window	Determine the cause, correct the problem and reanalyze all affected samples.
		Continuing calibration verification	After every 10-20 samples and at the end of the analysis sequence	All analytes within ±15% of expected value	1. If the ICV/CCV result is > 115% of the expected value and all samples are ND for the compound then report the results with a CAR and flag the results with a 'C' qualifier. 2. If the CCV result is < 85% of the expected value, reanalyze the samples against an acceptable calibration curve one time. 3. If the CCV fails again due to matrix interference and the sample is ND or a hit, report results with a CAR and flag 'C4'. If there is a PCB hit in the sample at or below the RL, then analyze a standard at the RL. If the area count of the sample is < the area count of the RL standard, report as ND and flag 'C4.'
		Second Column Confirmation	Every sample	Results agree within 40%	If the second column does not agree within 40% but still confirms the presence of the analyte then confirmation is qualitative. The higher result must be reported or the sample reanalyzed under a new calibration or on another instrument
		Method blank	One per analytical batch	No analytes detected ≥ RL	Correct problem then reprep and analyze method blank and all associated samples unless sample results are ND for the contamination compound or sample results are **>** x20 times the level found in the blank

QC Acceptance Criteria for Method EPA 8082

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
		LCS for all analytes	One LCS per analytical batch	In-house statistical limits	If sufficient sample is available for re-extraction correct problem then reprep and analyze the LCS and all samples in the affected analytical batch unless samples are ND for the affected compound(s) and LCS is biased high
		Surrogate spike	Every sample, spiked sample, standard, and method blank	In-house statistical limits	2. Re-analyze the sample one time. Evaluate data and, if matrix effects are indicated, report results and Flag surrogate recovery 3. If sample is available for re-extraction, correct problem then re-extract and analyze samples 6. Otherwise report results with a corrective action report indicating the cause of the problem
		MS/MSD	One MS/MSD per every 20 project samples per matrix	In-house statistical limits	Qualify samples to indicate matrix interference
		MDL study	One full MDL run originally. Verified every quarter	MDLs established per 40CFR – Part 136	None
		Initial Demonstrattion of Capability (4 replicates of LCS)	Once per analyst	Average recovery and precision within in-house statistical limits	Recalculate results; locate and fix problem with system and then rerun demonstration for those analytes that did not meet criteria

QC Acceptance Criteria for Method EPA 8015

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 8015	Volatile Fuel Hydrocarbons (VFH, C6-C12)	5-point initial calibration	Initial calibration prior to sample analysis.	20% RSD for calibration point RFs	Correct problem then repeat initial calibration
		Second-source calibration verification (ICV/CCV)	Initially and every 12 hours or 10 samples	±15% of expected value	7. Re-analyzed once 8. Correct problem and re-analyze all affected samples.
		Retention time window calculated for each analyte	Every 6 months	± 3 times standard deviation for each analyte retention time from 72-hour study	None
		Method blank	One per analytical batch	No analytes detected ≥ RL	Correct problem then reprep and analyze method blank and all associated samples unless sample results are ND for the contamination compound or sample results are >20 times the level found in the blank
		LCS for all analytes	One LCS per analytical batch	In-house statistical limits	If sufficient sample is available, correct problem and analyze the LCS and all samples in the affected analytical batch unless samples are ND and LCS is biased high
		Surrogate spike	Every sample, spiked sample, standard, and	In-house statistical limits	3. Evaluate secondary surrogate. 4. If matrix effects are indicated, report results

QC Acceptance Criteria for Method EPA 8015

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
			method blank		and flag surrogate recovery
		MS/MSD	One MS/MSD per every 20 project samples per matrix	In-house statistical limits	Qualify samples to indicate matrix interference
		MDL study	One full MDL run originally. Verified every quarter	MDLs established per 40CFR – Part 136	None
EPA 8015	Volatile Fuel Hydrocarbons (VFH, C6-C12)	Initial Demonstrattion of Capability (4 replicates of LCS)	Once per analyst	Average recovery and precision within in-house statistical limits	Recalculate results; locate and fix problem with system and then rerun demonstration for those analytes that did not meet criteria

QC Acceptance Criteria for Method EPA 6010B

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 6010B	ICP Metals	Initial multipoint calibration (minimum 3 standards and a blank)	Daily initial calibration prior to sample analysis	Correlation coefficient ≥0.995 for linear regression	Correct problem then repeat initial calibration
		2nd source initial calibration verification	Immediately after initial calibration	All analytes within ±10% of expected value	1) Reanalyze once 2) If still out, correct problem then repeat initial calibration
		Calibration blank	After every 10 samples and at end of the analysis sequence	No analytes beyond ≥ ±RL	Reanalyze the blank. If it still fails, correct problem then analyze calibration blank and previous 10 samples unless sample results >10 times the absolute level found in the blank
		Continuing calibration verification (Instrument Check Standard)	After every 10 samples and at end of the analysis sequence	All analyte(s) within ±10% of expected value	Repeat calibration and reanalyze all samples since last successful CCV
		Interference check solution (ICSA)	At least weekly, before sample analysis	Interfering elements (Al, Ca, Fe, Mg) within ±20% of expected value . Target elements: ±2 Reporting Limit.	Dilute ICSA and/or samples
		Method blank	One per analytical batch	No analytes detected ≥ RL	Correct problem then reprep and analyze method blank and all samples processed with the contaminated blank unless sample results are ND for the contaminatate compound or sample results are > x 10 times the level found in the blank

QC Acceptance Criteria for Method EPA 6010B

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
		LCS for all elements	One LCS per analytical batch	All elements within ±20% of expected value	If sufficient sample is available for re-extraction correct problem then reprep and analyze the LCS and all samples in the affected analytical batch unless samples are ND for the affected element(s) and the LCS is biased high
		MS/MSD	One MS/MSD per every 20 project samples per matrix	Within 75-125% of expected results	None
		Internal standard	Each sample	Within 30-120% of the intensity level in the initial calibration standard	Correct problem and/or dilute sample
		MDL study	One full MDL run originally. Verification every quarter	MDLs established per CFR 40 – Part 136	None
		Initial Demonstrtion of Capability (4 replicates of LCS)	Once per analyst	Average and precision within in-house statistical limits	Recalculate results; locate and fix problem with system and then rerun demonstration for those analytes that did not meet criteria

Summary of Calibration and QC Procedures for Method EPA 6020

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 6020	ICPMS Metals	Pre-calibration mass tuning & performance check	Daily, before initial calibration	See ICPMS – Mass tuning and performance check	Correct problem then retune instrument and verify
		Initial multipoint calibration (3 standards and a blank in triplicate)	Daily initial calibration prior to sample analysis	Correlation coefficient $\geq$0.995 for linear regression	Correct problem then repeat initial calibration
		2nd source initial calibration verification (ICV)	Immediately after initial calibration	All analytes within $\pm$10% of expected value	1) Reanalyze once 2) If still out, correct problem then repeat initial calibration
		Calibration blank (ICB / CCB)	After ICV and CCV	No analytes $\geq \pm$RL	Reanalyze the blank. If it still fails, correct problem then analyze calibration blank and previous 10 samples unless sample results are >10x the absolute level found in the blank
		Interference check solution (ICSA / ICSAB)	Daily, before sample analysis and every 12 hours	Target elements: within $\pm$5ppb (Zn: 15ppb) in ICSA and $\pm$30% (Zn: $\pm$50%) of expected value in ICSAB. Interfering elements: NA (above linear range)	Terminate analysis; correct problem; reanalyze ICS; reanalyze all affected samples
		Continuing calibration verification (CCV)	After every 10 samples and at the end of the analysis sequence	All analytes within $\pm$10% of expected value	Repeat calibration and reanalyze all samples since last successful calibration
		LCS for all elements	One LCS per	All elements within $\pm$20% of expected value	If sufficient sample is available for re-extraction

Summary of Calibration and QC Procedures for Method EPA 6020

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
			analytical batch of 20 samples		correct problem then reprep and analyze the LCS and all samples in the affected analytical batch unless samples are ND for the affected element(s) and the LCS is biased high
		Method blank	One per analytical batch	No analytes detected ≥ RL	Correct problem then reprep and analyze method blank and all samples processed with the contaminated blank unless sample results are ND for the contaminatate compound or sample results are > 10 times the level found in the blank
		MS/MSD	One MS/MSD per analytical batch	Within 75-125% of expected results	Perform Post-digestion spike
		Post-digestion spike	When MS/MSD fails	Within 75-125% of expected results	Qualifier to indicate matrix interference. Issue a CAR for other causes
		Internal standard	Each sample	Within 30-120% of the intensity level in the initial calibration standard	Correct problem and/or dilute sample
		Initial Demonstration of Capability (4 replicates of LCS)	Once per analyst	Average recovery of all elements within ±20% of expected value and precision within 20%	Recalculate results; locate and fix problem with system and then rerun demonstration for those analytes that did not meet criteria
		IDL Study	Quarterly	IDLs calculated from the average standard deviations of three blanks run on three non-consecutive days (each blank run 7 consecutive times)	None
		MDL study	Biannually	MDLs established per CFR 40 – Part 13	None

QC Acceptance Criteria for Method EPA 300.0

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 300.0	Common Anions	Multipoint calibration for all analytes (minimum 3 standards and one calibration blank)	Initial calibration prior to sample analysis	Correlation coefficient ≥0.995 for linear regression	Correct problem then repeat initial calibration
		Second-source calibration verification	Once per multipoint calibration	All analytes within ±10% of expected value	Correct problem then repeat initial calibration
		Retention time window calculated for each analyte	Annually	± 3 times standard deviation for each analyte retention time from 72-hour study	Correct problem then reanalyze all samples analyzed since the last retention time check
		Instrument Performance Check (IPC)	Daily, before sample analysis or when elutent is changed	All analytes within ±10% of expected value	Correct problem then repeat initial calibration
		Continuing calibration verification (CCV)	After every 10 samples and at the end of the analysis sequence (second source standard)	All analytes within +/- 10% of excepted value	1. Correct problem then repeat initial calibration verification and reanalyze all samples since last successful calibration verification 2. If the recovery is > 110% and sample results are ND results may be reported without re-analysis
		Method blank	One per analytical batch	No analytes detected ≥ RL	Correct problem then reprep and analyze method blank and all samples processed with the contaminated blank unless sample results are ND for the contamination compound or sample results are > 10 times the level found in the blank

QC Acceptance Criteria for Method EPA 300.0

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
		LCS for all analytes. ICV or CCVs are reported as LCS since it is a second source standard.	One LCS per analytical batch	All analytes within +/- 10% of excepted value	If sufficient sample is available for re-extraction correct problem then reprep and analyze the LCS and all samples in the affected analytical batch unless samples are ND and LCS is biased high.
		MS/MSD	One MS/MSD per every 20 project samples per matrix	In-house statistical limits	None
		Initial Demonstration of Capability (4 replicates of LCS)	Once per analyst	Average recovery within +/- 10% of expected value and precision within $\pm$20%	Recalculate results; locate and fix problem with system and then rerun demonstration for those analytes that did not meet criteria
		MDL study	One full MDL run originally. Verified quarterly.	MDLs established per 40CFR – Part 136	None

Acceptance Criteria for Method EPA 7470A/7471A - Mercury

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 7470A/ 7471A	Mercury	Initial calibration (5 points and a blank)	Daily	Linear regression and forced through zero curve , r $\geq$ 0.995	Correct problem and repeat calibration
		2nd source initial calibration verification (ICV)	Immediately after calibration	Recovery within 90-110% of expected value	Reprep and re-analyze ICV. If still outs, reprep calibration standards and re-calibrate
		Calibration Blank (ICB and CCB)	After ICV and CCV	Free of mercury or below reporting limit	Re-analyze samples bracketed by affected ICB and/or CCBs unless results are not detected or >10x the level found in the calibration blank
		Method blank	One per analytical batch of 20 samples	Free of mercury or below reporting limit	Re-digest and re-analyze the batch unless sample results are not detected or >10x the level found in the method blank
		LCS	One per analytical batch of 20 samples	Within in-house statistical limits	Re-digest and re-analyze the batch unless sample results are not detected and LCS is biased high
		MS / MSD	One MS/MSD set per batch	Within in-house statistical limits	Qualify samples to indicate matrix interference or issue a CAR for other causes
		Continuous calibration verification (CCV)	After every 10 sample analysis	Recovery within 80-120%	Re-analyze all samples bracketed by non-compliant CCVs
		MDL	One full MDL study originally. Verified quarterly	Established per 40CFR – Part 136	None
		Initial Demonstration of Capability (4 replicates of LCS)	Per analyst	Average recovery within in-house statistical limits	Correct problem and repeat the process

QC Acceptance Criteria for Method EPA 7196A – Hexavalent Chromium

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
EPA 7196A/ SM 3500Cr D	Hexavalent Chromium (Cr+6)	Initial Calibration (4-point and a blank)	Daily	Correlation coefficient (r) > 0.995	Reprep standards and recalibrate
		2nd source calibration verification (ICV)	Immediately after calibration	Recovery within 90-110% of expected value	Reprep, rerun and verify result. Otherwise recalibrate
		Continuing calibration verification (CCV)	Every 10 samples and at end of run	EPA 7169A: recovery within 80-120% SM 3500Cr D: recovery within 90-110%	Reanalyzed once. If still fails, recalibrate and reanalyze all samples bracketed by the failed CCV.
		LCS	One per analytical batch	Recovery within in-house statistical limits	Correct problem, re-extract and rerun all associated samples unless sample results are not detected and LCS is biased high
		MS/MSD-soluble	One MS/MSD per analytical batch	Recovery within in-house statistical limits	Perform a post-digestion spike (PDS). Perform a PDS on all samples with results above the RL. If PDS ≥ 85% then flag as matrix interference (MI). If <85 and ≥ 50%, dilute and re-analyze if dilution still >RL otherwise use PDS as single-point MSA and flag as MI (no MSA for SM3500). If <50%, dilute and reanalyze with PDS and flag as MI
		MS-insoluble	One MS per analytical batch (SOILS ONLY)	Recovery within in-house statistical limits	Perform a post-digestion spike (PDS)
		MDL study	One full MDL study originally, reviewed after significant instrument maintenance or method modification	Established per 40 CFR – Part 136	None
		Initial Demonstration of Capability (4 replicates	One per analyst	Average recovery and RSD within in-house statistical limits	Identify, correct problem and repeat process

QC Acceptance Criteria for Method EPA 7196A – Hexavalent Chromium					
Method	**Applicable Parameter**	**QC Check**	**Minimum Frequency**	**Acceptance Criteria**	**Corrective Action**
		of LCS)			

QC Acceptance Criteria for Method EPA 9014 - Cyanide					
Method	**Applicable Parameter**	**QC Check**	**Minimum Frequency**	**Acceptance Criteria**	**Corrective Action**
9014	Cyanide	Initial Calibration 5-point and a blank)	Daily, prior to sample analysis	Linear regression, r >= 0.995	Correct problem then repeat initial calibration
		2nd source initial and continuous calibration verification (ICV / CCV)	Immediately after calibration and after every 10 samples	Within ±15% of expected value	Re-prepare / re-run ICV or CCV and verify recovery. Otherwise, recalibrate and re-run samples not bracketed between compliant CCVs
		Method blank (distilled)	One per analytical batch of 20 samples	Not detected or below Reporting Limit	Redistill method blank and all associated samples, unless sample results are not detected or > 10x the blank level
		LCS (distilled)	One LCS per analytical batch	Within ± 10% of the undistilled standard and true value	Correct the problem and redistill all associated samples, unless LCS is biased high and samples are not detected
		MS / MSD	One MS / MSD per analytical batch	Within in-house statistical limit	Qualify sample to indicate matrix interference

QC Acceptance Criteria for Method EPA 9014 - Cyanide

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
		MDL	Initially and after extensive instrument maintenance	Established per 40CFR – Part 136	None
		Demonstration of Capability (4 replicates of QC check)	Per analyst	Within in-house statistical limits	Identify, correct problem and repeat process

Appendix 5. Glossary/Acronyms

Glossary:

Acceptance Criteria:
Specified limits placed on characteristics of an item, process, or service defined in requirement documents. (ASQC)

Accreditation:

The process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards, thereby accrediting the laboratory. In the context of the National Environmental Laboratory Accreditation Program (NELAP), this process is a voluntary one. (NELAC)

Accrediting Authority:
The Territorial, State, or Federal Agency having responsibility and accountability for environmental laboratory accreditation and which grants accreditation (NELAC) [1.5.2.3]

Accuracy:
The degree of agreement between an observed value and an accepted reference value. Accuracy includes a combination of random error (precision) and systematic error (bias) components which are due to sampling and analytical operations; a data quality indicator. (QAMS)

Analyst:
The designated individual who performs the “hands-on” analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent quality controls to meet the required level of quality. (NELAC)

Assessment:
The evaluation process used to measure or establish the performance, effectiveness, and conformance of an organization and/or its systems to defined criteria (to the standards and requirements of NELAC). (NELAC)

Assessment Criteria:
The measures established by NELAC and applied in establishing the extent to which an applicant is in conformance with NELAC requirements. (NELAC)

Assessment Team:
The group of people authorized to perform the on-site inspection and proficiency testing data evaluation required to establish whether an applicant meets the criteria for NELAP accreditation. (NELAC)

Assessor:
One who performs on-site assessments of accrediting authorities and laboratories’ capability and capacity for meeting NELAC requirements by examining the records and other physical evidence for each one of the tests for which accreditation has been requested. (NELAC)
Audit: