



McC Campbell Analytical, Inc. – Analytical Capabilities 01/01/18-12/31/18

UCMR4

Method / Analysis	Description
200.8	UCMR4 Metals by MS (Germanium and Manganese)
525.3	UCMR4 SVOCs by GC-MS
530	UCMR4 SVOCs by GC-MS
541	UCMR4 Alcohols by GC-MS
544	UCMR4 Microcystins & Nodularin by LC-MS
545	UCMR4 Cylindrospermopsin and Anatoxin-a by LC-MS
546	UCMR4 ELISA Total Microcystins
552.3	UCMR4 Haloacetic Acid by GC-MS
300.1	Bromide by IC
5310B	Total Organic Carbon (TOC) SM5310 B

Drinking Water Chromatography

Method / Analysis	Description
505	OC Pesticides and PCBs by L-LE and GC-ECD
505	PCBs by L-LE and GC-ECD
505	PCBs by L-LE and GC-ECD (low level, 0.1 µg/L)
515.3	OC Acidic Herbicides by L-LE, Derivatization & GC-ECD
522	1,4-Dioxane by SPE and GC-MS; UCRM3
524.2	HVOCs by P&T and GC-MS
524.2	TTHMs (Total Trihalomethanes) by P&T and GC-MS
524.2	VOCs by P&T and GC-MS
524.2	VOCs by P&T and GC-MS, Open Scan (Up to 5 PEAKS, 10\$ ea. addl.)
524.3	EDB, DBCP & 1,2,3-TCP (0.005 µg/L) by GC-MS (SIM Mode)
524.3	TTHMs (Total Trihalomethanes) by P&T and GC-MS
524.3	VOCs by GC-MS; UCRM3
525.2	ON/P Pesticides by L-LE and GC-NPD
525.2	SVOCs by L-SE and GC-MS
531.1	Carbamates by HPLC w/ Derivatization
531.2	Carbamates by HPLC w/ Derivatization (regulated)
532m	Azoxystrobin, Fludioxonil & Penoxsulam
532m	Clopyralid & Imazapyr by SPE and HPLC
532m	Fenhexamide & Oxyfluorfen by SPE and HPLC
532	Phenyl Ureas by SPE and HPLC
532	Phenyl Ureas by SPE and HPLC (low level, 0.1 µg/L)
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
SM6040Dm	Geosmin & MIB (0.5 - 2.0 ng/L)





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Effluent Water Chromatography

Table with 2 columns: Method / Analysis, Description. Lists various analytical methods for effluent water, including pesticides, PCBs, PAHs, and VOCs.

Hazardous Waste, Soils, Groundwater Chromatography

Table with 2 columns: Method / Analysis, Description. Lists various analytical methods for hazardous waste, soils, and groundwater, including TPH, PCBs, and pesticides.

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8260B	VOCs by P&T and GC-MS excluding Acrolein & 2-CEVE
8260B	VOCs by P&T and GC-MS, Open Scan (Up to 5 PEAKS, 10\$ ea. addl.)
8270C	Phenols Only by GC-MS
8270C	PNAs / PAHs Only by GC-MS SIM Mode
8270C	ON/P Pesticides by GC-NPD. 8141 equivalent
8270C	SVOCs by GC-MS
8270C	SVOCs by GC-MS (low level; ESLs) *Clean Up fee included
8270C	SVOCs by GC-MS Open Scan (Up to 5 PEAKS, 10\$ ea. addl.)
8280A	2,3,7,8-TCDD by HRGC-HRMS, 5.0 pg/L & 5.0 pg/g (W/ S RL)
8280A	Full List Dioxins & Dibenzofurans by HRGC-HRMS
8290A	2,3,7,8-TCDD by HRGC-HRMS, 5.0 pg/L & 5.0 pg/g (W/ S RL)
8290A	Full List Dioxins & Dibenzofurans by HRGC/HRMS
8310	PNAs / PAHs by HPLC
8310m / SM 10200	Chlorophyll a & b by HPLC
8315A	Carbonyls by HPLC
8315A	Formaldehyde by LCMS
8315A	Acrolein & 3-Hydroxypropanal by HPLC w/ Field Derivatization (SFEI 108)
8316	Acrylamide, Acrylonitrile and Acrolein by HPLC
8318	Carbamates by HPLC
8330m	Diflubenzuron & Propiconazole by HPLC
8330	Nitroaromatics & Nitramines by HPLC
8332	Nitroglycerin by HPLC

Metals

Groups / Analysis	Description
503 Metals (Biosolids)	As, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn
CAM17 (ICP-MS)	Ag, As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Ti, V, Zn
IOC – DW Metals	Al, As, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Sb, Se, Ti
PP13	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Ti, Zn
RCRA8	Ag, As, Ba, Cd, Cr, Hg, Pb, Se
LUFT5	Cd, Cr, Ni, Pb, Zn
ICP / ICP-MS, Common Metal	Ex, Al, Ag.; generally, special extraction cost is additional – see Extractions
ICP / ICP-MS, Uncommon Metal	Ex, Au, S, P.; generally, special extraction cost is additional – see Extractions
Hg by CVAf	Hg (1631E)
Hg by CVAA	Hg (245.2, 7470A, 7471B)
Ferrous Iron	SM 3500Fe B4c
Lead, organic, total	HML 939-M; CA Title 22, Chapter 11, Appendix 11 (unspeciated)

Ion Chromatography

Method / Analysis	Description
218.6	Chromium VI by IC
218.6 – DISTLC, Solids	Chromium VI by IC using DISTLC
218.7 - UCRM3 DW	Chromium VI by IC; UCRM3
300.1 - UCRM3 DW	Chlorate by IC; UCRM3
300.1 / 300.0 –W, S	Common Anions: Cl-, Br-, SO4-2, F-, NO3- as N, NO2- as N, PO4-3 as P; CalTrans or DISTLC are optional soil extractions with extra charges





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300.1 / 300.0-Water	Uncommon Inorganic Anions: I-, S2O3-2, SCN-, IO3-, SO3-2, etc.
300.1– Water, Disinf. ByP.	ClO2- (Chlorite), ClO3- (Chlorate), BrO3- (Bromate), Br- ( 0.005 µg/L)
300.1m –VFA	Volatile Fatty Acids: Formic Acid
314	Perchlorate (ClO4) by IC
7199	Chromium VI by IC; 3060A TTLC (low level, 0.2 mg/Kg)

Microbiology

Method / Analysis	Description
Aerobes	SM9215AC (SP)
Anaerobes	SM9215ABm (SP)
Coliforms, Total & E Coli (+/-)	SM9223 B (EST), Idexx Colilert
Coliforms, Total & E Coli (Enum)	SM9223 B (EST), Idexx Quanti Tray
Coliforms, Total & E Coli	SM9221 BF (MTF)
Coliforms, Total & E Coli, Biosolids	SM9223 B (EST – Idexx Colilert); SM9221 B (MTF/MPN); for Sewage/Bio-Solids, 2-4 tray test
Coliforms, Total & E Coli & FC	SM9221BEF (MTF)
Total Coliforms only	SM9222 B (MF) for Drinking, Recreational and Waste Waters
E Coli	9221BF (MTF)
Fecal Coliform	SM9221 E (MTF/MPN); SM9222 D (MF)
Fecal Coliform (+/-)	SM9221 E (MTF/MPN)
Enterococci	Idexx Enterolert (EST)
Enterococci	SM9230 B (MTF/MPN)
Fecal Streptococci	SM9230 B (MTF/MPN)
Fungi, Mold, Yeast	SM9610B
Heterotrophs (HPC)	Idexx Simplate; SM9215 AC (SP); SM9215 AB (PP) for Drinking and Natural Waters, 1-2 tray test
Heterotrophs (HPC), Biosolids	Idexx Simplate; SM9215 C (Spread Plate); SM9215 B (Pour Plate) for Sewage and Bio-Solids, 2-4 tray test
Iron Related Bacteria (+/-)	SM9240D.1 (BART = Biological Activity Reaction Test)
Iron Related Bacteria	SM9240D.1 (BART = Biological Activity Reaction Test)
Legionella (+/- or En)	CDC Legiolert Method 01/2005-SM9260J (MF-PP)
Pseudomonas aeruginosa	Pseudolert (EST)
Salmonella (+/-)	SM9260B - E1682 (Plate) FDA BAM
Salmonella	SM9260B - E1682 (Plate) FDA BAM
Staphylococcus aureus	SM9213B - FDA BAM
Sulfate Reducing Bacteria	SM9240D - SM9240D.4a1

GC-MS-MS, LC-IT, LC-MS-MS Analysis

Method / Analysis	Description
ASTM D7485	LC-MS-MS for Alkylphenols in Water
ASTM D7574	LC-MS-MS for BisPhenol A (BPA) in Water
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
ASTM D7485	LC-MS-MS for Alkylphenols in Water
ASTM D7574	LC-MS-MS for BisPhenol A (BPA) in Water
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

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McC Campbell Proprietary Methods

Table with 2 columns: Method / Analysis, Description. Lists various chemical analyses such as Acrylamide, Alcohols, Amines, Amygdalin, Cyclohexylamine, DEHPA, Epichlorohydrin, Ethylene Glycol, Flumioxazin, Imazamox, Isobornyl Acrylate, Mesotrione, Tributyl phosphate, Organic Acids, Organic Lead, Organic Tin, etc.

Wet Chemistry & Oil and Grease

Table with 2 columns: Method / Analysis, Description. Lists various wet chemistry and oil and grease tests such as TRPH by IR Spectrometry, Total Oil & Grease, HEM, Acidity, AGP, ANP, NNP, Alkalinity, Ammonia as N, Ash (%), BOD / cBOD, B S & W, Carbon, DOC, Carbon, IC, Carbon, TC, Carbon, TOC, Carbon dioxide, Chloride, Chlorine, residual / total.



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Table with 2 columns: Analytical Parameter and Method/Standard. Rows include Chlorine, COD, Color, Conductivity, pH, Cyanide, Density, Hardness, Nitrogen, Phosphorous, and Solids.

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Table with 2 columns: Test Name and Method/Standard. Rows include Solids, Suspended (TSS), Solids, Total Volatile or Fixed (TVS, TFS), etc.

Air Testing

Table with 2 columns: Method/ Analysis and Description. Rows include Air Sampling Pump Rentals, Alcohols, Formaldehyde, Helium, etc.



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TO17 VOCs	TO-17, Soil gas by GC_MS (ST)
TPH (g/d)	NIOSH 1550 by GC-FID (ST)
TPH (g/d)	TO-17m (ST) TPH gas and Diesel
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)
VOCs +- TPH(g) soil gas	TO-15, soil gas by GC-MS (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, SCAN-SIM, indoor air	TO-15, indoor air by GC-MS, RL= 0.1ppbv (Summa), SIM mode for TO-15 compounds having ESL indoor air limits < 0.1 ppbv

**Solids**

Method / Analysis	Description
Asbestos CARB 435	Asbestos 400 point count (.25%RL) by CARB 435
Asbestos CARB 435	Asbestos 1000 point count (.1%RL) by CARB 435
FTIR for Plastics and Polymer ID	ASTM E1252-98; FTIR ID of plastics and polymers.
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)

**Aquatic Toxicology**

Test Method	Test Organism	Description
<b>Hazardous Waste Bioassay (CDFG 1988)</b>	<b>Fathead Minnow (<i>Pimephales promelas</i>)</b>	CA Title 22 Hazardous Waste 96h LC50 Screen
		CA Title 22 Hazardous Waste 96h LC50 Definitive
<b>EPA 2000.0</b>	<b>Fathead Minnow (<i>Pimephales promelas</i>)</b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal
		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
		Acute 96hr Static Renewal Dilution Series with a 48hr Renewal
<b>EPA 2019.0</b>	<b>Rainbow Trout (<i>Oncorhynchus mykiss</i>)</b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal
		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
		Acute 96hr Static Renewal Dilution Series with a 48hr Renewal
<b>EPA 2004.0</b>	<b>Sheepshead Minnow (<i>Cyprinodon variegatus</i>)</b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal
		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
<b>EPA 2002.0</b>	<b><i>Ceriodaphnia dubia</i></b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal
		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
		Acute 96hr Static Renewal Dilution Series with a 48hr Renewal
		Acute 48hr Static Renewal Dilution Series with Daily Renewal
<b>EPA 2021.0</b>	<b><i>Daphnia spp. (Daphnia magna)</i></b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal
		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
		Acute 96hr Static Renewal Dilution Series with a 48hr Renewal
		Acute 48hr Static Renewal Dilution Series with Daily Renewal
<b>EPA 2006.0</b>	<b>Inland Silverside (<i>Menidia beryllina</i>)</b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal



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		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
		Acute 96hr Static Renewal Dilution Series with a 48hr Renewal
<b>EPA 2007.0</b>	<b>Mysid shrimp (Americamysis bahia)</b>	Acute 96hr Static Non-Renewal 100% Concentration Only
		Acute 96hr Static Renewal 100% Concentration Only with a 48hr Renewal
		Acute 96hr Static Renewal 100% Concentration Only with Daily Renewals
		Acute 96hr Static Renewal Dilution Series with a 48hr Renewal
		Chronic 96hr Algal Growth Test - 100% Concentration Only
<b>EPA 1003.0 / ASTM E1218-04</b>	<b>Green Algae (Selenastrum Capricornutum)</b>	Chronic 96hr Algal Growth Test - Dilution Series
		Chronic 96hr Algal Growth Test - Reference Toxicant Test
		Chronic 3-brood Survival and Reproduction Test - 100% Concentration Only
<b>EPA 1002.0</b>	<b>Ceriodaphnia dubia</b>	Chronic 3-brood Survival and Reproduction Test - Dilution Series
		Chronic 3-brood Survival and Reproduction Test - Reference Toxicant Test
		Chronic 7-day Survival and Growth Test - 100% Concentration Only
<b>EPA 1000.0</b>	<b>Fathead Minnow (Pimephales promelas)</b>	Chronic 7-day Survival and Growth Test - Dilution Series
		Chronic 7-day Survival and Growth Test - Reference Toxicant Test
		Chronic 7-day Survival and Growth Test - 100% Concentration Only
<b>EPA 1004.0</b>	<b>Sheepshead Minnow (Cyprinodon variegatus)</b>	Chronic 7-day Survival and Growth Test - Dilution Series
		Chronic 7-day Survival and Growth Test - Reference Toxicant Test
		Chronic 7-day Survival and Growth Test - 100% Concentration Only
<b>EPA 1006.0</b>	<b>Inland Silverside (Menidia beryllina)</b>	Chronic 7-day Survival and Growth Test - Dilution Series
		Chronic 7-day Survival and Growth Test - Reference Toxicant Test
		Chronic 7-day Survival and Growth Test - 100% Concentration Only
<b>EPA 1007.0</b>	<b>Mysid shrimp (Americamysis bahia)</b>	Chronic 7-day Survival and Growth Test - Dilution Series
		Chronic 7-day Survival and Growth Test - Reference Toxicant Test
		Chronic Embryo-Larval Development and Survival Test - 100% Concentration Only
<b>EPA 600/R-95/136</b>	<b>Mussels (Mytilus spp.)</b>	Chronic Embryo-Larval Development and Survival Test - Dilution Series
		Chronic Embryo-Larval Development and Survival 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.

**Extractions Preparations**

<b>Method / Analysis</b>	<b>Description</b>
Alumina Bench Column Clean Up (EPA 3630C)	Bench Column Clean Up of solvent extracts, cost depends on complexity
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, NH4Ac	EPA 9080; Cation Exchange Capacity inapplicable to calcareous soils
CEC, NaAc	EPA 9081; Cation Exchange Capacity that is generally applicable
Copper Clean Up	Copper Clean Up to Remove Sulfur
ESL Clean Up 8081/8082	ESL Clean-up for method 8081/ 8082
Ex. Cations, NH4Ac	Exchangeable Cations using ammonium acetate
Filtration	In-house (laboratory) filtration for dissolved metals using 0.45 um filter
Florisil Clean Up (EPA 3630C)	Bench Column Clean Up of solvent extracts
GPC Clean-up, EPA 3640A	Gel Permeation Clean Up
ISM - ITRC	Incremental Sampling Method per the Interstate Technology & Regulatory Council (ITRC)



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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	Silica Gel Clean Up of solvent extracts, in-a-vial style
Silica Gel Bench Column Clean Up	Silica Gel Bench Column Clean Up of solvent extracts (EPA 3630C)
STLC	California WET Test
DI STLC	California WET Test modified to use DI water
ZHE STLC	Zero Head Space California WET Test for Volatiles
Whole Rock Dissolution	Fusion of rock / alumino-silicate solids
Zemo Diss. HCs ± SG c.u.	Dawn Zemo Methodology for Dissolved HCs ± SG cleanup
TCLP EPA 1311	TCLP; Toxic Characteristic Leaching Procedure
ZHE TCLP EPA 1311	Zero Head Space TCLP for Volatiles
SPLP EPA 1312	SPLP; Synthetic Precipitation Leaching Procedure
EPA 3050B Large Volume	Large volume (70g initial sample weight)
*Clean ups and extractions fees are not subject to rush surcharge rates.	
*Clean ups and extractions may extend the TAT.	

Miscellaneous

Method / Analysis	Description
Air Sampling Pump Rental	Low (0.05 - 0.2L/min) or high (1-5 L/min) flow
Chromatogram Fee	Chromatograms PDF
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
Filters & Syringes	One syringe & three 0.45 micron filters for field filtering
Open Scan Fee	The five most significant unidentified peaks in GC-MS chromatogram
Helium Shroud	Helium Shroud Rental
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
RUSH Surcharges	Same-Day, 1-Day, 2-Day, 3-Day, 4-Day TAT at 150%, 100%, 50%, 25%, 10% markups from standard TAT
Sample Disposal Fee	Sample Disposal fee soil / solid
Sampling Tube	Stainless steel sampling tube
Sorbent Tube	Single use Sorbent Tube
Tedlar bag	Tedlar air sampling bag
Unused Summa	Cleaning Fee - Unused Summa Canister
*Client is responsible for returning all media in the same condition as when received from MAI. Damaged, (including dented canisters), or unreturned media will be charged to the client as outlined in media agreement under "replacement value". Dented canisters have suspected active surfaces & cannot be used for most air sampling applications; MAI will charge replacement cost. No disassembly of soil gas or indoor air manifolds is permitted.	

