



*Analytical Capabilities for McC Campbell Analytical, Inc. for 2017*

Method	Analysis
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**ORGANICS**

<b>Drinking Water – Chromatography</b>	
505	Regulated PCBs by L-LE and GC-ECD
505	Regulated OC Pesticides and PCBs by L-LE and GC-ECD
507	Regulated ON/P Pesticides by L-LE and GC-NPD
515.3	Regulated OC Acidic Herbicides by L-LE, Derivatization & GC-ECD
522	1,4-Dioxane by SPE and GC/MS; UCRM3
524.2	Regulated VOCs by P&T and GC-MS
524.2	VOCs by P&T and GC-MS (full method target list + 5oxys + 113Freon)
524.2 – TTHMs only	TTHMs (Total Trihalomethanes) by P&T and GC-MS
524.3	VOCs by GC-MS; UCRM3
524.3	EDB, DBCP & 1,2,3-TCP by GC-MS SIM Mode
525.2	Regulated SVOCs by L-SE and GC-MS
525.3	Regulated SVOCs by L-SE and GC-MS
531.1	Carbamates by HPLC w/ Derivatization
532	Phenyl Ureas by SPE and HPLC
537	Perfluorinated Alkyl Acids by SPE and LC/MS/MS; UCRM3
539	Hormones by SPE and LC-ESI-MS/MS; UCRM3
547	Glyphosate by HPLC w/ Derivatization
548.1	Endothall by GC-MS
549.2	Diquat and Paraquat by LSE and HPLC
550.1m	'Nonylphenol' by SPE and HPLC
552.2	HAAs by LLE and GC-ECD
554	Aldehydes / Carbonyls by HPLC w/ Derivatization
554m Acrolein & 3-HPA	Acrolein & 3-Hydroxypropanal by HPLC w/ Field Derivatization (SFEI 108)
1613	2,3,7,8-TCDD by HRGC-HRMS, 5ppq RL

<b>Effluent – Chromatography</b>	
608	OC Pesticides and PCBs by L-LE and GC-ECD
608	PCBs only by L-LE and GC-ECD (low level, 0.02 ug/L RL)
610	PNAs by L-LE and HPLC
613	2,3,7,8-TCDD only by HRGC-HRMS, 5ppq RL
614	Nitrogen-Phosphorous Pesticides by GC-MS
624	HVOCs by P&T and GC-MS
624	HVOCs and Aromatics by P&T and GC-MS
624	VOCs by P&T and GC-MS excluding Acrolein & 2-CEVE
624	Acrolein, Acrylonitrile & 2-CEVE by P&T and GC-MS
625	SVOCs by L-LE or SPE and GC-MS
1613	Full List Dioxins & Dibenzofurans by HRGC-HRMS, 5ppq RL
1613m	Full List Dioxins & Dibenzofurans by HRGC-HRMS, 0.5ppq RL (Pending)
1614	PBDEs by HRGC-HRMS (available for set up)
1660 / PWG	Pyrethrins & Pyrethroids (aqueous or solids) /PWG
1668	PCBs by HRGC-HRMS, 12 Dioxin-like WHO Toxic Congeners
1668	PCBs by HRGC-HRMS, 66 Effluent Congeners
1668	PCBs by HRGC-HRMS, Full 208 Congeners
BAAQMD 33	CS <sub>2</sub> Extractable C8-C14 Compounds by GC-FID



**Hazardous Waste, Soils, Groundwater– Chromatography**

8015B	Fuel Fingerprint / Multi-Range TPH(g,d,mo)
8015B	TPH(d, mo, k, jf, bo, other) by Direct Injection GC-FID
8015B	TPH(g, ss, ag) by P & T and GC-FID
8015B -8021B	TPH(g)-MBTEX by P & T and GC-FID-PID
8021B	MBTEX by GC-PID
8081A	OC Pesticides by GC-ECD
8081A LL	OC Pesticides by GC-ECD with lowest detection limits for ESLs
8081A / 8082	OC Pesticides + PCBs by GC-ECD
8081A / 8082	Appendix IX / Appendix II OC Pesticides + PCBs by GC-ECD
8082	PCB Aroclors Only by GC-ECD
8082	PCB Aroclors in Waste Oil by GC-ECD w/ Clean Up (2 mg/L RL)
8141A	ON/P Pesticides by GC-NPD. Now analyzed by E8270 GC-MS
8151A	OC Acidic Herbicides by GC-ECD
8260B	HVOCs by GC-MS
8260B	HVOCs and MBTEX by GC-MS
8260B	VOCs ± Oxygenates Excluding Acrolein & 2CEVE by P&T and GC-MS
8260B	Acrolein, Acrylonitrile & 2CEVE by P&T and GC-MS
8260B	VOCs ± Oxygenates + TPH gas by P&T and GC-MS
8260B	Oxygenates ± EDB-12DCA by P&T and GC-MS
8260B	MBTEX by P&T and GC-MS
8260B	MBTEX + TPHgas by P&T and GC-MS
8260B	MTBE Only by GC-MS
8260B	Appendix IX / Appendix II Volatiles
8260Bm	1,4-Dioxane, 0.5ppb W & 20ppb S RL
8260Bm / SRL 123-TCPA	1,2,3-TCPA ± EDB, DBCP, 1,2-DCA by GC-MS SIM Mode (10ppt RL)
8270C	SVOCs by GC-MS
8270C LL	SVOCs by GC-MS with lowest detection limits to meet more ESLs
8270C	SVOCs (basic list) + PCBs by GC-MS
8270C	ON/P Pesticides by GC-NPD. 8141 equivalent.
8270C	Phenols Only by GC-MS SIM Mode
8270C	PNAs / PAHs Only by GC-MS SIM Mode
8270C	Appendix IX / Appendix II Semivolatiles
8280A	Low Resolution Full List Dioxins & Dibenzofurans by HRGC/HRMS
8290A	Full List Dioxins & Dibenzofurans by HRGC/HRMS
8290Am	Full List Dioxins & Dibenzofurans by HRGC/HRMS, LL (Pending)
8310	PNAs / PAHs by HPLC
8310m / SM 10200	Chlorophyll a / a & b by HPLC
8315A	Carbonyls by HPLC
8315A Acrolein & 3-HPA	Acrolein & 3-Hydroxypropanal by HPLC w/ Field Derivatization (SFEI 108)
8316	Acrylamide, Acrylonitrile and Acrolein by HPLC
8318	Carbamates by HPLC
8330	Nitroaromatics and Nitramines by HPLC
8332	Nitroglycerin by HPLC
MAI-Alcohols	Alcohols by Derivatization & HPLC (X to XX ppb sensitivity)
MAI-Amines	Amines & Protonatable Nitrogenous Compounds by CIC
MAI-Epichlorohydrin	Epichlorohydrin by Derivatization & HPLC (XX ppb sensitivity)
MAI-EthyleneGlycol	Ethylene Glycol by Derivatization & HPLC (X to XX ppb sensitivity)
MAI-Organic Acids	Various Organic Acids by HPLC-UV
8270c / CA LUFT	Tetramethyl & Tetraethyl Lead by GC (5ppb soil / 125 ppt water RL)
MAI-Organic Tin	Mono-, Di-, Tri- & Tetra-Butyl Tin by GC-MS
PWG - Pyrethrins	Pyrethrins by NCI-GC-MS (Pyrethrin Working Group)



<b>Special GC-MS-MS, LC-IT &amp; LC-MS-MS for Environmental Contaminants Requiring Best Sensitivity / Selectivity</b>	
ASTM D7485	LC-MS-MS for Alkylphenols in Water
ASTM D7574	LC-MS-MS for BisPhenol A (BPA) in Water
ASTM D7599	LC-MS-MS for Alkanolamines in Water
GC-MS-MS	E 8270m for best ESL Sensitivities
GC-MS-MS	E 8270m for Selected Organo-ChlorinePesticides
GC-MS-MS	E 8270m for PNAs
LC-MS-MS	E 6850 for Perchlorate in Water and Soil by LC-MS-MS, See Anions, E6850
LC-MS-MS	E 1694m for Thiourea in Waste Water
LC-IT or LC-MS-MS	E 1694 or E536m for Selected N/P Pesticides
LC-IT or LC-MS-MS	E 1694 for Selected Pharmaceuticals, Nutraceuticals & Personal Care Products

<b>Organics – Oil &amp; Grease</b>	
418.1	Total Recoverable Hydrocarbons by IR Spectrometry ± S.G. Clean Up
9071B	Total Recoverable O&G ± Silica Gel Clean Up
1664A	n-Hexane Extractable Material by Gravimetry ± S.G. Clean Up

<b>METALS</b>	
<b>Metals –200.8 / 6020A (ICP-MS) or 200.7 / 6010C (ICP), 200.9 / 7010 (GFAA), 245.2 / 7470 (CV Hg) or 245.7 / 1631E (CVAF Hg); NIOSH</b>	
<b>Groups</b>	
CAM17	Ag, As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Tl, V, Zn (ICP-MS)
PP13	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn
RCRA8	Ag, As, Ba, Cd, Cr, Hg, Pb, Se
LUFT5	Cd, Cr, Ni, Pb, Zn
Major Elements as Oxides	Major Elements as Oxides after Alumino-silicate solids / Whole Rock Dissolution
<b>UCMR3-5 Metals</b>	<b>Cr, Co, Mo, Sr, V; UCRM3</b>
<b>Individual Elements</b>	
ICP / ICP-MS, Common Metal	Ex, Al, Ag... ; generally, extraction cost is extra except TTLC – see Extractions
ICP / ICP-MS, Uncommon Metal	Ex, Au, S, P... ; generally, extraction cost is extra except TTLC – see Extractions
Boron by ICP-MS	E200.8 / SW6020
Hg by CVAF	Hg (1631E)
Hg by CVAA	Hg (245.2, 245.5, 7470A, 7471A)
<b>Special Metals</b>	
Ferrous Iron	SM 3500Fe B4c
Lead, organic, total	HML 939-M; CA Title 22, Chapter 11, Appendix 11 (unspeciated)

<b>ANIONS</b>	
218.6	Chromium VI by IC
<b>218.7 - UCRM3 Drinking water</b>	<b>Chromium VI by IC; UCRM3</b>
<b>300.1 - UCRM3 Drinking water</b>	<b>Chlorate by IC; UCRM3</b>
300.1 / 300.0 –W, S	Common Anions: Cl <sup>-</sup> , Br <sup>-</sup> , SO <sub>4</sub> <sup>-2</sup> , F <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> as N, NO <sub>2</sub> <sup>-</sup> as N, PO <sub>4</sub> <sup>-3</sup> as P; <b>CalTrans or DISTLC are optional soil extractions with extra charges</b>
300.1 / 300.0-Water	Uncommon Inorganic Anions: I <sup>-</sup> , S <sub>2</sub> O <sub>3</sub> <sup>-2</sup> , SCN <sup>-</sup> , IO <sub>3</sub> <sup>-</sup> , SO <sub>3</sub> <sup>-2</sup> , etc.
300.1– Water, Disinf. ByP.	ClO <sub>2</sub> <sup>-</sup> (Chlorite), ClO <sub>3</sub> <sup>-</sup> (Chlorate), BrO <sub>3</sub> <sup>-</sup> (Bromate w/ 1-2ppb RL), Br <sup>-</sup>
300.1m –Volatile Fatty acids	Volatile Fatty Acids: acetic, butyric, formic, hexanoic, iso-hexanoic, lactic, pentanoic, iso-pentanoic, propionic, pyruvic.
300.1-Water, Organic acids, individuals	Water Soluble Organic Anions / Acids: acetate, formate, oxalate, maleic acid, oxamic acid, tartaric acid, etc.
314.0	ClO <sub>4</sub> <sup>-</sup> (Perchlorate, 0.5 ppb RL)
6850	Perchlorate by HPLC -MS-MS
7199	Chromium VI by IC; soil prices are for DI STLC or 3060A TTLC
9056	Cl <sup>-</sup> , Br <sup>-</sup> , SO <sub>4</sub> <sup>-2</sup> , F <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> as N, NO <sub>2</sub> <sup>-</sup> as N, PO <sub>4</sub> <sup>-3</sup> as P
9058	ClO <sub>4</sub> <sup>-</sup> (Perchlorate) by IC

**WET CHEMISTRY**



Acidity	SM2310 B / 305.1
AGP	Acid Generating Potential, EPA 600/2-78-054
ANP	Acid Neutralizing Potential, EPA 600/2-78-054
AGP, AGPmax, ANP, NNP, NNPmin	EPA 600/2-78-054
Alkalinity, total, speciated	SM2320 B
Ammonia as N, Colorimetry	350.1 or 350.3 / SM4500-NH <sub>3</sub> BG
Ammonia, unionized / free	351.2 / SM4500-NH <sub>3</sub> BG (includes pH & T)
Ash	Percent ash by ASTM D2974-07d
Bench Testing / Pilot Studies	Customized bench studies to evaluate pilot processes
BOD <sub>5d</sub> / cBOD <sub>5d</sub>	SM5210 B; Biochemical Oxygen Demand, carbonaceous BOD
B S & W, approximate	ASTM D 1796-97m; Bottom Sediments & Water as Approximate Vol. Phase Proportions
Carbon, DOC	415.3 / SM5310 B; Dissolved Organic Carbon
Carbon, free CO <sub>2</sub>	See Air – Chromatography & Other Analytical Techniques, Methane, Ethane & Ethene in Water (RSK 175)
Carbon, IC	415.3 / SM5310 B; Inorganic Carbon (= Σ CO <sub>2,aq</sub> + HCO <sub>3</sub> <sup>-</sup> + CO <sub>3</sub> <sup>-2</sup> )
Carbon, TC	415.3 / SM5310 B / 9060A; Total Carbon
Carbon, TOC	415.3 / SM5310 B / 9060A; Total Organic Carbon
Carbon dioxide, aq, free	SM2310 B or 415.3; + pH + SM4500-CO <sub>2</sub> D calc. at 25°C
Carbon dioxide, air	415.3 / SM5310 B; also see Air , Light Gases
Cation Ex. Capacity	see Extractions
Cationic Surfactants	See Foaming Agents, cationic
CEC	see Extractions
Chloride, potentiometric	SM4500-Cl <sup>-</sup> D / Metrohm 130/3e (only for matrices not amenable to IC)
Chlorine, residual / total,	SM4500-Cl <sup>-</sup> E / 330.2 Titrimetric / SM4500G (Free & Total Cl)
Chlorine, specific form	SM4500-Cl <sup>-</sup> G DPD Colorimetric
Chlorophyll	see Chromatography \ Hazardous Waste \ 8310m - SM10200
CO <sub>2</sub> , aq, free	See Air – Methane, Ethane & Ethene in Water (RSK 175)
COD	410.4 / SM5220 D; Chemical Oxygen Demand
Color, Nessler Tube	SM2120 B / E110.2 for DW or WW / Apparent / Non-filtered
Color, Nessler Tube	SM2120 B / E110.2 for DW or WW True / Filtered
Conductivity	120.1 / 9050A / SM2510 B, ASTM D1125A, SSSA
Corrosivity	See RCl or pH
CTAS Surfactants	See Foaming Agents, non-ionic
Cyanide, amenable	Kelada-01 / 9012A & 335.1 / 9012A / SM 4500-CN <sup>-</sup> G; includes total Cyanide results.
Cyanide, base extractable	Kelada-01 / 335.4 / 9012A & 9014; Base Extractable – Acid Distillable Cyanides in Oils / Greases / Floatables / Organic liquids / coarse debris
Cyanide, free	9016 using micro diffusion cell
Cyanide, total, Water	Kelada-01 / 335.4 / 9012A / SM4500-CN <sup>-</sup> CE
Cyanide, total, Solid	9012A / SM4500-CN <sup>-</sup> CE; Total Cyanides in Solids
Cyanide, WAD	Kelada-01; buffered Weak Acid Distillable cyanides in solids
Density	MAI, SSSA Book5 Pt4 Chpt 2.2
Dissolved O <sub>2</sub>	360.1 / SM 4500-O G
Flash point	1010
Fluoride by ISE	E340.2 / SM4500-F- C
Foaming Agents, anionic (MBAS)	SM5540 C / 425.1; MBAS / Anionic Surfactants
Foaming Agents, cationic (PBAS)	SM5540 Cm; PBAS / Cationic Surfactants
Foaming Agents, non-ionic (CTAS)	SM5540 BD; CTAS / Non-ionic Surfactants
Freezing / Melting Point	UWI Internet method
General Mineral, water	Alkalinity (speciated), Ca, Fe, K, Mg, Mn, Na, Cl <sup>-</sup> , SO <sub>4</sub> <sup>-2</sup> , EC, pH, TDS
General Mineral, soil	{Ca, K, Mg, Na, Cl <sup>-</sup> , SO <sub>4</sub> <sup>-2</sup> } using DISTLC extraction, EC, pH, Inorganic Carbon
General Physical	Color, Odor, Turbidity
Hardness	SM2340 B & 200.7 by ICP / ICPMS
Hardness by Titration	SM2340 C by Titration
Hydrogen Peroxide	USP Titanium Oxylate Spectrophotometric method



Ignitability of Solids	1030
Karl Fischer Water	9000
Langlier Index	SM2330 B; CaCO <sub>3</sub> Saturation Index based on pH, field temperature alkalinity, Ca & TDS ; Mg + Na are also reported
Moisture	ASTM D2216-05, ASTM D2974-07a, ASTM2974-07d, E8000C ; can be coupled with percent solids, organic matter & ash determinations
Nitrate + Nitrite by Cd reduction	353.2 / SM4500NO3 E; NO <sub>3</sub> +- NO <sub>2</sub> by Cd reduction
Nitrogen, Organic	351.2 + 350.1 / SM4500-NH <sub>3</sub> FG; Organic Nitrogen as N (= TKN - Ammonia)
Nitrogen, TKN	351.2 ;TKN = Total Kjeldahl Nitrogen as N
Nitrogen, total (TOC)	415.3m / 9060Am; Total Nitrogen by combustion & Chemiluminescence / TCD
Odor w/o Dechlorination	SM2150 B
Odor after Dechlorination	SM2150 B + SM4500-CI DE
Organic Matter	Percent Organic Matter by ASTM D2974-07d
ORP	SM2580 B, MAI; Oxidation-Reduction Potential
Ozone	SM4500 O <sub>3</sub> B
Paint Filter Test	9095A
Percent Ash	See Ash
Percent Organic matter	See Organic Matter
Percent Solids	See Solids
pH	150.1 / 9045B&C / 9045C&D / SM4500H <sup>+</sup> B, ASTM D4972-13a, CT643-2007
pH, field	SM4500H <sup>+</sup> B
Phenolics, Total	420.4 / 420.1
Phosphorous, Dissolved	365.1, 365.3, Dissolved Phosphorous as P
Phosphorous, Hydrolyzable	365.1, 365.3, Hydrolyzable Phosphorous as P
Phosphorous, Organic	365.1, 365.3, / SM4500-P BEF; Organic (Total - Ortho – Hydrolyzable ) Phosphorous as P
Phosphorous, Ortho	365.1, 365.3 365.5; SM4500-P BEF / Ortho Phosphorous as P (used when IC is inapplicable)
Phosphorous, total	365.1, 365.3, / SM4500-P BEF; Total Phosphorous as P
Physical Properties	SSSA Book5 Part4 Chpt 2.2; includes Air Filled Void Space, Bulk Density, Soil Density, TOC, Moisture and Porosity
POC	See Carbon, POC
RCI	SW-846, Chapter 7 Rev3 1996 ; includes Reactive Sulfide & Cyanide and Corrosivity
Reid Vapor Pressure	ASTM D323-08, BAAQMD 28
Residue, various	See Solids, various
Resistivity, soil	ASTM D1125A, SSSA, CalTrans 424
Resistivity, water	See Conductivity
Salinity measurement	SM5220
SAR, SAR <sub>e</sub>	Sodium Absorption Ratio (includes Na, Ca , Mg analysis);Saturated Paste Extract used for Soil
SI	CaCO <sub>3</sub> Saturation Index, See Langlier Index
Silica, Reactive	SM4500-SiO <sub>2</sub> D
Solids	Percent Solids by ASTM D2974-07
Solids, Dissolved (TDS)	160.2 / SM2540 C
Solids, Fixed Total (FTS)	160.4 / SM2540 E; can be TFS, TFDS, TFSS
Solids, Fixed Volatile (FVS)	SM2540 G; for solids and semi-solids
Solids, Settleable	160.5, SM2540 F (SM2540F3a if by wt)
Solids, Total (TS)	160.3 / SM2540 B
Solids, Suspended (rSS)	160.1 / SM2540 D, ASTM D3977-02 Test B
Solids, Volatile (TVS)	160.4 / SM2540 E; can be TVS, TVDS, TVSS
Specific Conductance	See Conductivity
Specific Gravity	See Density
Substance ID	MAI; preliminary ID and/or guidance for further testing
Sulfide, aqueous	SM4500-S <sup>-2</sup> D / 376.2 I; SM4500-S <sup>-2</sup> F; SM4500-S <sup>-2</sup> I / distilled
Sulfide, solids	SM4500-S <sup>-2</sup> D & 9030B; Acid Soluble or Acid Insoluble Sulfides



Sulfide, extractable	SM4500-S <sup>-2</sup> D / 9031; Base Extractable – Acid Distillable Sulfides in Oils / Greases / Floatables / Organic liquids / coarse debris
Sulfite by titration	SM4500-SO <sub>3</sub> <sup>-2</sup> B
Sulfite by IC	See Anions, Uncommon Inorganic Anions
Sulfur, total	415.3m / 9060Am; Total Sulfur by combustion & TCD (ICP-MS rec. for aqueous)
Tannin & Lignin	SM5550B
TDS	See Solids, Dissolved
TKN	See Nitrogen, TKN
TN	See Nitrogen, total
TOC	See Carbon, TOC
TS	See Solids, Total
TSS	See Solids, Suspended
Turbidity	180.1 / SM2130 B
TVS	See Solids, Volatile
UV254	SM5910 B
UV Scan	MAI
VCC of Coatings	EPA D24, ASTM D2369
VCC of Powder Coatings	SCAQMD 316C Draft
Visual estimate of Particle Size	ASTM E112-13; for granular matrices
VVC of Electrical Varnishes	ASTM D6053

**Air Testing – Chromatography & Other Analytical Techniques (Tedlar, Summa, ST = Sorbent Tube, Filter / Cassette)**

Air Sampling Pump Rentals	See Miscellaneous Section
Alcohols	NIOSH 1400 / 2000m by HPLC-FLD (Tedlar bag or ST))
Aldehydes & Ketones	ASTM D 5197-03 by HPLC-UV (ST; also TO-15 from Summa)
Dust	See Particulates, Respirable & Particulates, Total
Helium	ASTM D 1946-90 (Tedlar or summa, summa can extra if not part of TO-15)
Hexachrome, Particulates	NIOSH 7605 by IC-Colorimetry (Filter)
Hydrocarbons, Light	ASTM D 1946-90 / EPA 3C by GC- FID (methane, ethane, ethene, actetylene) (Tedlar / Summa; Summa same price as Tedlar if TO-15 requested)
Hydrogen	ASTM D 1946-90 / EPA 3C by GC-PDD (H <sub>2</sub> ) (Tedlar, Summa)
Hydroxide	NIOSH 7401 Hydroxides in Air
LEED Gases	VOCs + Formaldehyde + 4-PCH + CO from summa
Light Gases, Atmospheric	ASTM D 1946-90 / EPA 3C by GC-PDD / TCD (O <sub>2</sub> , N <sub>2</sub> , CO, CO <sub>2</sub> ) (Tedlar / Summa; Summa same price as Tedlar if TO-15 requested)
Light Gases, Atmospheric + Hydrocarbons	ASTM D 1946-90 / EPA 3C by GC-PDD / TCD / FID (O <sub>2</sub> , N <sub>2</sub> , CO, CO <sub>2</sub> , methane, ethane, ethane, actetylene) (Tedlar, Summa; Summa same price as Tedlar if TO-15 requested)
Metals, Particulates	NIOH 7303 by ICP-MS (Filter)
Methane, Ethane & Ethene in Water	RSK 175 (VOA). Other analytes available
OC & ON Herbicides	NIOSH 5602 (ST, pricing includes tubes)
OP Pesticides	NIOSH 5600 (ST, pricing includes tubes)
Organic Lead	NIOSH 2534m (Tetramethyl & Tetraethyl Lead) by GC (ST)
Particulates, Respirable	NIOSH 0600
Particulates, Total	NIOSH 0500
PCBs	NIOSH 5503 by GC-ECD (ST)
Phenols	NIOSH 2546 by GC-MS SIM mode (ST)
PNA's	NIOSH 5506 by HPLC UV-FLD (ST)
Silica	NIOSH 7500, Crystalline Silica by XRD
Silica	NIOSH 7602, Crystalline Silica by IR
TPH (d/o)	NIOSH 1550 by GC-FID (ST)
TPH (d/o)	TO-17m (ST)
TPH(g) Fractionated	MA DEP APH by GC-MS (Summa); ali-aro frac. of vapor phase TPH
VOCs +- TPH(g) soil gas	TO-15, soil gas by GC-MS (Summa or Tedlar)
VOCs +- TPH(d) soil gas	TO-17, soil gas by GC-MS (ST)



VOCs, IPA only	TO-15, IPA only for soil gas from Tedlar by GC-MS; Client / Lab supplied Tedlar
VOCs +- TPH(g) indoor air	TO-15, indoor air by GC-MS, RL= 0.1ppbv (Summa)
VOCs, SIM, indoor air	SIM mode for TO-15 compounds having ESL indoor air limits < 0.1 ppbv

**Microbiology: Bacteria, Fungi & Algae Testing**

Aerobes	SM9215AC (SP)
Anaerobes	SM9215ABm (SP)
Coliforms, Total & E Coli (+/-)	SM9223 B (EST), SM9221 BF (MTF)
Coliforms, Total & E Coli	SM9223 B (EST – Idexx Colilert); SM9221 BF (MTF/MPN); SM9222 B (MF) for Drinking and Natural Waters, 1-2 tray test
Coliforms, Total & E Coli, Biosolids	SM9223 B (EST – Idexx Colilert); SM9221 B (MTF/MPN); SM9222 B (MF) for Sewage and Bio-Solids, 2-4 tray test
Coliforms, Total & E Coli & FC	SM9221 B (MTF)
E Coli	SM9221 BF (MTF) 9223 B
Enterococci	SM9230 B (MTF/MPN); Idexx Enterolert (EST)
Fecal Coliform (+/-)	SM9221 E (MTF/MPN)
Fecal Coliform	SM9221 E (MTF/MPN); SM9222 D (MF)
Fecal Streptococci	SM9230 B (MTF/MPN)
Fungi, Mold, Yeast	SM9610B
Heterotrophs	Idexx SIM (EST); SM9215 AC (SP); SM9215 AB (PP) for Drinking and Natural Waters, 1-2 tray test
Heterotrophs, Biosolids	Idexx SIM (Spread) Plate; SM9215 C (Spread Plate); SM9215 B (Pour Plate) for Sewage and Bio-Solids, 2-4 tray test
Helminth Eggs	WHO 1996
Iron Related Bacteria (+/-)	SM9240D.1 (BART = Biological Activity Reaction Test)
Iron Related Bacteria	SM9240D.1 (BART = Biological Activity Reaction Test)
Legionella (+/- or En)	CDC Legionella Method 01/2005-SM9260J (MF-PP)
Microscopic Exam	SM9240 D
Pseudomonas aeruginosa	SM9213 E (PP wo MF), Pseudolert (EST)
Salmonella (+/-)	FDA BAM - SM9260B - E1682 (MTF)
Salmonella	FDA BAM - SM9260B - E1682 (MTF)
Staphylococcus aureus	FDA BAM 2016 Chpt 12 (PP) (9213B)
Sulfate Reducers	SM9240D (BART = Biological Activity Reaction Test)
Total Coliforms only	SM9222 B (MF) for Drinking, Recreational and Waste Waters

**Aquatic Toxicity**

**Hazardous Waste Characterization Bioassays (Title 22 CCR)**

**Fathead Minnow (*Pimephales promelas*)**

CDFG 1988	CA Title 22 Hazardous Waste 96h LC <sub>50</sub> Screen
CDFG 1988	CA Title 22 Hazardous Waste 96h LC <sub>50</sub> Definitive

**Acute Aquatic Toxicity Bioassay Testing (EPA 821-R-02-012 / ASTM E729-96)**

**Acute Fathead Minnow (*Pimephales promelas*)**

(EPA 2000.0)	96hr Static Non-Renewal 100% Concentration Only
(EPA 2000.0)	96hr Static Renewal 100% Concentration Only with a 48hr Renewal
(EPA 2000.0)	96hr Static Renewal 100% Concentration Only with Daily Renewals
(EPA 2000.0)	96hr Static Renewal Dilution Series with a 48hr Renewal

**Acute Rainbow Trout (*Oncorhynchus mykiss*)**

(EPA 2019.0)	96hr Static Non-Renewal 100% Concentration Only
(EPA 2019.0)	96hr Static Renewal 100% Concentration Only with a 48hr Renewal
(EPA 2019.0)	96hr Static Renewal 100% Concentration Only with Daily Renewals
(EPA 2000.0)	96hr Static Renewal Dilution Series with a 48hr Renewal

**Acute Sheepshead Minnow (*Cyprinodon variegatus*)**

(EPA 2004.0)	96hr Static Non-Renewal 100% Concentration Only
(EPA 2004.0)	96hr Static Renewal 100% Concentration Only with a 48hr Renewal
(EPA 2004.0)	96hr Static Renewal 100% Concentration Only with Daily Renewals

**Acute *Ceriodaphnia dubia***

(EPA 2002.0)	96hr Static Non-Renewal 100% Concentration Only
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(EPA 2002.0)	96hr Static Renewal 100% Concentration Only with a 48hr Renewal
(EPA 2002.0)	96hr Static Renewal 100% Concentration Only with Daily Renewals
(EPA 2002.0)	96hr Static Renewal Dilution Series with a 48hr Renewal
(EPA 2002.0)	48hr Static Renewal Dilution Series with Daily Renewal

**Acute *Americamysis bahia***

ASTM E729-96	96hr Static Renewal Dilution Series with a 48hr Renewal
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**Short-Term Chronic Aquatic Toxicity Bioassay Testing (EPA 821-R-02-013)**

**Chronic *Selenastrum Capricornutum***

(EPA 1003.0)	Chronic 96hr Algal Growth Test - 100% Concentration Only
(EPA 1003.0)	Chronic 96hr Algal Growth Test - Dilution Series
(EPA 1003.0)	Chronic 96hr Algal Growth Test – Reference Toxicant Test
(EPA 1002.0)	Chronic 3-brood Survival and Reproduction Test - 100% Concentration Only
(EPA 1002.0)	Chronic 3-brood Survival and Reproduction Test -Dilution Series
(EPA 1002.0)	Chronic 3-brood Survival and Reproduction Test – Reference Toxicant Test
(EPA 1000.0)	Chronic 7-day Survival and Growth Test - 100% Concentration Only
(EPA 1000.0)	Chronic 7-day Survival and Growth Test - Dilution Series
(EPA 1000.0)	Chronic 7-day Survival and Growth Test – Reference Toxicant Test

\*24-hour and 48-hour tests are available for all acute test methods; please contact us for a price  
 \*Clients requiring 3-species chronic testing will receive a 10% discount for effluent sample testing.  
 \*Price is for concurrent reference toxicant testing. A 20% discount will apply for clients requesting monthly RT data.

**Solids – Special Techniques**

FTIR for Plastics & Polymer ID	ASTM E 1252-98; FTIR ID of plastics and polymers.
Silica in Air by FTIR	See Air Matrix
Silica in Air by XRD	See Air Matrix
XRD for Solids ID	Crystalline Solids ID using Powder, Micro-focus or High Angle XRD by USGS OFR 01-041
XRF on Solids Composition	Semi Quant XRF scan for gross element composition (Na-U)

**Food, Produce, Nutraceuticals, Herbal Extracts & Consumer Safety (also see Metals, Anions, Wet Chemistry)**

Acrylamide	EPA 8316m / USFDA / AOAC by HPLC-UV or HPLC-MS-MS
Aldehydes & Ketones	EPA 8315m by HPLC-UV
Ammonia Binding Acitivity (B50)	B50 Measurement in Yucca Products by Garuda International
Antibiotics, CAP	FDA 4290, 4306, 4303, 4302, 4290, 4281. Chloramphenicol (CAP) in Honey, Crawfish, Shrimp & Crabby LC-MS-MS
Antibiotics, Nitrofurans	USDA FSIS CLG-NFUR2.00. Nitrofurans in Seafood, Meat & Chicken by LC-MS-MS
Butanol Solubles	Percent Butanol Solubles by Garuda International; Garuda method M0020-2 modified. Saponins in Yucca product
Carbamates	CDFA PRSM / EPA 8318m by HPLC w/ Derivatization
Dioxins & Furans	EPA 8280m, Analysis of Polychlorinated Dibenzo-p-dioxins & Dibenzofurans by HRGC-MS-MS
Herbicides, OC Acidic	CDFA PRSM / EPA 8151m by GC-ECD w/ Derivatization
Melamine & Related Compounds	FDA 4421, 4422, 4396, Melamine & Cyanuric Acid in Infant Formula, Catfish Tissue & Other Foods by LC-MS-MS
Metals	AOAC Chpt 9, Metals in Food; See Metals Section
Metals, Hg	EPA 1631 App A, Hg in Biota; See Metals Section
Metals, Pb	Determination of Pb in Paint & Surface Coatings, in Non-Metal & Metallic Children's Products CPSC-CHE1003-09, -E1002-08, -E1001-08
Moisture, food	AOAC 925.10, 920.151a, 925.40
Percent Extraneous Material, food	AOAC 945.75
Perchlorate	FDA; Perchlorate in Fruits, Vegetables, Milk, Low Moisture Foods, Infant Food & Water by LC-MS-MS
Peroxide Value, food	AOAC 965.33
Pesticides, CV & BG	Crystal Violet (CV) / Gentian Violet (GV) & Brilliant Green (BG) in Fish by LC-UV or LC-MS-MS
Pesticides, MG & LMG	Malachite Green (MG) & Leucomalachite Green (LMG) in Fish & Shrimp & Salmon by LC-FLD or LC-MS-MS
Pesticides, OC	CDFA PRSM / EPA 8081m by GC-ECD
Pesticides, ONP	CDFA PRSM / EPA 8141m by GC-NPD
Phenols	EPA 8270m by GC-MS SIM mode
Phthalates	Phthalates in Consumer Products by GC-MS
PNAs	EPA 8270m by GC-MS SIM mode





Sweeteners & Preservatives	Sweeteners, Preservatives & Flavorants, ex. Aspartame, Saccharin by LC-IT or LC-MS
Urease Inhibition Activity (150)	150 Measurement in Yucca Products by Garuda International
VOCs	EPA 8260m by GC-MS

**Extractions / Preparations^**

Alumina Bench Column Clean Up (EPA 3630C)	Bench Column Clean Up of solvent extracts, cost depends on complexity
Aqua Regia	Aqua Regia metals prep
Ashing - food	Thermal combustion preparation for food matrices
Ashing – soils/solids	Thermal combustion preparation for metals or oxide determinations
ASTM C 1580-05	DI Extraction of Soils for Sulfate
Bench Testing / Pilot Studies	Customized bench studies to evaluate pilot processes
Cal Trans 417 / 422	DI Extraction for anions in soil (DI STLC may yield higher values)
CEC, NH <sub>4</sub> Ac	EPA 9080; Cation Exchange Capacity inapplicable to calcareous soils
CEC, NaAc	EPA 9081; Cation Exchange Capacity that is generally applicable
Cu Clean Up	Cu Clean Up to Remove Sulfur
Ex. Cations, NH <sub>4</sub> Ac	Exchangeable Cations using ammonium acetate
Filtration	In-house (laboratory) filtration for dissolved metals using 0.45 um filter
Florisil Bench Column Clean Up (EPA 3630C)	Bench Column Clean Up of solvent extracts, cost depends on complexity
GPC Clean-up, EPA 3640A	Gel Permeation Preparative Chromatography, including QC
Metals Dissolution	Concentrated oxidizing acids dissolution of solid metals
MS/MSD Project specific	Project specific MS/MSDs
Silica Gel Clean Up, in-a-vial style (EPA 418.1)	Silica Gel Clean Up of solvent extracts, in-a-vial style (free for 418.1)
Silica Gel Bench Column Clean Up (EPA 3630C)	Bench Column Clean Up of solvent extracts, cost depends on complexity
STLC	California WET Test
DI STLC	California WET Test modified to use DI water
Whole Rock Dissolution	Fusion of rock / alumino-silicate solids
Zemo Diss. HCs ± SG c.u.	Dawn Zemo Methodology for Dissolved HCs ± SG cleanup
EPA 1311	TCLP; Toxic Characteristic Leaching Procedure
EPA 1311	ZHE TCLP for Volatiles (Zero Head Space Extractor = ZHE)
EPA 1312	SPLP; Synthetic Precipitation Leaching Procedure
EPA 3050B mod	TTLC, Large volume (70g initial sample weight)

**Miscellaneous**

Air Sampling Pump Rentals	Low (0.05 - 0.2L/min) or high (1-5 L/min) flow
Chromatogram Fee	Chromatograms: less than 5 per COC free
Compositing	Sample compositing (up to 4:1 free)
Courier – exclusive service	Courier for emergency/urgent picks &/or deliveries
EDF Reporting Fee	CA AB 2886; GeoTracker
EDD Reporting Fee	WriteOn, EQUIS, CIWQS, SMARTs, Locus XML, etc.
EPA 5035 EnCore Sampler	5g EnCore sampler
Open Scan Fee	The five most significant unidentified peaks in GC-MS chromatogram
Passive Diffusion Bag (PDB)	PDB filled with DI water
PM10 Monitor	PDR-1000AN Data Logger for continuous PM10 monitoring
Pulverization Fee	Pulverization of solid matrices
Sample Disposal Fee	Sample Disposal fee soil / solid
Sampling Tube	Stainless steel sampling tube
Tedlar bag	Tedlar air sampling bag
Filters & Syringes	One syringe & two 0.45 micron filters for field filtering



McC Campbell Analytical, Inc.

*"When Quality Counts"*

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1 Day, 2 Day & 3 Day, TAT rush charges are 2X, 1.5X and 1.25X respectively, the 5 Day TAT price. Same-day rush charge will be 2.5X based on circumstances and availability.

\*\*BOD<sub>5d</sub> & cBOD<sub>5d</sub> require 5 days for testing. Routine TAT is 7days for these tests. 1.25x multiplier is charged for "rush" (<7days) TAT.

% Note that VOAs containing water samples that are preserved differently (such as TSP versus HCl) will be analyzed separately and charged separately. For example, water samples from the same monitoring well that are collected in TSP preserved VOAs for MTBE by 8260B and HCl preserved VOAs for 8260B basic list will be analyzed separately and charged for both MTBE by 8260B and for the 8260B target list.

\*\*\* Each phase in a multi-phase sample is charged separately for extraction & testing. For example, a water sample containing >0.5% sediment consists of two phases for STLC & TCLP purposes.

@ Silica gel cleanup is an additional \$5.60 per sample for the in-a-vial style or an additional \$56 per sample for column style; see Extractions Section.

& Add \$5 per analysis per sample for "whole container volatiles in soils" analyses (Encore or preserved VOA style).

^ Extraction / preparation cost may be included in analytical price. If you need clarification please contact our staff.

\* \$25 up to \$5000 invoice total. Invoices greater than \$5000 will be charged at 2% of invoice total.

# Testing can be done for any of the several hundred analytes listed in our comparison of target lists on our website and we are willing to set up for new compounds if requested. Our reported target list for a given method is comprised of a basic set of analytes to which compounds may be added. In general any analyte requested in addition to our basic target list will be charged \$50.00 plus the basic target list price. Clients who need a different basic target list on a repetitive basis can be accommodated with negotiated pricing. The usual set up charge for a compound that is not part of our current capability is \$250.00 & there is no fixed TAT & no guarantee of finding a successful analytical technique.