DAVID CERNA

Title

QA Manager

Education

B.S. - California Polytechnic University, Pomona, 1997
Chemistry

Professional Experience

May/1997 to Present — Weck Laboratories, Inc., City of Industry, CA
Full Service Environmental Testing laboratory

Mr. Cerna has hands on experience for the analysis of environmental samples by different techniques, including TOC, TOX, Ion chromatography, Liquid Chromatography, GC/MS and sample extraction and preparation for organic analysis by Liquid-Liquid, Solid Phase, sonication and other techniques.
As Group Leader for the IC/HPLC section he was instrumental in developing analytical methods, selecting and setting up new analytical instrumentation and providing training to lab personnel.
Mr. Cerna has also been a data reviewer for analytical batches in the organic department including QA/QC and data accuracy.
As QA Manager, Mr. Cerna is responsible for monitoring and upgrading the QA program for the laboratory, performing internal audits and interacting with State and client auditors. Other responsibilities include providing training to analysts for QA/QC issues and verifying that SOPs are in compliance with current laboratory practices.

Other relevant experience and projects in which Mr. Cerna has participated are as follows:

- Review data packages generated by IC or HPLC for different methods.
- Write SOPs for laboratory procedures.
- Development of analytical methods for trace level contaminants in water by LC/MS/MS and IC
- HPLC and IC troubleshooting and maintenance
- Analysis of water, wastewater, soil and hazardous waste samples by GC/MS for volatile organics
- Analysis of environmental samples by HPLC using different detectors and post-column derivatization systems.

Participation in Seminars and Conferences

Mr. Cerna has participated in many technical seminars for IC, HPLC and LC/MS. He has also attended training classes and conferences relevant to his current position as QA Manager.

JOE CHAU

Title

Technical Director Inorganic

Education

B.S. - California Polytechnic University, Pomona, CA, 1988
Electrical Engineering

B.S - California Polytechnic University, Pomona, CA. 1993
Chemistry, Industrial Option

- University of California, Irvine
Certificate in Hazardous Materials Control and Management, 1991

Professional Experience

Sep/1989 to Present	Weck Laboratories, Inc., City of Industry, CA Full Service Environmental Testing laboratory
Sep/1988 to Sep/1989	Lights of America, Walnut, CA Electrical Engineering

Mr. Chau has extensive experience in environmental analysis, especially for inorganic and physical parameters. He has been working as analytical chemist for inorganic and wet chemistry determinations, metal analyses by Flame and Graphite furnace AA, ICP, ICP-MS and Cold vapor AA and AF.
Mr. Chau has been instrumental in developing analytical methods for trace metal analyses in a variety of matrices, including brines and sea water. He has also developed for the laboratory especially methods for physical parameters, metal speciation and non-routine determinations.
As lab supervisor, Mr. Chau has provided guidance, technical advice and training to bench chemists and other lab personnel and has managed lab operations to improve logistics such as sample receiving and project management

Mr. Chau is an expert in spectroscopic analysis and provides advice to clients about technical and QA/QC issues.

Other relevant experience and projects in which Mr. Chau has participated are as follows:

- Coordination of monitoring projects that requires large number of analysis on short turnaround time for metals.
- Supervision of lab personnel for the Inorganic Section
- Development of analytical procedures for the determination of environmental samples by ICP-MS in particularly difficult matrices

- Develop of methods by atomic fluorescence and amalgamation for ultra trace level analysis of mercury.
- Design of a clean room and develop protocols for its operation for analysis of trace metals in ambient waters and ultra trace levels of mercury
- Maintenance and troubleshooting of spectroscopy instrumentation.
- Design and improvement of sample digestion procedures for metal analysis to reduce contamination and improve recoveries.
- Development of analytical methods for speciation analysis of metals, including the use of hyphenated analytical techniques.

Participation in Seminars and Conferences

During his time at Weck Laboratories, Mr. Chau has participated in many technical and user meetings provided by spectroscopy equipment manufacturers, such as Perkin Elmer, Thermo and Agilent.
He routinely participates in technical conferences about environmental analysis, where technical issues, new techniques and regulatory subjects are discussed; they include NEMC, NELAC and Pittcon, among others.

ALAN CHING

Title

Technical Director Organic

Education

B.S. - Chu Hai College, Hong Kong, 1985
Chemistry
Shangai University of Technology, China
Analytical Chemistry Courses 1978 - 1981

M.S. - California Polytechnic University, Pomona
Analytical Chemistry, 1997

Professional Experience

Oct/1990 to Present	Weck Laboratories, Inc., City of Industry, CA Full Service Environmental Testing laboratory
Jan/1985 to Jun/1989	Dinippon Ink and Chemical, Sheng Zheng, China Chemical Manufacturing Company

Mr. Ching' primary experience is in the organic analysis field although he has performed as bench chemist inorganic and metal analyses as well. At Weck Labs, he has hands on experience in GC, GC/MS, HPLC and organic extractions.
Mr. Ching has developed many analytical procedures for volatile organic compounds, pesticides, herbicide and semivolatile organic analysis.
As lab supervisor, Mr. Ching has provided training and technical advice to bench chemists in the organic section.
Mr. Ching has also served as QA Manager being instrumental in developing the QA/QC program, obtaining accreditation under NELAC for the laboratory, writing the QA Manual and monitoring its implementation.
Mr. Ching also provides technical support to clients in the areas of Quality Assurance, analytical chemistry and regulatory compliance.

Other relevant experience and projects in which Mr. Ching has participated are as follows:

- Project Management for ICR, UCMR 1 and UCMR 2 analysis, including method development, interaction with Utilities and reporting to the EPA.

- Analysis of environmental samples for metals, and other elements by atomic absorption and ICP spectrometry using flame, hydride generation, cold vapor and graphite furnace.

- Hazardous waste characterization by different analytical techniques.

- Maintenance and troubleshooting of GC, GC/MS and HPLC instrumentation.

- Separation and detection of four different arsenic compounds using ion exchange chromatography and UV detection. (Master's degree project).

- Development of new methods for UCMR testing and other emergent contaminants

- Developing a comprehensive QA/QC program for the Laboratory in compliance with NELAC and ISO 17025.

Participation in Seminars and Conferences

Mr. Ching regularly attends many technical meeting regarding technical and regulatory issues. He has participated in NELAC conferences and other meeting related to Quality Assurance and regulatory compliance issues.

HAI-VAN NGUYEN

Title

Senior Project Manager – Technical Director Microbiology

Education

B.S. - California Polytechnic University, Pomona, CA, 2000
Biology, Minor in Chemistry

University of California, Irvine, CA, 2008
Environmental management Certificate Program

Professional Experience

Apr/2000 to Present — Weck Laboratories, Inc., City of Industry, CA
Full Service Environmental Testing laboratory

Ms. Nguyen has extensive experience in the environmental laboratory. She has been a bench chemist for inorganic, bacteriological testing, HPLC, GC and GC/MS, which has given her a well rounded view of the operation of the environmental laboratory in all its aspects. Other important tasks completed include assisting the QA Manager in preparing SOPs and updating the program.
As Technical Director for Microbiology she oversees the department and provides training to analysts.
Ms. Nguyen is also very well versed in compliance regulations for potable water and wastewater programs, as well as interpretation of analytical data.
In her position as Senior Project Manager, she has managed many large environmental projects for potable water, wastewater and groundwater investigations, proving consulting to clients and interacting with regulatory agencies.

Other relevant experience and projects in which Ms. Nguyen has participated are as follows:

- Managing testing projects for large clients.
- Assisting the QA Manger in supervising and designing QA/QC operations.
- Writing and upgrading of SOPs.
- Evaluation and reviewing analytical data for inorganic analysis, HPLC, GC, GC/MS and wet chemistry methods.
- Reviewing analytical data for microbiological determinations and providing technical support to analysts.

Participation in Seminars and Conferences

Ms. Nguyen regularly participates in technical seminars and meeting regarding regulatory compliance issues.

APPENDIX 2

CODE OF ETHICS

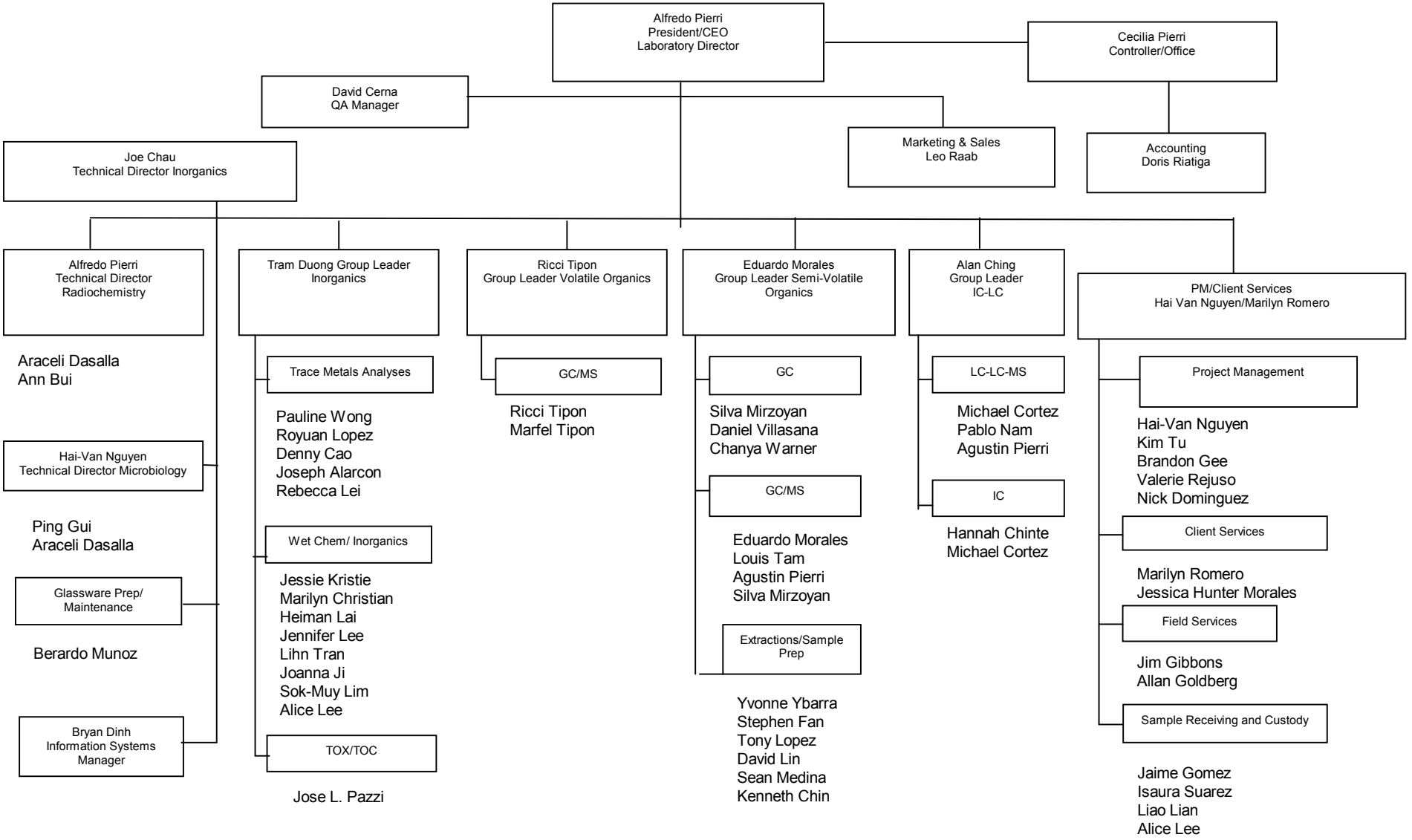
Weck Laboratories, Inc. is committed to ensuring the integrity of our data and meeting the quality needs of our clients. We pledge to manage our business according to the following principals:

- To produce results that are technically sound and legally defensible;
- To assert competency only for work for which adequate equipment and personnel are available;
- To present services in a confidential, honest, and forthright manner;
- To have a clear understanding with the client as to the extent and kind of services to be rendered;
- To provide employees with guidelines and an understanding of the ethical and quality standards required in this industry;
- To operate facilities in a manner that protects the environment and the health and safety of employees and the public;
- To obey all pertinent federal, state, and local laws and regulations;
- To continually improve product and service quality;
- To treat employees equitably, acknowledge their scientific contributions, and provide them with opportunities for professional growth and development;
- To recognize and respond to community concerns; and
- To deal openly, honestly, and fairly in all business and financial matters with employees, clients and the public.

APPENDIX 3

Weck Laboratories, Inc.

Company Organization Chart – November 2008



APPENDIX 4

List of Major Equipment as of November 2008

Type	Section	Number	Instrument Description	Tests Performed
LC/MS/MS	LC/MS	1	ABI 4000 Q trap Triple quad with +ESI, -ESI, APCI,MS/MS and linear Ion Trap capabilities	PPCPs, Endocrine disruptors, Emergent chemicals
LC/MS/MS	LC/MS	1	LC/MS/MS Varian 1200L Triple quad with positive and negative ESI, APCI and MS/MS capabilities	EPA 535, EPA 331, EPA 332, Emergent Chemicals
GC/MS	Semivolatile Organics	1	GC/MS/MS system, Varian 4000 with EI, CI and MS/MS capabilities	EPA 521, Nitrosamines
GC/MS	Semivolatile Organics	1	GC/MS/MS system, Varian 4000 with EI, CI and MS/MS capabilities and Combi-Pal robotic autosampler	Special tests, low level pesticides; EDCs, EPA 521 backup
GC/MS	Semivolatile Organics	1	GC/MS system, Agilent 7890/5975 Turbo with EI and PTV injection capabilities	EPA 525.2, 548.1, 527, 529
GC/MS	Semivolatile Organics	1	GC/MS system, Agilent 6890/5973N Turbo with EI and PCI capabilities	EPA 625, 8270 and 1,4-Dioxane
GC/MS	Semivolatile Organics	1	GC/MS system, ThermoFinnigan DSQ II with EI, PCI,NCI and PTV capabilities	EPA 527, PCB congeners, low level pesticides, Pyretroids
GC/MS	Volatile Organics	1	GC/MS system, Agilent 6890/5973 with Tekmar Solatek autosampler and Tekmar 3100 Purge & Trap	EPA 524.2, Low level 123TCP
GC/MS	Volatile Organics	1	GC/MS system, Agilent 6890/5973 with Archon autosampler and Tekmar 3000 Purge and Trap	EPA 524.2
GC/MS	Volatile Organics	1	GC/MS system, Agilent 6890/5973 with Archon autosampler and Tekmar 3100 Purge and Trap	EPA 8260 and 624
GC/MS	Volatile Organics	1	GC/MS system, Hewlett-Packard 5890 series II/5972 MSD with Aquatek 70 autosampler and Tekmar 3000 Purge and Trap	EPA 524.2
GC/MS	Volatile Organics	1	GC/MS system, Hewlett-Packard 5890 series II/5972 MSD with Archon autosampler and O-I Eclipse Purge and Trap	EPA 8260 and 624
GC	Semivolatile Organics	2	Gas chromatograph Agilent model 6890 with autosampler and dual ECD detectors	EPA 551.1, EPA 508, 515.3
GC	Semivolatile Organics	1	Gas chromatographs Agilent 6890 with autosampler FID and ECD	EPA 8015 TPH, Alcohols

GC	Semivolatile Organics	1	Gas chromatographs Varian 3800 with autosampler and dual ECDs and TSD detectors	EPA 504.1, EPA 552.2
Type	**Section**	**Number**	**Instrument Description**	**Tests Performed**
GC	Semivolatile Organics	1	Gas chromatograph Hewlett Packard model 5890A with autosampler and ECD and NPD detector.	EPA 507, Backup instrument for EPA 508, 504 or 515.3
GC	Semivolatile Organics	1	Gas chromatograph Hewlett Packard model 5890A with autosampler and FID and TCD detectors.	Backup instrument for EPA 8015 TPH and alcohols
GC	Volatile Organics	1	Gas Chromatograph, Hewlett-Packard 5890A with FID/PID in series with Tekmar 2016 autosampler and Tekmar 2000 Purge and Trap	EPA 8021 BTEX
HPLC	IC/HPLC	1	Liquid Chromatograph system Dionex DX500 with gradient pump, post-column reaction systems, and fluorescence and UV-VIS detectors.	EPA 531.1 and 547
HPLC	IC/HPLC	1	Liquid Chromatograph system Dionex DX500 with gradient pump and UV-VIS detector	EPA 549.2, 8315 and 8330
IC	IC/HPLC	1	Ion chromatograph DIONEX DX-120 with isocratic pump and conductivity detector	EPA 300.0
IC	IC/HPLC	1	Ion Chromatograph Dionex with gradient pump, post-column derivatization and UV-Vis detector dedicated for hexavalent chromium.	EPA 218.6, EPA 7199
IC	IC/HPLC	1	Ion Chromatograph Dionex DX-500 with gradient pump and conductivity detector dedicated to perchlorate analysis	EPA 314.0
IC	IC/HPLC	1	Ion Chromatograph system Dionex DX-600 with gradient pump, post column derivatization, conductivity and Photodiode array detectors.	EPA 300.1 and 326 low levels Bromide, chlorite, chlorate and bromate
ICP-MS	Metals	1	ICP-MS Spectrometer Agilent 7500ce	EPA 200.8, EPA 6020, EPA 1638, EPA 1640
ICP-MS	Metals	1	ICP-MS Spectrometer Perkin Elmer model ELAN DRC-II with Apex Duo Fast autosampler option with Preconcentration column On-line. Also option with hydride generation On-line.	EPA 200.8, EPA 1638, EPA 1640, Modified 200.8 for sea water and brines; hydride analysis
ICP	Metals	1	ICP Spectrometer Perkin Elmer model Optima DV-5300 with FAST autosampler	EPA 200.7, EPA 6010
CVAA	Metals	1	Mercury analyzer CETAC model M-6000 with autosampler	EPA 245.1; EPA 7470; EPA 7471

CVAF	Metals	1	Low Level Mercury Analyzer Leeman Labs model Hydra AF Gold +	EPA 1631; EPA 245.7 and methyl mercury

Type	Section	Number	Instrument Description	Tests Performed
HPLC	Metals	1	HPLC Shimadzu with Dual LC10ADvp Pumps, SIL10ADvp Autoinjector, SCL10ADvp Controller, Mixer and SIL 10ADvp UV-Vis detector	Connected to ICP-MS; Metal Speciation, Methyl Mercury (in development)
Automated SPE	Sample Prep	1	Solid phase extraction system Horizon Technologies 4790 consisting in 8 automated extractors	Various EPA 500's series methods and UCMR
Automated SPE	Sample Prep	3	Caliper Autotrace automated cartridge solid phase extractor with 6 positions	PPCP/EDC; Various EPA 500's series and UCMR
Continuous L-L	Sample Prep	3	Continuous accelerated liquid-liquid extractor/concentrator Corning from Organomation of 8 position each.	Various
Concentrator	Sample Prep	1	Automated solvent blow-down apparatus Horizon model Dry-Vap with 6 positions	Various
Concentrator	Sample Prep	1	Turbo Vap solvent blow-down apparatus with 50 positions	Various
Automated ASE	Sample Prep	1	Accelerated Solvent Extraction system Dionex model ASE 200 for soils/sediments	EPA 8000's series in soil/sediment
Automated SPE	Sample Prep	1	Automated solid phase extractor for Oil and Grease with 3 positions Horizon Technologies Model 3000 XL	EPA 1664
L-L	Sample Prep	1	Separatory funnel shaker 4-positions from Glas-Col	Various
Digester	Sample Prep	2	Block digesters for trace metal sample preparation	EPA 200.7; 200.8; 245.1; 6010; 6020; 7470 and 7471
Digester	Sample Prep	2	Block digesters for TKN and total phosphorus sample preparation	Various
Shaker/Extractor	Sample Prep	2	TCLP rotary extractors for leaching procedures with glassware	Various
Shaker/Extractor	Sample Prep	2	Zero Headspace apparatus for TCLP extractions for Volatiles	EPA 8260-TCLP
Titrator/ISE/pH/EC	General Chemistry	1	Automated Titration-ISE instrument Man-Tech Associates, model PC Titrate with autosampler	SM2320B; SM2310B, pH, SM5210
Autoanalyzer	General Chemistry	1	Lachat model 8500 + FIAS auto analyzer with four simultaneous channels for NO3-N, NO2-N, TKN, TP, OP, Cyanide and NH3	EPA 353.2, 351.2; 365.1; 335.2 and 350.1
Autoanalyzer	General Chemistry	1	Seal Analytical model AQ2+ discrete spectrophotometric wet chemistry analysis (NO3, NO2, TKN, TP, OP, Phenols, Cyanide and NH3	EPA 353.2; 351.2; 365.1; 335.2; 350.1 and 420.4
Proportional Counter	Radiochemistry	2	Gas flow Alpha + Beta Counter Protean model MPC 9604 for radiological analyses.	EPA 900.0, SM7110C EPA 903.0, EPA 904

Type	Section	Number	Instrument Description	Tests Performed
Liquid Scintillation	Radiochemistry	1	Beckman Liquid Scintillation apparatus model LS6500	Radon, Tritium, EPA 903.1
TOC	General Chemistry	1	Total organic carbon (TOC) Tekmar-Dorhman Phoenix 8000 with autosampler.	SM5310C
TOX	General Chemistry	1	Total organic halides (TOX) Mitsubishi TX-10.	SM5320B, EPA 9020
UV-VIS	General Chemistry	1	UV-Visible Spectrophotometer Milton Roy Genesis 5.	Various
UV-VIS	General Chemistry	1	UV-Visible Spectrophotometer Hach model DR4000U	Various
ISE/pH	General Chemistry	1	Ion Selective electrode system Accumet 150 for pH, conductivity and ISE measurements	EPA 150.1, SM2510B,
Trucks	Field	3	Pickup trucks for field sampling Toyota Tacoma, models 2009, 2006 and 1998	Field work
Samplers	Field	9	Composite water sampling equipment ISCO, different models.	Wastewater sampling
Software	IT	1	Laboratory Information Management System (LIMS) "Element" from Promium running on SQL database.	Supports all methods
Software	IT	1	Element Web program to allow clients to review projects on real time through the Laboratories' web page.	Supports all methods
Software	IT	1	Element Data tool program to transfer analytical data directly from instruments into the LIMS.	Supports all methods
Software	IT	1	Agilent Chem Station software latest revision for control and data processing of Agilent GC and GC/MS instruments.	Supports organic methods
Software	IT	1	Varian Star Chromatography software for control and data processing of Varian GC and GC/MS instruments.	Supports organic methods
Software	IT	1	Dionex Peak Net Software for control and data processing of Dionex HPLC and IC instruments	Supports inorganic methods
Software	IT	1	Tal Technologies Wedge software for data acquisition of all RS232 devices (balances, pH meter, turbidimeter etc.) and other vendor specific software for data acquisition and processing of all other instruments.	Various

APPENDIX 5
Chain of Custody Form

CHAIN OF CUSTODY RECORD

Weck Laboratories, Inc.
Analytical Laboratory Services · Since 1964
14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

Page 1 Of 1

CLIENT NAME:

PROJECT:

ADDRESS:

PHONE:
FAX:
EMAIL:

PROJECT MANAGER

SAMPLER

ANALYSES REQUESTED

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☐ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment:

COMMENTS

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.

RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature:

Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Present	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

COC version 042707

APPENDIX 6

Sample Collection and Holding Times

Weck laboratories, Inc. - Sampling Guidelines

				Preservative					
Test Name	**Matrix**	**Bottle Type**	**Bottle size**	**Unchlorinated Water (Raw)**	**Chlorinated Water (Treated)**	**Soil/Solid**	**Holding Time until start of analysis**	**Analytical Technique**	**Analytical Method**
1,2,3-TCP	Water	Glass	2 x 40 ml	None	Ascorbic		14 days	GC/MS Isot. Dil.	EPA 524.2SIM
1,4-Dioxane	Water	Amber Glass	2 x 1 L (*)	None	None		14 days	GC/MS Isot. Dil.	EPA 8270M
Alcohols	Water	Glass	1 x 40 ml	None	None		14 days	Dir. Inj./FID	EPA 8015B
Aldehydes	Water	Glass	2 x 40 ml	CuSO4	NH4Cl/CuSO4		7 Days	GC/ECD	EPA 556
Aldehydes	Water	Glass	1 L (*)	None	Thiosulfate		3 days	HPLC-UV	EPA 8315
Aldehydes(1)	Soil/Solid	Glass	4 oz			None	3 days	HPLC-UV	EPA 8315
Alkalinity, Total	Water	Poly	250 ml		None		14 Days	Titration	SM2320B
Anions by IC (F-,Cl-,SO4=)	Water	Poly	250 ml	None	None		28 days	IC	EPA 300.0
Anions by IC (NO2-,NO3-,PO4≡)	Water	Poly	250 ml	None	None		48 hours	IC	EPA 300.0
Arsenic speciation	Water	Poly	250 ml	EDTA/acetic acid	EDTA/acetic acid		14 Days	Resin-ICP/MS	EPA 200.8
Asbestos-Sub	Water	Poly	1 L	None	None		48 Hours	TEM	EPA 100.1/.2-Sub
Bacteria-Coliform - solid/sludge/soil	Soil/solid	Glass-Sterile	4 oz			None	N/A	MTF	SM 9221B
Bacteria-Coliform - Wastewater	Water	Poly-Sterile	125 ml	Thiosulfate	Thiosulfate		6 hours	MTF	SM 9221B
Bacteria-Coliform - Drinking Water	Water	Poly-Sterile	125 ml	Thiosulfate	Thiosulfate		24 Hours	Colilert P/A or enumeration	SM 9223B
Bacteria-Enterococcus - Wastewater	Water	Poly-Sterile	125 ml	Thiosulfate	Thiosulfate		24 Hours	Enumeration Quantitray	Enterolert
Bacteria-Heterotrophic Plate Count	Water	Poly-Sterile	125 ml	Thiosulfate	Thiosulfate		24 Hours	Pour Plate Method	SM 9215B
BOD	Water	Poly	1 L	None	None		48 Hours	DO Probe	SM 5210B
BOD, Carbonaceous	Water	Poly	1 L	None	None		48 Hours	DO Probe	SM 5210
Bromate	Water	Poly	250 ml	EDA	EDA		28 Days	IC	EPA 300.1
Bromate- Low Level	Water	Poly	250 ml	EDA	EDA		28 Days	IC	EPA 326
Bromide	Water	Poly	250 ml	None	None		28 Days	IC	EPA 300.0
Bromide-Low Level	Water	Poly	250 ml	None	None		28 Days	IC	EPA 300.1
Carbamates	Water	Glass	1 x 40 ml	MCAA	MCAA/thiosulf.		28 Days	HPLC	EPA 531.1
COD	Water	Poly	250 ml	H2SO4	H2SO4		28 Days	Colorimetric	EPA 410.4
Chloral Hydrate	Water	Glass	2 x 60 ml	Sulfite/buffer	Sulfite/buffer		14 days	GC/ECD	EPA 551.1
Chlorate	Water	Poly	250 ml	EDA	EDA		28 Days	IC	EPA 300.1

Chloride	Water	Poly	250 ml	None	None		28 Days	IC	EPA 300.0
Chlorine Dioxide	Water	Glass	250 ml	None	None		24 Hours	Colorimetric	SM 4500CLO2D
Chlorine Residual	Water	Glass	250 ml	None	None		24 Hours	Colorimetric	SM 4500CL-G
Chlorite	Water	Amber Glass	125 ml	EDA	EDA		14 Days	IC	EPA 300.1
Chlorophyll-a	Water	Amber Poly	2 x 1L	None			48 Hours	Spectrophotometric	SM 10200H
Chromium, Hexavalent	Water	Poly	250 ml	None	None		24 Hours	Spectrophotometric	SM3500CR-D/7196
Chromium, Hexavalent	Soil/solid	Glass	4 oz	None	None		30 days	Spectrophotometric	EPA 3060/7196
Chromium, Hexavalent (low level)	Water	Poly	250 ml	None	None		24 Hours	IC	EPA 218.6
Chromium, Hexavalent (low level)	Soil/solid	Glass	4 oz	None	None		30 days	IC	EPA 3060/7199
Color	Water	Glass	500 ml	None	None		48 Hours	Visual	SM2120B
Conductivity (Specific Conductance)	Water	Poly	250 ml	None	None		28 Days	Electrometric	SM2510B
Cyanide	Water	Poly	500 ml	NaOH	NaOH/ascorbic		14 Days	FIA-Colorimetric	EPA 335.2/335.4
Dioxin-Sub	Water	Glass	2 x 1 L	None	None		1 year	GC/ MS	EPA 1613/8290
Diquat/Paraquat	Water	Amber poly	1L	None	Thiosulfate		7 Days	HPLC	EPA 549.2
Disinfection by-products	Water	Glass	2 x 60 ml	Sulfite/buffer	Sulfite/buffer		14 days	GC/ECD	EPA 551.1
Diuron	Water	Amber Glass	1 L (*)	None	None		7 days	HPLC/UV	EPA 632
Diuron-UCMR	Water	Amber Glass	1 L (*)	CuSO4/Trizma	CuSO4/Trizma		14 days	HPLC/UV	EPA 532
EDB and DBCP	Water	Glass	2 x 40ml	None	Thiosulfate		14 Days	GC/ECD	EPA 504.1
Endothall	Water	Amber Glass	250 ml	None	None		7 days	GCMS	EPA 548.1
Ethanol	Water	Glass	1 x 40 ml	None	None		14 Days	Dir. Inj./FID	EPA 8015B
Explosives	Water	Amber Glass	1 L (*)	None	Thiosulfate		7 days	HPLC/UV	EPA 8330
Fluoride	Water	Poly	250 ml	None	None		28 Days	IC	EPA 300.0
General Minerals (excluding metals)	Water	Poly	1 L	None	None		Various	Wet Chem methods	various
General Minerals (metals only)	Water	Poly	250 ml	HNO3	HNO3		6 Months	ICP-AES	EPA 200.7
General Physical (Color, Odor, Turbidity	Water	Glass	500 ml	None	None		24 Hours	Wet Chem methods	various
Glyphosate	Water	Glass	1 x 40 ml	None	Thiosulfate		14 Days	HPLC	EPA 547
HAAs	Water	Amber Glass	250 ml (*)	NH4Cl	NH4Cl		14 days	GC/ECD	EPA 552.2

HAAs-Formation Potential	Water	Amber Glass	1L	None	None		14 days	GC/ECD	SM 5710B/EPA 552.2
Herbicides-DW	Water	Amber Glass	250 ml (*)	None	Thiosulfate		14 days	GC/ECD	EPA 515.3
Herbicides-GW	Water	Amber Glass	2 x 1 L (*)	None	Thiosulfate		7 Days	GC/ECD	EPA 8151
Mercury	Water	Glass jar	250 ml	HNO3	HNO3		28 Days	Cold Vapor AAS	EPA 245.1/7470
Methanol	Water	Glass	1 x 40 ml	None	None		14 Days	Dir. Inj./FID	EPA 8015B
Mercury in soil/solid/sludge	Soil/Solid	Glass jar	4 oz.	None	None		28 Days	Cold Vapor AAS	SW 7471
Metals (2)	Water	Poly	250 ml	HNO3	HNO3		6 Months	ICP/MS or ICP-AES	EPA 200.8/200.7
NDMA	Water	Amber Glass	2 x 1 L (*)	None	Ascorbic		7 days	GC/MS/CI SIM	EPA1625M
Nitrate	Water	Poly	250 ml	None	None		48 Hours	IC or FIA	EPA 300.0/353.2
Nitrite	Water	Poly	250 ml	None	None		48 Hours	IC or FIA	EPA 300.0/353.2
Nitrite+Nitrate as N	Water	Poly	250 ml	H2SO4	H2SO4		28 Days	FIA-Colorimetric	EPA353.2
Nitrogen, Total Kjeldahl (TKN)	Water	Poly	250 ml	H2SO4	H2SO4		28 Days	FIA-Colorimetric	EPA 351.2
Nitrogen-Ammonia	Water	Poly	250 ml	H2SO4	H2SO4		28 Days	FIA-Colorimetric	EPA 350.1
Nitrogen-Ammonia in ww with distillation	Water	Poly	250 ml	H2SO4	H2SO4		28 Days	FIA-Colorimetric	EPA 350.1
Nitrosamines	Water	Amber Glass	2 x 1 L (*)	None	Ascorbic		14 days	GC/MS/CI SIM	EPA 521
Odor	Water	Glass	500 ml	None	None		24 Hours	Odor	SM 2150B
Oil and Grease	Water	Glass	1 L	HCL	HCL		28 Days	Gravimetric	EPA1664
Organotins (tributyltin)	Water	Glass	1 L (*)	None	None		7 Days	GC/MS	GC/MS
Oxygen, Dissolved	Water	Glass	BOD bottle	None	None		24 Hours	O2 Probe	SM 4500-OG
PBDEs	Water	Amber Glass	2 x 1 L (*)	None	None		14 days	GC/MS SIM	EPA 1614M
Perchlorate	Water	Poly	250 ml	None	None		28 Days	IC	EPA 314
Perchlorate - Low Level by LC/MS/MS	Water	Poly Sterile	125 ml	Sterile field filtration	Sterile field filtration		28 Days	LC/MS/MS	EPA 331/332
Perchlorate in soils	Soil	Glass jar	4 oz	None	None		28 Days	IC	EPA 314M
Pesticides-Organophosphorus	Water	Amber Glass	2 x 1 L (*)	None	Thiosulfate		7 Days	GC/NPD	EPA8141
Pesticides, Chlorinated (DW)	Water	Amber Glass	2 x 1 L (*)	None	Thiosulfate		7 days	GC/ECD	EPA 508
Pesticides, Chlorinated WW/GW	Water	Amber Glass	2 x 1 L (*)	None	Thiosulfate		7 Days	GC/ECD	EPA 608/8081
PCBs - GW	Water	Amber Glass	2 x 1 L (*)	None	Thiosulfate		7 Days	GC/ECD	EPA 8082
Pesticides, N/P -DW	Water	Amber Glass	2 x 1 L (*)	None	Thiosulfate		14 days	GC/ NPD	EPA 507/8141

pH	Water	Poly	250 ml	None	None		3 Days	Electrometric	SM4500H
Phenolics	Water	Amber Glass	500 ml	H2SO4	H2SO4		28 Days	Spectrophotometric	EPA 420.1
Phosphate, Ortho	Water	Poly	250 ml	None	None		48 hours	FIA-Colorimetric	EPA 365.1
Phosphate, Total	Water	Poly	250 ml	H2SO4	H2SO4		28 Days	FIA-Colorimetric	EPA 365.1
Polynuclear Aromatics (PNAs) Low level	Water	Amber Glass	2 x 1L	None	Thiosulfate		7 Days	HPLC or GC/MS	EPA 610/8310 or EPA 8270SIM
Radiological-Gross Alpha	Water	Poly	1 L	HNO3	HNO3		6 Months	GPC	EPA 900.0
Radiological-Gross Alpha high TDS	Water	Poly	1 L	HNO3	HNO3		6 Months	Coprecipitation-GPC	SM7110C
Radiological-Gross Beta	Water	Poly	1 L	HNO3	HNO3		6 Months	GPC	EPA 900.0
Radiological-Radium 226-Sub	Water	Poly	2 x 1 L	HNO3	HNO3		6 Months		EPA 903.1 Sub
Radiological-Radium 228-Sub	Water	A-Poly	1 L	HNO3	HNO3		6 Months		RA-05 Sub
Radiological-Radon 222-Sub	Water	Glass	2 x 60 ml	None	None		4 Days	LSC	EPA 913.0
Radiological-Strontium 90-Sub	Water	Poly	1 L	HNO3	HNO3		6 Months		EPA 905.0 sub
Radiological-Tritium-Sub	Water	Amber Glass	125 ml	None	None		6 Months	LSC	EPA 906.0 sub
Radiological-Uranium-Sub	Water	Poly	250 ml	HNO3	HNO3		6 Months	ICP-MS	EPA 200.8
Semivolatile Organics (BNA) - GW or WW	Water	Amber Glass	2 x 1L	None	Thiosulfate		7 Days	GC/MS	EPA 625/8270C
Silica by ICP	Water	Poly	250 ml	None	None		28 Days	ICP	EPA 200.7
SOCs - Drinking Water	Water	Amber Glass	2 x 1 L	HCL	Sulfite/HCL		14 days	GC/MS	EPA 525.2
SOCs - Special Analytes	Water	Amber Glass	2 x 1 L	HCL	Asc., EDTA, Diazol. Urea, Buffer		14 days	GCMS	EPA 526
SOCs - Phenolics	Water	Amber Glass	2 x 1 L	HCL	Sulfite/HCL		14 days	GCMS	EPA 528
Solids, Settleable	Water	Poly	1 L	None	None		48 Hours	Gravimetric	EPA 160.5
Solids, TDS	Water	Poly	500 ml	None	None		7 Days	Gravimetric	SM2540C
Solids, Total	Water	Poly	500 ml	None	None		7 Days	Gravimetric	SM2540B
Solids, TSS	Water	Poly	500 ml	None	None		7 Days	Gravimetric	EPA 160.2
Solids, TVS	Water	Poly	500 ml	None	None		7 Days	Gravimetric	EPA 160.4
Solids, VSS	Water	Poly	500 ml	None	None		7 Days	Gravimetric	SM 2540E
Sulfate	Water	Poly	250 ml	None	None		28 Days	IC	EPA 300.0
Sulfide, Dissolved	Water	Poly	250 ml	NAOH	NAOH		24 hours	Colorimetric	SM4500S2D
Surfactants (MBAS)	Water	Poly	500 ml	None	None		48 Hours	Colorimetric	SM5540C

t-Butyl Alcohol	Water	Glass	2 x 40 ml	none	None		14 Days	GC/MS	EPA 524.2
THMs	Water	Amber Glass	2 x 40 ml	Thiosulfate	Thiosulfate		14 Days	GC/MS	EPA 524.2
THMs-Formation Potential	Water	Amber Glass	1L	None	None		14 Days	GC/MS	SM5710/EPA 524.2
Total Organic Carbon	Water	Amber Glass	250 ml	H3PO4	H3PO4		28 Days	UV-Persulfate	SM5310C
Total Organic Halides	Water	Amber Glass	500 ml	H2SO4	Sulfite/H2SO4		14 Days	Pyrolysis/ Coulometric	SM5320B/EPA 9020
Turbidity	Water	Poly	250 ml	None	None		48 Hours	Nephelometric	EPA 180.1
UCMR2-PBDEs	Water	Amber Glass	2 x 1 L	Ascorbic, EDTA, Citrate	Ascorbic, EDTA, Citrate		14 days	GCMS	EPA 527
UCMR2-Explosives	Water	Amber Glass	2 x 1 L	CuSO4/Trizma Buffer	CuSO4/Trizma Buffer		14 days	GCMS	EPA 529
UCMR2-Perchlorate	Water	Poly-Sterile	125 ml	Sterile Field Filtration	Sterile Field Filtration		28 days	LC/MS/MS	EPA 331/332
UCMR2-Acetanilide Degradates	Water	Amber Glass	2 x 500 ml	NH4Cl	NH4Cl		14 days	LC/MS/MS	EPA 535
UCMR2-Acetamide Pesticides	Water	Amber Glass	2 x 1 L	Sulfite/HCL	Sulfite/HCL		14 days	GCMS	EPA 525.2
UCMR2-Nitrosamines	Water	Amber Glass	1 x 1 L	Thiosulfate	Thiosulfate		14 days	GCMS	EPA 521
UV254	Water	Amber Glass	250 ml	None	None		2 Days	Spectrophotometric	SM 5910B
Volatile Organics-DW	Water	Glass	3 x 40 ml	HCL	Ascorbic/HCL		14 Days	GC/MS	EPA 524.2
Volatile Organics-Aromatics only	Water	Glass	2 x 40 ml	HCL	Thiosulfate/HCL		14 Days	P&T/PID	EPA 602
Volatile Organics-WW/GW	Water	Glass	2 x 40 ml	HCL	Thiosulfate/HCL		14 Days	GC/MS	EPA 624/8260B
Gasoline -TPH	Water	Glass	2 x 40 ml	HCL	Thiosulfate/HCL		14 Days	P&T/FID	EPA 8015B
Diesel/Oil-TPH	Water	Amber Glass	1 L (*)	HCL	Thiosulfate/HCL		14 Days	GC/FID	EPA 8015B

Notes:
(1): Formaldehyde and acetaldehyde only
(2): Al,Sb,As,Ba,Be,B,Cd,Ca,Na,Mg,K,Cr,Co,Cu,Fe,Pb,Li,Mn,Mo,Ni,Se,Ag,Sr,Tl,Ti,V,Zn
(*): Needs extra bottles for QA/QC for certain projects.

APPENDIX 7

List of SOPs as of November 2008

Administration - Miscellaneous and administrative SOPs

File Name	Rev No	Rev Date	Method	Title
MIS001	16	**Mar-08**	General	Sample Receiving, Log in, Storage and Disposal
MIS002	4	Jun-04	Sampling	Industrial Wastewater Sampling Instructions
MIS003	3	Jul-05	General	Back Up Procedures for Data Files
MIS004	5	**Apr-08**	General	Chemicals, Receipt, Storage and Preparation of Solutions
MIS005	2	Apr-00	General	Procedures for Start Up and Shut Down the File Servers
MIS006				Discontinued
MIS007	2	**Mar-08**	General	Sample Container Management
MIS008	3	**Mar-08**	General	Laboratory Hazardous Waste Management
MIS009	3	**Feb-08**	General	Handling of Foreign Soil
MIS010	2	**Mar-08**	Sampling	Sampling Instructions for Protected Groundwater Supplies and Water Supplies with Treatment
MIS011	4	**Mar-08**	General	Preparation, Approval, Distribution, & Revision of standard Operating Procedures
MIS012	2	**Mar-08**	General	Significant Figures and Rounding
MIS013	2	**Mar-08**	General	Generation and Utilization of Control Charts
MIS014	4	Sep-07	General	Performing Internal Audits
MIS015	3	**Mar-08**	General	Handling and Analysis of Proficiency Testing (PT) Samples
MIS016	3	**Apr-08**	General	Corrective Action Procedures
MIS017	3	**Apr-08**	General	Maintenance, Utilization and Review of Laboratory Logbooks
MIS018	3	Nov-06	General	Internal Laboratory Data Verification and Review
MIS019	3	**Apr-08**	General	Resolution of Customer Complaints
MIS020	3	**Apr-08**	General	Calibration and Verification of Analytical Balances
MIS021	3	**Apr-08**	General	Calibration and Maintenance of Mechanical Pipettes
MIS022	2	Oct-03	General	LIMS Security Systems
MIS023				Discontinued
MIS024	2	**Apr-08**	General	DI Water Quality Checks
MIS025	3	**Apr-08**	General	Control of Data and Manual Data Entry
MIS026	2	**Apr-08**	General	Taking Representative Samples and Sub-samples in the Laboratory.
MIS027	3	Jul-05	General	Electronic Data Transfer of Analytical Results
MIS028	3	May-04	General	Standard Cleaning Protocols for Containers and Labware
MIS029	3	**Apr-08**	General	Calibration and Verification of Thermometers
MIS030	4	**Apr-08**	General	Performing Managerial Reviews
MIS031	4	Nov-06	General	Calibration and Verification of Lab Support Equipment
MIS032	2	Aug-06	General	Calculation of Method Detection Limits (MDL) and Reporting Limits (RL)
MIS033	2	**Apr-08**	General	Rejection/acceptance Criteria for Special Analyses
MIS034	3	Jul-06	General	Performing Initial Demonstration of Capability (IDC)
MIS035	4	**Apr-08**	General	Procedures for Initiation of Employment for a new Associate
MIS036	2	**Apr-08**	General	Use of Areas of Incompatible Activities
MIS037	3	Nov-06	General	Computers and Electronic Data Requirements
MIS038	2	**Apr-08**	General	Chain of Custody Procedures for Legal and Evidentiary Custody of Samples
MIS039	2	**Apr-08**	General	Proper Raw Data Handling and Manual Integration Procedures
MIS040	2	Oct-03	General	Instrument Archival System
MIS041	2	**Apr-08**	General	Procedures for Subcontracting Client Samples
MIS042	3	Nov-06	General	Outside Support Services and Supplies
MIS043	3	**Apr-08**	General	Implementation of the Business Ethics and Data Integrity Policy
MIS044	2	Nov-06	General	Control of Nonconforming Environmental Testing
MIS045	3	Nov-06	General	Control of Records and Documents
MIS046	2	Mar-07	General	Training of Laboratory Personnel

File Name	Rev No	Rev Date	Method	Title
MIS047	2	Nov-05	General	Estimating the Uncertainty of Measurements
MIS048	3	**Apr-08**	General	Development and Maintenance of Test Method SOPs
MIS049	2	**Apr-08**	General	Health and Safety Training Procedures
MIS050	1	**Oct-08**	General	Disaster Procedures

Inorganic Department - Metals SOPs

File Name	Rev No	Rev Date	Method	Title
MET001	6	Sep-07	1311	Toxicity Characteristic Leaching Procedure (TCLP)
MET005	6	**Sep-08**	3010A	Acid Digestion of Aqueous Samples and Extracts for Total Metals by ICP and ICP-MS, EPA Method 3010A Modified
MET007	5	**Sep-08**	3050B	Acid Digestion of Sediments, Sludges and Soils, EPA Method 3050B
MET009	3	**Sep-08**	3050B Mod	Acid Digestion of Sediments, Sludges, Soils and Wipes, EPA Method 3050 Modified.
MET010	7	**Sep-08**	7471A	Analysis of Mercury in Solid Matrices by Cold Vapor Atomic Absorption, EPA 7471A
MET011	5	**Sep-08**	245.1	Analysis of Hg in water by manual cold vapor technique EPA method 245.1
MET017	8	**Jun-08**	6010	Analysis of Trace Metal in Water and Solid Matrices by ICP-AES, EPA Method 6010
MET018	10	**Sep-08**	200.8	Analysis of Trace Metals in Water by ICP-MS, EPA Method 200.8
MET019	7	**Sep-08**	6020	Analysis of Trace Metal in Water and Solid Matrices by ICP-MS, EPA Method 6020
MET020	5	**Sep-08**	200.2	Sample Preparation Procedure for Spectrochemical Determination of Total Recoverable Elements, EPA Method 200.2
MET021	3	**Sep-08**	WET	Waste Extraction Test Procedure, Title 22 Part 66261.126 Appendix II
MET023	3	**Sep-08**	As-ICPMS	Analysis of Arsenic by Hydride Generation-ICPMS, EPA Method 200.8 Modified
MET024	3	**Sep-08**	Se-ICPMS	Analysis of Arsenic by Hydride Generation-ICPMS, EPA Method 200.8 Modified
MET025	5	**May-08**	200.7	Analysis of Trace Metals in Water by ICP-AES, EPA Method 200.7
MET031	3	**Sep-08**	7470	Analysis of Mercury in Aqueous Samples and Liquid Waste by Cold Vapor Atomic Absorption, EPA 7470A
MET034	1	Mar-06	1631	Analysis of Low Level Mercury by CVAFS with Gold Amalgamation, EPA Method 1631E
MET035	1	May-07	245.7	Analysis of Low Level Mercury by CVAFS, EPA Method 245.7
MET036	1	**Jun-08**	1640	Determination of Trace Elements in Saline Waters by Direct Injection and Preconcentration and ICP-MS - EPA Method 1640
MET037	1	**Jun-08**	3500FeB	Determination of Ferrous Iron by the Phenantrloline Colorimetric Method, SM3500-Fe B
MET038	1	**Oct-08**	1638	Analysis of Trace Elements in Ambient Waters by ICP-MS - EPA Method 1638

Inorganic Department - Microbiology SOPs

File Name	Rev. No	Rev Date	Method	Title
MIC001				Discontinued
MIC002				Discontinued
MIC003	7	Jul-07	SM9223	Bacteriological Analysis of Water Samples by Presence/Absence and Enumeration, SM9223 (Colilert P/A and Quanti-Tray)
MIC004	5	Jun-04	SM9215B/SimPlate	Heterotrophic Plate Count: Pour Plate Method SM 9215B and SimPlate
MIC005	6	Jul-04	SM9221	Total and Fecal Coliform Analysis of Drinking Water and Waste Water by Multiple Tube Fermentation Technique, SM 9221
MIC006	4	Jul-04	QAQC	Quality Assurance for Microbiological Tests
MIC007	1	May-00		Using New Methods or Test Kits for Microbiological Determinations
MIC008	2	May-04		Verification of Support Equipment Used for Microbiological Determinations
MIC009	1	Jul-05	Enterolert	Bacteriological Analysis of Ambient Water Samples for Enterococci by Enterolert Presence/Absence and Quanti-Tray® Method
MIC010	1	**Mar-08**	Disposal	Disposal of Material Used for Microbiological Determinations

Radio Chemistry Department - RadChem SOPs

File Name	Rev. No	Rev Date	Method	Title
RAD001	2	Nov-07	900.0	Determination of Gross Alpha and Gross Beta Radioactivity in Drinking Water, EPA Method 900.0
RAD002	1	Jul-05	SM7110C	Determination of Gross Alpha Radioactivity in Water by Coprecipitation, SM 7110C
RAD003	1	Jul-05	903.0	Determination of Alpha-emitting Radium Isotopes in Water, EPA Method 903.0
RAD004	1	Oct-05	All	Quality Control for Radiochemical Analysis
RAD005	1	Apr-06	All	The Procedure for Monitoring Radiation Measurement Instrumentation for Radioactive Contamination
RAD006	1	Apr-06	All	The Procedure for Handling, Storing and Establishing Expiration Dates for Reference Standards
RAD007	1	Jul-06	RA-05	Radiochemical Determination of Radium-228 in Water Samples, EPA Method Ra-05
RAD008	1	Jul-06	904	Radiochemical Determination of Radium-228 in Water Samples, EPA Method 904.0
RAD009	1	Sep-07	200.8	Spectrometric Determination of Uranium in Water Samples for Radiological Compliance, EPA Method 200.8

Inorganic Department - Wet Chemistry SOPs

File Name	Rev No	Rev Date	Method	Title
WET001	10	Sep-07	300	Analysis of Anions in Water by Ion Chromatography, EPA 300.0
WET002	1	Sep-02	9056	Analysis of Anions in Solid and Liquid Matrices by Ion Chromatography, EPA Method 9056
WET003	11	**Oct-08**	SM4500CN C,D,E	Analysis of Total Cyanide in Water - Manual Colorimetric/Titimetric, SM4500CN-C,D,E
WET004	8	**Oct-08**	SM5210B	Biological Oxygen Demand (BOD) Test, SM 5210B
WET005	2	**Oct-08**	D240	Heat of combustion
WET006	3	**Oct-08**	418.1	Analysis of Total Recoverable Petroleum Hydrocarbons in Soil, EPA 418.1M
WET007	2	**Oct-08**	5050	Parr Bomb Preparation Method for Solid Waste analysis, EPA Method 5050
WET008	3	**Oct-08**	SM5540D	Non-ionic Surfactants as CTAS (Cobalt Thiocyanate Active Substances) SM 5540D
WET009	7	**Oct-08**	SM2120B	Analysis of Color in Water, SM 2120B
WET010	2	**Oct-08**	SM4500CNM	Analysis of Thiocyanate in Wastewater by SM 4500-CN M
WET011				Discontinued
WET012				Discontinued
WET013	3	**Oct-08**	140.1	Analysis of Odor in Drinking Water, EPA Method 140.1/SM 2150
WET014				Discontinued
WET015	3	**Oct-08**	E203	Analysis of Water Content by Karl Fisher Titration ASTM Method E203
WET016				Discontinued
WET017				Discontinued
WET018	4	**Oct-08**	SM4500CN G	Analysis of Cyanide Amenable to Chlorination in Water - Manual Colorimetric, SM 4500CN-G
WET019	5	**Mar-08**	SM5530C	Analysis of Low Level Total Recoverable Phenolics in Water by chloroform Extraction and Manual Spectrophotometry, SM5530C
WET020				Discontinued
WET021	7	**Oct-08**	1010	Ignitability by Pensky Marten Closed Cup Method, EPA Method 1010
WET022	4	**Nov-08**	SM2320B	Determination of Alkalinity by the Titrimetric Method, SM 2320B
WET023				Discontinued
WET024	4	Apr-00	SM2310B	Analysis of Acidity as CaCO3, SM 2310B
WET025	2	Sep-99	AB titration	Total Acid Content by Titration
WET026				Discontinued
WET027	2	Apr-00	3060	Alkaline Digestion for Analysis of Hexavalent Chromium in Solid Matrices, EPA Method 3060
WET028	5	**Jan-08**	SM4500 H B	pH (Electrometric), SM 4500-H+ B
WET029	3	Jul-00	SM3500 Cr D	Analysis of Hexavalent Chromium in Water - Manual Colorimetric, SM 3500-Cr D
WET030	2	Apr-00	SW846	Determination of Total Releasable Cyanide, SW-846 7.3.3.2

File Name	Rev No	Rev Date	Method	Title
WET031	1	Jun-94	SM4500S2 E	Analysis of Dissolved Sulfide - Iodometric Method, SM 4500-S= E)
WET032	3	Oct-01	SM4500 S2 D	Analysis of Dissolved Sulfide - Methylene Blue Method, SM 4500-S= D)
WET033	3	Jul-00	9030/9034	Analysis of Acid-Soluble and Acid-Insoluble Sulfides, EPA Method 9030A
WET034	2	Apr-00	SW846	Determination of Total Releasable Sulfide, SW-846 7.3.4.2
WET035	4	Oct-01	SM4500NH3 E	Analysis of Ammonia by Titrimetric Method After Distillation, SM 4500NH3- E
WET036	7	Oct-01	SM4500NH3 F	Analysis of Ammonia by Ion Selective Electrode Method, SM 4500NH3-F
WET037				Discontinued
WET038	3	Feb-02	SM4500Cl G	Analysis of Total Residual Chorine by Colorimetry with DPD, SM 4500Cl G
WET039	6	**Jan-08**	SM2510B	Determination of Specific Conductance, SM 2510B
WET040	2	Apr-00	SM2340C	Analysis of Total Hardness by Titrimetric Method, SM 2340C
WET041	7	**May-08**	SM2540C	Filterable Residue (TDS) by Gravimetric analysis, SM 2540C
WET042	6	Apr-07	SM2540D	Determination of Non-filterable Residue (TSS) by Gravimetry, SM 2540D
WET043	3	Apr-00	SM5540C	Determination of Methylene Blue Active Substances (MBAS) by Colorimetric Method, SM 5540C
WET044	1	Aug-94	253B	Analysis of Thiosulfate and Sulfite by Iodometric Titration, LACSD Procedure 253B)
WET045	6	Feb-02	SM4500NH3 E	Total Kjeldahl Nitrogen (TKN) by Titrimetric method, SM 4500NH3-E
WET046	2	Apr-00	SM2540B	Determination of Total Residue (TS) by Gravimetry, SM 2540B
WET047	3	Jul-00	160.4	Determination of Volatile Residue (VS) by Gravimetry, EPA Method 160.4
WET048	3	Apr-07	SM2540F	Determination of Settleable Residue (SS) by Volumetric Imhoff Cone, SM 2540F
WET049	1	Sep-94	B512	Residue(Modified ANSI/AWWA B512-91),Gravimetric, evaporated at 22°C
WET050	5	**Jan-08**	410.4	Determination of Chemical Oxygen Demand in Water by Colorimetry, EPA Method 410.4
WET051				Discontinued
WET052				Discontinued
WET053	2	Apr-00	SM4500CN F	Analysis of Total Cyanide in Water by Ion Selective Electrode, SM 4500-CN F
WET054				Discontinued
WET055	6	Sep-07	1664	Determination of Oil & Grease (HEM and SGT-HEM) by Solid Phase Extraction and Gravimetry, EPA Method 1664A
WET056	4	Sep-00	180.1	Determination of Turbidity by Nephelometric Method, EPA Method 180.1
WET057				Discontinued
WET058	1	Nov-98	SM2550B	Temperature Measurement, SM 2550B
WET059	2	Jun-99	FMC	Analysis of Hydrogen Peroxide by FMC Method
WET060				Discontinued
WET061				Discontinued

File Name	Rev No	Rev Date	Method	Title
WET062	2	Oct-02	420.1M	Analysis of Total Recoverable Phenolics in Solid and Oil Matrices, EPA Method 420.1 Modified
WET063	1	Oct-99	418.1	Total Recoverable Petroleum Hydrocarbons in Water, EPA Method 418.1
WET064	2	Apr-00	9045C	Determination of pH in Solid Matrices, EPA Method 9045C
WET065	2	Apr-00	9040B	Determination of pH in Liquid Waste and Multiphase Waste, EPA Method 9040B
WET066	1	Nov-99	SM5560C	Analysis of Volatile Acids, SM 5560C
WET067				Discontinued
WET068	1	Apr-00	SM2330B	Determination of Corrosivity (Langlier Index) in Water, SM 2330B
WET069	1	Apr-00	SM2340B	Determination of Hardness by Calculation, SM 2340B
WET070	2	Jul-00	SM4500ClO2 D	Analysis of Chlorine Dioxide by Colorimetric Method with DPD, SM 4500-ClO2 D
WET071	2	Jul-06	351.4	Total Kjeldahl Nitrogen (TKN) by Ion Selective Electrode, EPA 351.4
WET072	2	Feb-02	SM4500 O G	Determination of Dissolved Oxygen by Membrane Electrode Method, SM 4500-O G
WET073	2	Feb-02	SM4500SO3 B	Analysis of Sulfite by Iodometric Method, SM4500SO3= B
WET074	1	Apr-00	9010/9014	Distillation and Analysis of Total and Amenable Cyanide in Waste and Solid Matrices ,EPA Method 9010B/9014
WET075	1	Apr-00	CCR ch10	Determination of Ignitability in Waste, CCR Chapter 10, Article 3
WET076	1	Apr-00	CCR ch10	Determination of Reactivity in Waste, CCR Chapter 10, Article 3
WET077	1	Apr-00	CCR ch10	Determination of Corrosivity in Waste, CCR Chapter 10, Article 3
WET078	1	Apr-00	SM5910	Determination of UV Absorbing Constituents (UV-254), SM 5910
WET079	1	Apr-00	7196	Analysis of Hexavalent Chromium by Manual Spectrophotometric, EPA Method 7196A
WET080	3	Apr-07	365.3	Analysis of Total Phosphorus and Ortho Phosphate in Water by Manual Colorimetric Method, EPA Method 365.3
WET081	1	May-00	ASTM2382	Determination of Heat of combustion, ASTM Method 2382
WET082				Discontinued
WET083				Discontinued
WET084	1	Mar-05	353.2	Analysis of Nitrate and Nitrite in Water by Automated Colorimetry, EPA Method 353.2
WET085				Discontinued
WET086	1	Apr-05	350.1	Analysis of Ammonia in Water by Automated Colorimetry, EPA Method 350.1
WET087	1	Apr-05	365.1	Analysis of Total Phosphorus in Water by Acid Persulfate Digestion and Automated Colorimetry, EPA Method 365.1
WET088	1	Apr-05	365.1	Analysis of Orthophosphate in Water by Automated Colorimetry, EPA Method 365.1
WET089	2	Sep-07	351.2	Analysis of Total Kjeldahl Nitrogen (TKN) in Water by Heating Block Digestion and Automated Colorimetry, EPA Method 351.2
WET090				Discontinued
WET091	1	Jun-05	335.4	Analysis of Total Cyanide in Water by Midi-Distillation and Automated Colorimetry, EPA Method 335.4
WET092				Discontinued

File Name	Rev No	Rev Date	Method	Title
WET093	1	Jul-05	SM10200H	Analysis of Chlorophyll-a and Pheophytin-a, SM 10200-H
WET094	1	Sep-05	SM5710B	Determination of Trihalomethane Formation Potential (THMFP), SM 5710B
WET095	1	May-06	415.3	Determination of TOC and SUVA in Drinking Water, EPA Method 415.3
WET096	1		D6646-03	Analysis of the Accelerated Hydrogen Sulfide Breakthrough Capacity of Granular and Pelletized Activated Carbon, ASTM D6646-03
WET097	1	Mar-07	D2862	Standard Test Method for Particle Size distribution of Granular Activated Carbon, ASTM D2862-82
WET098	1	Mar-07	D2867	Standard Test Method for Moisture in Activated Carbon, ASTM D2867-83
WET099	1	Mar-07	D2866	Standard Test Method for Total Ash in Activated Carbon, ASTM D2866-83
WET100	1	Mar-07	D3802	Standard Test Method for Ball-Pan Hardness of Activated Carbon, ASTM D3802-79
WET101	1	Mar-07	D5029	Standard Test Methods for Water Solubles in Activated Carbon, ASTM D5029-98
WET102	1	Mar-07	D5832	Standard Test Methods for Volatile Matter Content of Activated Carbon, ASTM D5832-98
WET103	1	Mar-07	USFilter	Standard Test Methods for Contact pH Test Method
WET104	1	Jun-07	D93	Standard Method for Test for Flash Point by Pensky-Martens Closed Cup Tester, ASTM D93-73
WET105	1	Sep-07	420.4	Determination of Total Recoverable Phenolics in Water by Semi-Automated Colorimetry, EPA Method 420.4

Organic Department - Organics SOPs

File Name	Rev. No	Rev Date	Method	Title
ORG001				Discontinued
ORG002				Discontinued
ORG003	7	Apr-05	SM5310C	Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC), SM 5310C
ORG004	9	Mar-02	SM5320B	Determination of Total Organic Halides (TOX) in Water by Adsorption-Pyrolysis-Titrimetric Method , SM 5320B
ORG005	7	**Mar-08**	8315	Analysis of Ketones and Aldehydes by HPLC, EPA Method 8315
ORG006	7	**Apr-08**	8318	Analysis of N-Methylcarbamates by HPLC, EPA Method 8318
ORG007	1	Sep-92	9076	Analysis of Total Halogens and Total Extractable Organic Halides in Solid matrices, EPA Method 9076
ORG008	4	Sep-01	551.1	Analysis of Chlorination Disinfection Byproducts (DBPs) in Drinking water by Liquid-Liquid Extraction and GC/ECD, EPA Method 551.1
ORG009	10	Apr-01	8260	Determination of Volatile Organic Compounds in Groundwater and Soil by GC/MS, EPA 8260B
ORG010				Discontinued
ORG011	4	Apr-01	8330	Analysis of Explosive Residues by in Water and Solid by HPLC,EPA Method 8330
ORG012	4	Dec-04	508A	Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography - EPA Method 508A
ORG013	5	Sep-01	8015	Analysis of Volatile Petroleum Hydrocarbons (VPH, C6 to C10) in Soil and Water samples by P&T and GC/FID, EPA Method 8015

File Name	Rev. No	Rev Date	Method	Title
ORG014	4	Sep-01	8021	Determination of Aromatic and Halogenated Volatiles by GC/PID and GC/ELCD, EPA Method 8021A
ORG015	6	Mar-02	8141	Analysis of Organophosphorus Pesticides in Water and Solid Matrices by GC/NPD, EPA Method 8141A
ORG016	7	Mar-02	8081	Analysis of Organochlorine Pesticides in Water and Solid Matrices by GC/ECD, EPA Method 8081A
ORG017	5	Apr-01	549.2	Analysis of Diquat and Paraquat by Solid Phase Extraction and HPLC-UV, EPA Method 549.2
ORG018				Discontinued
ORG019				Discontinued
ORG020	6	**Apr-08**	547	Analysis of Glyphosate by HPLC-Fluorescence, EPA Method 547
ORG021				Discontinued
ORG022	4	Mar-01	508	Analysis of Organochlorine Pesticides and PCBs in Drinking Water by LL Extraction and GC-ECD, EPA Method 508
ORG023	5	Mar-02	8015B	Analysis of Diesel Range Organics in soil and water samples by GC-FID, EPA Method 8015
ORG024	1	Dec-93	547M	Analysis of Glyphosate in Soil by Extraction and HPLC-Fluorescence, EPA Method 547 Modified
ORG025	2	Jul-94	24	Determination of Volatile Organic Content (VOC) in Paints and Related Coatings, EPA Method 24
ORG026	9	Jan-02	524.2	Determination of Volatile Organic Compounds in Water by GC/MS, EPA Method 524.2
ORG027	1	Feb-94	509	Analysis of Ethylene Thiourea in Drinking Water, EPA Method 509
ORG028	6	**Apr-08**	531.1	Analysis of N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Post Column Derivatization, EPA Method 531.1
ORG029	5	Jun-02	8151	Analysis of Chlorinated Acid Herbicides in Water and Solid Matrices by GC-ECD, EPA Method 8151
ORG030	5	Sep-01	504.1	Analysis of EDB, DBCP and 123TCP in Water by Microextraction and GC/ECD, EPA 504.1
ORG031				Discontinued
ORG032	1	Mar-94	N1003	Analysis of Halogenated Hydrocarbons in Charcoal Tubes, NIOSH Method 1003
ORG033	5	**Apr-08**	632	Analysis of Diuron by HPLC-UV, EPA Method 632
ORG034	1	Jun-94	OSHA57	Analysis of 4,4-Methylenedianiline (MDA) in Air Filters, OSHA Method 57
ORG035				Discontinued
ORG036	10	Feb-01	8270	Analysis of Semi-Volatile Organic Compounds in Water and Solid Matrices by GC/MS, EPA Method 8270C
ORG037	5	Mar-01	548.1	Analysis of Endothall in Drinking Water by Solid Phase Extraction and GC/MS, EPA Method 548.1
ORG038	2	Mar-02	508.1	Analysis of Chlorinated Pesticides and PCBs in Water by Solid Phase Extraction and GC-ECD, EPA Method 508.1
ORG039	8	Apr-04	525.2	Analysis of Semi-volatile Organic Compounds in Drinking Water by Solid Phase Extraction and GC/MS, EPA Method 525.2
ORG040	5	Feb-01	625	Analysis of Semivolatile Organics in Wastewater by LL Extraction and GC/MS, EPA Method 625
ORG041	3	Apr-00	601/602	Analysis of Purgeable Halocarbons and Aromatics in Waste Water by GC-ELCD and GC-PID, EPA Method 601/602

File Name	Rev. No	Rev Date	Method	Title
ORG042	10	**Sep-08**	314	Analysis of Perchlorate in Water and Solid Matrices by Ion Chromatography, EPA Method 314.0
ORG043	3	May-02	8270M	Determination of 1,4 Dioxane in Water and Soil by L-L Extraction and Isotopic Dilution GC/MS, EPA Method 8270M
ORG044				Discontinued
ORG045	4	Feb-02	3600	Cleanup Procedures for Organic Analyses, EPA Method 3600
ORG046	3	Feb-02	3500	Sample Preparation and Extraction for Hazardous Waste Samples, EPA Method 3500B
ORG047	3	Feb-02	3510	Separatory Funnel Liquid-Liquid Extraction, EPA Method 3510B
ORG048	3	Feb-02	3550	Ultrasonic Extraction, EPA Method 3550B
ORG049	2	Feb-02	3580	Waste Dilution Procedure, EPA Method 3580A
ORG050	3	Mar-02	5030	Purge-and-Trap Extraction Procedure, EPA 5030B
ORG051				Discontinued
ORG052				Discontinued
ORG053				Discontinued
ORG054	1	Jun-98	8031	Determination of Acrylonitrile by Gas Chromatography, EPA Method 8031
ORG055				Discontinued
ORG056	2	Feb-02	3520	Continuous Liquid-Liquid Extraction Procedure, EPA Method 3520C
ORG057	2	Feb-02	3540	Soxlet Extraction Procedure, EPA Method 3540C
ORG058	5	Mar-02	8082	Analysis of Polychlorinated Biphenyl's (PCBs) in Liquid and Solid Matrices by GC-ECD, EPA Method 8082
ORG059	1	Jul-99	1666	Determination of Volatile Organic Compounds Specific to the Pharmaceutical Industry by Isotope Dilution GC/MS, EPA Method 1666
ORG060	3	Feb-01	624	Analysis of Volatile Organic Compounds in Wastewater by GC/MS, EPA Method 624
ORG061				Discontinued
ORG062	6	Nov-03	9020B	Determination of Total Organic Halides in Water by Adsorption-Pyrolysis-Titrimetric Method , EPA Method 9020B
ORG063	3	Jul-02	9020M	Determination of Total Halogens and Total Extractable Organic Halides in Solid and Oil Matrices.EPA Method 9020B Modified
ORG064	3	Mar-02	608	Analysis of Organochlorine Pesticides and PCBs in Wastewater by GC-ECD, EPA Method 608.
ORG065	10	Dec-03	1625M	Determination of Ultra Low Levels of N-Nitrosodimethylamine (NDMA) by Continuous L-L Extraction and Isotopic Dilution GC/MS. EPA Method 1625C Mod
ORG066	2	Feb-03	8270sim	Determination of Low Levels of Polynuclear Aromatic Compound in Water and Solid Matrices by GC/MS SIM Mode, EPA Method 8270 Modified
ORG067	3	Mar-02	5035	Determination of Volatile Organic Compounds in Soil by Closed-System Purge and Trap and GC/MS, EPA 5035/8260
ORG068				Discontinued
ORG069	6	**May-08**	7199	Analysis of Hexavalent Chromium by Ion Chromatography, EPA Method 7199
ORG070				Discontinued
ORG071	2	Mar-02	8015B	Analysis of Alcohols by GC-FID, EPA Method 8015B

File Name	Rev. No	Rev Date	Method	Title
ORG072	2	Mar-02	515.3	Analysis of Chlorinated Acid Herbicides in Water by Microextraction and GC-ECD, EPA Method 515.3
ORG073	3	Sep-01	505	Analysis of Chlorinated Pesticides and PCBs in Drinking Water by Microextraction and GC-ECD, EPA Method 505
ORG074	1	May-00		Establishing Retention Times Windows for Organic Analysis by GC and GC/MS
ORG075	2	Mar-01	552.2	Analysis of Haloacetic Acids by Microextraction and GC-ECD, EPA 552.2
ORG076	2	Mar-02		Instrument Maintenance for Organic Analysis
ORG077	4	**May-08**	218.6	Analysis of Hexavalent Chromium in Water by Ion Chromatography, EPA 218.6
ORG078	1	Apr-01	524.2M	Analysis of tert-butyl alcohol (TBA) in drinking water by EPA 524.2M
ORG079				Discontinued
ORG080	1	Jan-02	528	Analysis of Phenols in Drinking Water by SPE and GC/MS, EPA Method 528
ORG081	1	Jan-02	526	Analysis of Selected SVOA in Drinking Water by SPE and GC/MS, EPA Method 526
ORG082	1	Apr-02	TCP-E	Analysis of Low Levels of 1,2,3-Trichloropropane by L-L extraction and GC/MS SIM mode, SRL Method
ORG083	1	May-02	TCP-PT	Analysis of Low Levels of 1,2,3-Trichloropropane by Purge and Trap and GC/MS SIM mode, SRL Method
ORG084				Discontinued
ORG085	2	Aug-07	556	Analysis of Aldehydes by Microextraction and GC-ECD, EPA Method 556
ORG086	1	Jul-02	3535	Solid Phase Extraction Procedures - Manual and Automated, EPA Method 3535
ORG087	2	**May-08**	300.1	Analysis of Low Levels of Oxyhalides by Ion chromatography, EPA Method 300.1
ORG088	2	**May-08**	532	Analysis of Diuron and Linuron in Water by SPE and HPLC-UV, EPA Method 532
ORG089	1	Feb-04	1624	Analysis of Acrolein and Acrylonitrile in Water by EPA 1624
ORG090	1	Mar-04	8270SIM	Analysis of Low Level Phenols in Water and Solid by GC/MS in SIM Mode, EPA Method 8270 Modified
ORG091	3	**Jun-08**	326	Analysis of Low Level Chlorite, Chlorate and Bromate by Ion Chromatography and Post-column derivatization, EPA Method 326
ORG092	2	**Jan-08**	OSHA 20M	Analysis of Hydrazine by HPLC, OSHA Method 20M (Modified)
ORG093				Discontinued
ORG094				Discontinued
ORG095	1	Sep-05	1614M	Analysis of PBDEs by isotopic dilution GC/MS-EI, EPA Method 1614 Modified
ORG096	1	Nov-06	orgtin	Determination of Low Levels Organotins by GC-MS.
ORG097	1	Jun-06	332	Analysis of Low Level Perchlorate by IC-MS/MS, EPA Method 332.0
ORG098	1	Aug-06	8310	Analysis of Polynuclear Aromatic Hydrocarbons by HPLC, EPA Method 8310
ORG099	1	Jan-06	331	Analysis of Low Level Perchlorate by LC-MS/MS, EPA Method 331.0
ORG100	1	Mar-06	535	Analysis of Chloroacetanilide/acetamide Herbicides by LC/MS, EPA Method 535

File Name	Rev. No	Rev Date	Method	Title
ORG101	1	Mar-06	521	Analysis of Nitrosamines by SPE-GC/MS/MS EPA Method 521
ORG102	2	**Mar-08**	527	Analysis of Pesticides and Flame Retardants by SPE-GC/MS EPA Method 527
ORG103	1	Jul-06	529	Analysis of Explosives by SPE-GC/MS EPA Method 529
ORG104	1	May-06	300M	Analysis of Iodide by Ion Chromatography, EPA Method 300 Modified
ORG105	1	Apr-06	LCMS	Tuning the Varian 1200L LC/MS
ORG106	1	Aug-06	610	Analysis of Polynuclear Aromatic Hydrocarbons by HPLC, EPA Method 610
ORG107	1	Oct-06	DOD-ClO4	Analysis of Low Level Perchlorate in Water and Soil by LC-MS/MS, DoD Method
ORG108	1	Jan-07	556M	Analysis of Aldehydes in Solid/Soil by GC-ECD, EPA Method 556 Modified
ORG109	1	Sep-07	1671	Analysis of Triethanolamine by Direct Injection and GC-FID
ORG110	1	Dec-07	D7065	Analysis of Alkyl Phenols and Alkyl Phenol Ethoxylates by L-L extraction and GC/MS full scan and SIM, ASTM Method D7065
ORG111	1	Dec-07	LCMS	Analysis of Pharmaceuticals, Personal Care Products and Endocrine Disruptive Compounds LC-MS/MS.
ORG112	1	Dec-07	GCMS	Determination of Triclosan by GC/MS SIM Mode
ORG113	1	**May-08**	632M	Determination of Diuron in solid matrices
ORG114	1	**Jun-08**	IC/MS/MS	Analysis of 4-Chlorobenzenesulfonic acid (pCBSA) by IC/MS/MS
ORG115	1	**Jun-08**	525.2	Determination of organophosphorous pesticides in drinking water by liquid-solid extraction and capillary column GC/MS, via EPA Method 525.2
ORG116	1	**Aug-08**	8316M	Analysis of Acrylamide by LC/MS/MS

APPENDIX 8

Acceptance Limits for QC Determinations

The Acceptance Limits for QC determinations are in some cases mandatory limits and in other cases the limits are updated periodically from past results. This process is performed though the LIMS. For current acceptance limits please refer to the LIMS.

APPENDIX 9

DEMONSTRATION OF CAPABILITY

A demonstration of capability (DOC) must be made prior to using any test method, and at any time there is a change in instrument type, personnel or test method.

All demonstrations shall be documented through the use of the form in this appendix.

The following steps are performed.

a) A quality control sample shall be obtained from an outside source. If not available, the QC sample may be prepared by the laboratory using stock standards that are prepared independently from those used in instrument calibration.

b) The analyte(s) shall be diluted in a volume of clean matrix sufficient to prepare four aliquots at the concentration specified, or if unspecified, to a concentration approximately 10 times the method-stated or laboratory-calculated method detection limit.

c) At least four aliquots shall be prepared and analyzed according to the test method either concurrently or over a period of days.

d) Using all of the results, calculate the mean recovery in the appropriate reporting units and the standard deviations of the population sample for each parameter of interest. When it is not possible to determine mean and standard deviations, such as for presence/absence and logarithmic values, the laboratory must assess performance against established and documented criteria.

e) The calculated mean and standard deviation are compared to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory-generated acceptance criteria (if they are not established mandatory criteria). If all parameters meet the acceptance criteria, the analysis of actual samples may begin. If any one of the parameters do not meet the acceptance criteria, the performance is unacceptable for that parameter.

f) When one or more of the tested parameters fail at least one of the acceptance criteria, the analyst must proceed according to 1) or 2) below.

    1) Locate and correct the source of the problem and repeat the test for all parameters of interest beginning with c) above.

    2) Beginning with c) above, repeat the test for all parameters that failed to meet criteria. Repeated failure, however, confirms a general problem with the measurement system. If this occurs, locate and correct the source of the problem and repeat the test for all compounds of interest beginning with c).

CERTIFICATION STATEMENT

The following certification statement shall be used to document the completion of each demonstration of capability. A copy of the certification statement shall be retained in the personnel records of each affected employee.

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

Training Record (Method and Technique) and Demonstration of Capability Statement

- **Analyte(s)/Description:** _____
- **Analyst name:** _____
- **Matrix:** _____ **Date:** _____
- **Method:** _____ **SOP:** _____

I have read, understand, and agree to use the latest version of the test method and SOP.

_____ _____
Analyst's Signature Date

- **Training courses or workshops on equipments, analytical techniques and lab procedures:**

Standard and sample preparation, dilution, and spiking using syringes and volumetric flasks. On-site training for familiarization and operation of both software and hardware of GC/MS#1, 8(Agilent 5890,6890)provided by Ricci Tipon. GC and GC/MS seminars provided by Full Spectrum and Tekmar.

_____ _____
Analyst's Signature Date

_____ _____
Technical Director's Name and Signature Date

- **IDOC Certification Statement:**

- **Proficiency Demonstrated by:** (See attachment)
  - **a.** ____ Acceptable performance of a blind sample.
  - **b.** ____ Another demonstration of capability.
  - **c.** ____ Acceptable at least 4 consecutive LCS.
  - **d.** ____ Analysis of authentic sample analyzed by another trained analyst with statistically indistinguishable results

We, the undersigned, CERTIFY that:

1.- The Analyst identified above, using the cited test method(s), which is in use at this facility for the analyses of samples under the National Environmental Laboratory accreditation Program, have met the Demonstration of Capability

2.- The test method(s) was performed by the analyst(s) identified on this certification.

3.- A copy of the test method(s) and the laboratory-specific SOPs are available for all personnel on-site

4.- The data associated with the demonstration capability are true, accurate, complete and self-explanatory (*)

5.- All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized assessors

_____ _____
Technical Director's Name and Signature Date

_____ _____
QA Officer's Name and Signature Date

Notes: The demonstration of Capability is performed as per Section 12.5 of Quality Assurance Manual

*: True: Consistent with supporting data; Accurate: Based on good laboratory practices consistent with sound scientific principles/practices; Complete: Includes results of all supporting performance testing; Self-Explanatory: Data properly labeled and stored so that the results are clear and require no additional explanation.

APPENDIX 10
Corrective Action Report

QUALITY ASSURANCE
CORRECTIVE ACTION REPORT

Date: _____ Name of Analyst: _____

Sample ID Number(s) Involved: _____

Corrective action to be implemented (1):

Were samples reanalyzed and acceptable QC obtained: **YES - NO**
Were samples reported with qualifiers: **YES - NO**

Approval of corrective action by Technical Director:

Signed: _____ Date: _____
Technical Director
Comments by TD:

Verification of Implementation of corrective action by QA Officer:

Signed: _____ Date: _____
QA Officer
Comments by QA Officer:

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(1): Describe whether the samples were reanalyzed and/or reported with qualifiers, steps taken to investigate the problem, probable cause of problem and how to prevent from happening again.

APPENDIX 11

Laboratory Accreditations

- NELAC #04229CA
- State of California ELAP #1132
- USEPA UCMR 2 certification
- State of Nevada Division of Environmental Protection Certificate No. CA211-2004-41
- State of Hawaii
- State of Tennessee, certificate # 04015
- Los Angeles County Sanitation Districts Industrial Wastewater Testing Number 10143
- South Coast Air Quality Management District Ambient air testing Certificate number 93LA107

APPENDIX 12
Flags used for Data Qualifiers

Qualifier code	Description
<	<
>	>
> 1%	> 1 %
>1000	> 1000
>1500	>/= 1500
>2.78	> 2.78
_<2.7	< 2.78
_<fis	< 0.588
_<FL	No free liquids
_<FP	< 65
_>23	>/= 23
_>230	>/= 230
_>FB	> 750
_>fis	> 750
_>FL	Contains free liquids
_>FP	> 200
_0.00	0.000
_1600	>/= 1600
_16so	>/= 16000
_5700	>/= 5700
_A	Absent
_C	Canceled
_Cl	COD result is analyzed with chloride correction.
_ext	Extracted
_F-01	No fumes or gases but a mild odor detected.
_F-NR	No reaction
_FP70	< 70
_hold	Hold
_nd	None Detected
_P	Present
_pH<2	<2
_seeA	See Attached
_V	Grey
_V1	Brown
_Vis	None Visible
_Vis<	Visible < 1% vol
0	0 % Survival
01	-0.087
02	-0.143
03	-0.045
04	-0.069
100	100 % Survival
48.4	48.4 J
57000	>/= 57000
95	95 % Survival
A-01	[Custom Value]
A-02	[Custom Value]
ABHRP	The sample was treated with Silver, Barium, H+, and Organics cartridges to minimize chloride, sulfates, and organic interferences prior to analysis.

Qualifier code	Description
AgBaH	The sample was treated with Silver, Barium and H+ cartridges to minimize chloride and sulfates interferences prior to analysis.
AgH	The sample was treated with silver and H+ cartridges to minimize chloride interferences prior to analysis.
AS-1	None Detected
AS-2	Chrysotile greater than 1 %
B	Analyte is found in the associated blank as well as in the sample (CLP B-flag).
B-01	The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/l dissolved oxygen depletion. Therefore the reported result is an estimated value only.
B-02	The sample dilutions set up for the BOD analysis failed to meet the criteria of residual dissolved oxygen of at least 1 mg/l. Therefore the reported result is an estimated value only.
B-03	Analyte is found in the travel blank as well as in the sample. The cause of the contamination was found to be a bad batch of VOA vials containing HCL as preservative.
B-04	Analyte was found in the travel blank, which was possibly contaminated in the lab during preparation. The batch was accepted since this analyte was not detected for all the samples in the batch.
B-05	Contamination in blank is carryover from previous sample analyzed in same purge vessel. This contamination is not present in purge vessels that the associated samples were purged in.
B-06	Analyte is found in the method blank, which was possibly contaminated during sample preparation. The batch was accepted since this analyte was not detected or 10x of the blank for samples in the batch.
B-07	Analyte is found in the method blank at levels above the MDL but below the reporting limit.
BaH	The sample was treated with Ba and H cartridges to reduce sulfates background interferences.
BR	Analyte was found in the method blank, which was possibly contaminated in the lab during preparation. The reporting limit was raised to account for the contamination.
BS-01	The recovery of this BS was over the control limit. Batch was accepted based on another acceptable BS and RPD.
BS-H	The recovery of this analyte in LCS was over control limit. Sample result is suspect.
C-01	To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.
C-03	To reduce matrix interference, the sample extract has undergone silica-gel clean-up, method 3630, which is specific to polar compound contamination.
C-04	To reduce matrix interference, the sample extract has undergone florisil clean-up, method 3620, which is specific to non-polar compound contamination.
C-05	To reduce matrix interference, the sample extract has undergone GPC clean-up, method 3640, which is specific to contamination from high molecular weight material.
CN-1	See case narrative for an explanation of results.
CN-2	See Case Narrative
CV-SL	The surrogate was low bias in CCV. Sample result was justified valid since all target analytes in CCV were acceptable.
D-01	This sample appears to contain volatile range organics.
D-02	Hydrocarbon pattern present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

Qualifier code	Description
D-03	The result for this hydrocarbon is elevated due to the presence of single analyte peak(s) in the quantitation range.
D-04	The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
D-06	The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
D-08	Results in the diesel organics range are primarily due to overlap from a gasoline range product.
D-09	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
D-10	The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range.
D-12	Results in the Gasoline Range are primarily due to overlap from a heavier fuel hydrocarbon product.
D-13	Low boiling point fuel hydrocarbons are present below the requested fuel quantitation range.
D-14	Unidentified Hydrocarbons < C17.
D-15	Diesel
D-16	Gasoline
D-17	Diesel + unidentified hydrocarbons.
D-20	Unidentified Hydrocarbons > C9.
D-25	The hydrocarbon resembles weathered diesel.
D-30	Unidentified hydrocarbons C9-C16.
D-35	Sample does not display a fuel pattern. Sample contains several discreet peaks.
DryWt	The result is in dry weight basis.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
E-01	The concentration indicated for this analyte is an estimated value above the calibration range.
FILT	The sample was filtered prior to analysis.
FRE-P	Free product was observed in the sample container.
G-04	This sample contains compounds not identified as Benzene, Toluene, Ethylbenzene or Xylene.
GC-05	Results confirmed by GCMS.
GC-10	An unknown compound is coeluting with MTBE. This is Probably causing an artificially high MTBE value.
GC-15	Unidentified Hydrocarbons C6 - C12.
GC-20	An unknown compound is coeluting with naphthalene. Probably causing an artificially high naphthalene value.
GC-25	Weathered gasoline.
GC-30	MTBE did not confirm via GCMS on a sample from this site. Thus, MTBE for this sample was reported as non-detect.
GC-40	Naphthalene analyzed by GCMS - method 8260B.
GC-NC	8260 confirmation analysis was performed; initial GC results were not supported by GC/MS analysis and are reported as ND.
HDSP1	Sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

Qualifier code	Description
HDSP2	Sample received in container other than VOA with headspace. Transferred at lab to VOA vial.
I-01	Due to matrix interference, the sample cannot be accurately quantified. The reported result is qualitative.
I-02	This result was analyzed outside of the EPA recommended holding time.
I-03	Low internal standard recovery possibly due to matrix interference or leak in system. The result is suspect.
I-04	No internal standard recovery
I-05	Low internal standard recovery possibly due to matrix interference. The result is suspect.
I-06	Contaminated IS spiking solution
I-07	High internal standard recovery possibly due to matrix interference.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
J-01	No J value detected.
L-01	The recovery of this analyte in LCS was below control limit. Sample result is suspect.
L-02	The recovery of this analyte in LCS was outside control limits. Sample was accepted based on the remaining LCS, MS and MSD results.
L-03	The recovery of this analyte in LCS or LCSD was outside control limit. Sample was accepted based on the remaining LCS, LCSD or LCS-LL.
L-04	The recovery of this analyte in QC sample was outside control limits. Sample was justified as ND based on the low level standard at or below the reporting limit.
M	Sample result is matrix suspect.
M-01	Result is not valid due to high sample background
M-02	Due to the nature of matrix interferences, sample was diluted prior to extraction. The reporting limits were raised due to the dilution.
M-03	Due to insufficient sample volume, sample was diluted prior to extraction. The reporting limits were raised due to the dilution.
M-04	Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The reporting limits were raised due to the dilution.
M-05	Due to the nature of matrix interferences, sample was diluted prior to analysis. The reporting limits were raised due to the dilution.
M-06	Due to the high concentration of analyte in the sample, sample extract was diluted prior to analysis. The reporting limit was raised due to this dilution.
M-07	Due to high concentration of solid particles in the sample, a smaller volume was used for analysis. The reporting limit was raised due to this dilution.
M-08	Due to insufficient sample volume, sample was diluted prior to analysis of pH.
MIC-1	All presumptive fermentation tubes did not show any amount of gas, growth or acidity. Therefore, the fecal coliform procedure was not needed.
MIC-2	Result is suspect due to QC failure.
MSA	This result was determined by method of standard addition.
ns	No sample received
O-01	This compound is a common laboratory contaminant.
O-02	Due to matrix interference, the sample cannot be accurately quantitated. The reported result is qualitative.
O-03	The concentration reported is an estimated value above the linear quantitation range. Dilution and reanalysis is being performed and an amended report will follow.
O-04	This sample was analyzed outside the EPA recommended holding time.

Qualifier code	Description
O-05	This sample was extracted outside of the EPA recommended holding time.
O-06	Reanalysis by an alternate column or method has confirmed the identification and/or concentration of this result.
O-07	Sample date and/or time was not provided by client. Therefore, defaulted date and/or time have been entered. The analysis may be outside of recommended holding time.
O-08	The original extraction of this sample yielded QC recoveries outside acceptance criteria. It was re-extracted after the recommended maximum hold time.
O-09	This sample was received with the EPA recommended holding time expired.
O-10	The original analysis of this sample yielded QC recoveries outside acceptance criteria. It was re-analyzed after the recommended maximum hold time.
O-11	The sample was originally analyzed within holding time. However, it was reanalyzed with dilution that exceeded the recommended holding time.
O-12	The sample was originally analyzed within holding time. However, it was reanalyzed without dilution that exceeded the recommended holding time.
O-13	The original analysis of this sample yielded IPC or Calibration Blank recoveries outside acceptance criteria. It was re-analyzed after the recommended maximum hold time.
O-14	This analysis was requested by the client after the holding time was exceeded.
O-21	This sample was analyzed that exceeded 1 hours past the EPA recommended holding time.
O-22	This sample was analyzed that exceeded 2 hours past the EPA recommended holding time.
O-23	This sample was analyzed with the recommended holding time exceeding 3 hours.
O-24	This sample was analyzed that exceeded 4 hours past the EPA recommended holding time.
P-01	Low recovery due to preservative. Sample data accepted based on passing LCS result.
P-5	Due to the nature of the sample matrix a 1:10 dilution was necessary to perform a corrosivity measurement.
PH	Insufficient preservative to reduce the sample pH to less than 2. Sample was analyzed within 14 days of sampling, but beyond the 7 days recommended for Benzene, Toluene, and Ethylbenzene.
pH-01	Due to insufficient amount of sample, the ratio of the water extraction has to increase to 2X.
PRELM	Preliminary result. Revised report to follow.
PS-1	The recovery of the matrix spike is outside acceptance limits due to present of the inhibiting agents. Only diluted post spike can be recovered.
Q-08	This analyte has high bias in the QC sample, but not found in the samples.
Q-09	This analyte bias high in QC sample. A fresh spiking solution is going to be prepared.
Q-10	This analyte bias high in QC sample
Q-11	This analyte is low in QC sample. A fresh spiking solution is going to be prepared.
Q8141	Demeton-O and -S were spiked in QC samples, recovery for total Demeton is acceptable
QB-01	The method blank contains analyte at a concentration above the MRL; however, concentration is less than 10% of the sample result, which is negligible according to method criteria.

Qualifier code	Description
QC-5	Sample was originally analyzed within hold time. However, it was determined that positive interference was contributing to the sample result. So the sample was reanalyzed at a dilution to eliminate the interference.
QC-6	Sample was originally analyzed within hold time. However, the CCV corresponding to this sample was invalid and the sample was re-analyzed at a later time.
QI-01	Internal standards for this sample were out of control during the initial analysis performed within hold time. Immediate re-analysis (outside of recommended hold time) has confirmed the original result.
QL-01	Sample results for the QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
QL-02	Low recovery of this analyte in the qc sample. Sample data was confirmed ND based on reporting level standard.
QM-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
QM-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
QM-03	Multiple analyses indicate the percent recovery exceeds the Quality Control acceptance criteria due to a matrix effect.
QM-04	Visual evaluation of the sample indicates the RPD or QC spike is above the control limit due to a non-homogeneous sample matrix.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-06	Due to noted non-homogeneity of the QC sample matrix, the MS/MSD did not provide reliable results for accuracy and precision. Sample results for the QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-08	Due to the nature of matrix interferences, sample was diluted prior to analysis. The MS/MSD could not be quantitated due to the dilution. The batch was accepted based on acceptable LCS recovery.
QM-09	The recoveries of MS/MSD are not valid due to high sample background
QM-10	LCS/LCSD were analyzed in place of MS/MSD.
QM-11	
QM-12	Spiked with pesticides
QM-13	The spike recovery was outside acceptance limits for the MS and/or MSD, and/or LCS. The batch was accepted based on acceptable ICV and CCV recovery where re-analysis is prohibited.
QM-14	QC limits are not applicable for the MS/MSD due to positive present of target analyte in the matrix sample.
RxS	This sample does not contain levels of reactive sulfide that are characteristic of a reactive waste as defined by 40CFR 261.23. Concentration is below 500 ppm.
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
S-03	High surrogate recovery for this sample is possibly due to a sample matrix effect. The data was accepted since all target analytes were not detected.

Qualifier code	Description
S-04	The surrogate recovery for this sample is outside of established control limits due to possible sample matrix effect.
S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-07	High surrogate recovery for this sample is possibly due to sample matrix effect. The sample was re-extracted and re-analyzed, and the results were comparable with the original one.
S-08	No surrogate recovery, possibly surrogate spiking was missed.
S-09	Wrong amount spiked, quantification is not accurate
S-10	Surrogate recovery outside method QC limits due to extraction related problems
S-11	No analyte recovery, possibly analyte spiking was missed.
S-AC	Acid surrogate recovery outside of control limits. The data was accepted based on valid recovery of remaining two acid surrogates.
S-BLK	Surrogate recovery outside of control limits. The data was accepted since all target analytes were not detected
S-BN	Base/Neutral surrogate recovery outside of control limits. The data was accepted based on valid recovery of remaining two base/neutral surrogates.
W-04	Free liquid was visually observed in the sample container but the sample did not exhibit free liquid as defined by 40CFR 264.314 or 265.314.
X-01	The recovery was outside acceptance limits due to extraction problems
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-BG	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to sample background. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
R-02	Elevated Reporting Limits due to limited sample volume.
R-03	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Due to foaming, the sample was diluted prior to analysis. The reporting limits were raised due to the dilution.
R-05	The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.
ra228	-0.0115
RxCN	This sample does not contain levels of reactive cyanide that are characteristic of a reactive waste as defined by 40CFR 261.23. Concentration is below 250 ppm.

Qualifier code	Description
S-BS	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the target analytes.
S-DUP	Duplicate analysis confirmed surrogate failure due to matrix effects.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-HI	High surrogate recovery was confirmed as a matrix effect by a second analysis.
S-LIM	Surrogate recoveries outside method QC limits. Site matrix effects verified by 10% duplicate analysis (including sample duplicate and MS/MSD analysis).
S-LOW	Low surrogate recovery confirmed as a matrix effect by a second analysis.
S-MS	Surrogate recovery outside of acceptance window confirmed as matrix effect by analysis of MS/MSD on this sample.
S-MS1	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the target analytes.
S_EMS	Analysis subcontracted to EMS Laboratories, ELAP Certificate 1119
S_FGL	Analysis subcontracted to FGL Laboratories, NELAC Certificate 0110CA
S_PAR	Analysis subcontracted to Paradigm Analytical, ELAP Certificate 2451.
TIC	Tentatively Identified Compound. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.
TOX-1	second column has more than 10% of first column
TR-1	The sample was treated with Ba and RP cartridges to reduce background interference.
U-01	The sample was received without the proper preservation.
U-02	The sample was received at the lab without proper preservation. However, the sample was then preserved at the lab.
W-01	No determinable quantities of cyanide amenable to chlorination.

ELAP CERTIFICATIONS