



Environmental Laboratory Licensure Application

Laboratory Services

250 N. 17th Avenue
Phoenix, AZ 85007-3231
602-364-0720
FAX 602-364-0759

PART E – Director Approval

Part E lists director approved methods available to all laboratories. In addition, the director approval process is outlined in the following pages. These methods are current as of **December 2009**.

Director Approved Methods (Refer to A.A.C. R9-14-610.B for references.) AIR = Air program. SDW = Drinking water. WW = Wastewater. SW = Solid, Liquid, and Hazardous Waste.

Description	Program	Reference	Method	Fee
Aluminum	AIR	Note 9	IO-3.4	\$10
Aluminum	AIR	Note 10	IO-3.5	\$26
Antimony	AIR	Note 9	IO-3.4	\$10
Antimony	AIR	Note 10	IO-3.5	\$26
Arsenic	AIR	Note 9	IO-3.4	\$10
Arsenic	AIR	Note 10	IO-3.5	\$26
Barium	AIR	Note 9	IO-3.4	\$10
Barium	AIR	Note 10	IO-3.5	\$26
Beryllium	AIR	Note 9	IO-3.4	\$10
Beryllium	AIR	Note 10	IO-3.5	\$26
Bismuth	AIR	Note 9	IO-3.4	\$10
Boron	AIR	Note 9	IO-3.4	\$10
Cadmium	AIR	Note 9	IO-3.4	\$10
Cadmium	AIR	Note 10	IO-3.5	\$26
Calcium	AIR	Note 9	IO-3.4	\$10
Carbon Dioxide, Methane, Nitrogen, & Oxygen	AIR	Note 7	Method 3C	\$393
Cesium	AIR	Note 9	IO-3.4	\$10
Chromium	AIR	Note 9	IO-3.4	\$10
Chromium	AIR	Note 10	IO-3.5	\$26
Cobalt	AIR	Note 9	IO-3.4	\$10
Cobalt	AIR	Note 10	IO-3.5	\$26

Copper	AIR	Note 9	IO-3.4	\$10
Copper	AIR	Note 10	IO-3.5	\$26
Digestion of Ambient Matter	AIR	Note 8	IO-3.1	\$7
Germanium	AIR	Note 9	IO-3.4	\$10
Gold	AIR	Note 9	IO-3.4	\$10
Indium	AIR	Note 9	IO-3.4	\$10
Iron	AIR	Note 9	IO-3.4	\$10
Lanthanum	AIR	Note 9	IO-3.4	\$10
Lithium	AIR	Note 9	IO-3.4	\$10
Lead	AIR	Note 9	IO-3.4	\$10
Lead	AIR	Note 10	IO-3.5	\$26
Magnesium	AIR	Note 9	IO-3.4	\$10
Manganese	AIR	Note 9	IO-3.4	\$10
Manganese	AIR	Note 10	IO-3.5	\$26
Mercury	AIR	Note 9	IO-3.4	\$10
Molybdenum	AIR	Note 9	IO-3.4	\$10
Molybdenum	AIR	Note 10	IO-3.5	\$26
Nickel	AIR	Note 9	IO-3.4	\$10
Nickel	AIR	Note 10	IO-3.5	\$26
Niobium	AIR	Note 9	IO-3.4	\$10
Nonmethane Organic Compounds	AIR	Q	Method 25C	\$393
Palladium	AIR	Note 9	IO-3.4	\$10
Phosphorus	AIR	Note 9	IO-3.4	\$10
Platinum	AIR	Note 9	IO-3.4	\$10

Potassium	AIR	Note 9	IO-3.4	\$10
Rhenium	AIR	Note 9	IO-3.4	\$10
Rhodium	AIR	Note 9	IO-3.4	\$10
Ruthenium	AIR	Note 9	IO-3.4	\$10
Samarium	AIR	Note 9	IO-3.4	\$10
Selenium	AIR	Note 9	IO-3.4	\$10
Selenium	AIR	Note 10	IO-3.5	\$26
Silicon	AIR	Note 9	IO-3.4	\$10
Silver	AIR	Note 10	IO-3.5	\$26
Sodium	AIR	Note 9	IO-3.4	\$10
Strontium	AIR	Note 9	IO-3.4	\$10
Tantalum	AIR	Note 9	IO-3.4	\$10
Tellurium	AIR	Note 9	IO-3.4	\$10
Thallium	AIR	Note 9	IO-3.4	\$10
Thallium	AIR	Note 10	IO-3.5	\$26
Thorium	AIR	Note 10	IO-3.5	\$26
Tin	AIR	Note 9	IO-3.4	\$10
Titanium	AIR	Note 9	IO-3.4	\$10
Tungsten	AIR	Note 9	IO-3.4	\$10
Uranium	AIR	Note 10	IO-3.5	\$26
Vanadium	AIR	Note 9	IO-3.4	\$10
Vanadium	AIR	Note 10	IO-3.5	\$26
VOCs	AIR	Note 4	TO-14A	\$152

VOCs in Vapor	AIR	S	8260B AZ Vapor	\$152
Yttrium	AIR	Note 9	IO-3.4	\$10
Zinc	AIR	Note 9	IO-3.4	\$10
Zinc	AIR	Note 10	IO-3.5	\$26
Zirconium	AIR	Note 9	IO-3.4	\$10
Alkaline Digestion for Hexavalent Chromium	SW	F	3060A	\$7
Microwave Extraction	SW	Note1	3546	\$7
<i>n</i> -Hexane	SW	F	8260B	\$0
Mercury	SW	F	7473	\$152
Mercury	SW	F	7474	\$152
Nitroaromatics, Nitramines, and Nitrate Esters	SW	F	8330B	\$116
Perchlorate	SW	F	6850	\$152
Chlorine Dioxide	SDW	C1	10126	\$76
<i>E. coli</i> by Colilert (in combination with Total Coliform)	SDW	C2	9223B	\$0
<i>E. coli</i> and Coliforms by Colitag	SDW	Note5	Colitag	\$152
<i>E. coli</i> by Colisure (in combination with Total Coliform)	SDW	C2	9223B	\$0
Heterotrophic Plate Count (For Bottled Water testing only)	SDW	C2	9215D	\$152
Silica	SDW	C2	4500 SiO ₂ -C	\$76
Total Coliforms and <i>E. coli</i> by ReadyCult	SDW	Note2	ReadyCult Coliforms 100 P/A	\$152
Total Coliforms and <i>E. coli</i> by m-ColiBlue24	SDW	C1	HACH 10029	\$228
Uranium	SDW	Note3	D5174-97, 02	\$206
Boron	WW	A1	200.8	\$26
Bromide	WW	Z	300.1	\$26

Calcium	WW	A1	200.8	\$26
Chloride	WW	Z	300.1	\$26
Chloride	WW	C2	4500-Cl D	\$39
Chlorine, Total	WW	C2	4500-Cl E	\$39
Chromium (VI) Hexavalent (IC method)	WW	A1	218.6	\$26
Chromium (VI) Hexavalent (IC Method)	WW	C	3500-Cr E	\$26
Chronic Toxicity on <i>Daphnia magna</i>	WW	Note	Lozarchak, J. 2001	\$194
Copper	WW	C	3500-Cu E	\$76
Cyanide, Total	WW	A2	335.4	\$76
Cyanide, Total	WW	C2	4500-CN F	\$76
Cyanide, Total	WW	Z9	QuikChem 10-204-00-1-X	\$76
<i>E. coli</i> by m-ColiBlue24	WW	C1	HACH 10029	\$228
Fecal Coliforms in Sludge by MTF	WW	Note11	EPA 1681	\$228
Fluoride	WW	Z	300.1	\$26
Gold	WW	A1	200.8	\$26
Hardness (Sum of Ca and Mg)	WW	A1	200.8	\$10
Hydrogen Sulfide	WW	C2	SM 4500-S ²⁻ H	\$10
Iron	WW	A1	200.8	\$26
Kjeldahl Total, Nitrogen	WW	C2	4500-NH ₃ D	\$39
Kjeldahl Total, Nitrogen	WW	C2	4500-NH ₃ E	\$39
Lab Bench Scale Batch Digestion (Sludge)	WW	Note13	EPA 625/R-92/013	\$76
Magnesium	WW	A1	200.8	\$26
Mercury	WW	A1	200.7	\$10
Mercury	WW	Note6	245.7	\$152
Nitrate	WW	Z	300.1	\$26
Nitrate	WW	C2	4500-NO ₃ D	\$39
Nitrate-Nitrite	WW	Z	300.1	\$26
Nitrite	WW	Z	300.1	\$26
Nitrite	WW	C2	4500-NO ₃ E	\$76
Nitrite	WW	C2	4500-NO ₃ F	\$76
Nitrite	WW	A2	353.2	\$76
Orthophosphate	WW	Z	300.1	\$26
Potassium	WW	A1	200.8	\$26

pH (Hydrogen Ion)	WW	A	150.2	\$39
Phenols	WW	A2	420.4	\$116
Phosphorus	WW	A1	200.7	\$10
Silica	WW	A1	200.7	\$10
<i>Salmonella</i> in Sludge by MSR/V Medium	WW	Note12	EPA 1682	\$228
Silica	WW	A1	200.8	\$26
Sodium	WW	C	3500-Na D	\$26
Sodium	WW	A1	200.8	\$26
Sulfide	WW	C2	4500-S2 G	\$39
Sulfate	WW	A2	375.2	\$76
Sulfate	WW	Z	300.1	\$26
Tin	WW	A1	200.8	\$26
Titanium	WW	A1	200.7	\$10
Titanium	WW	A1	200.8	\$26

Note: Lozarchak, J. 2001. "Short-term Chronic Toxicity tests on *Daphnia magna* (survival and growth tests)", USEPA.

Note1: SW-846 3546 "Microwave Extraction", Rev. 0. November 2000

Note2: ReadyCult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters, Version 1.1, January 2007

Note3: Standard Test Method for Trace Uranium in Water by Pulsed-Laser Phosphorimetry, ASTM 5174-97, 02

Note4: Determination Of Volatile Organic Compounds (VOCs) In Ambient Air Using Specially Prepared Canisters With Subsequent Analysis By Gas Chromatography referencing the Compendium Method TO-14A, EPA/625/R-96/010b

Note5: Colitag® Product as a Test for Detection and Identification of Coliforms and *E. coli* Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations, August 2001

Note6: EPA Method 245.7, Rev. 2.0, February 2005, EPA 821-R-05-001, For the Determination of Mercury by Cold Vapor Atomic Fluorescence Spectrometry

Note7: 40 CFR, Part 61, Appendix A, available at <http://www.access.gpo.gov/nara/cfr/cfr-table-search.html>

Note8: Compendium Method IO-3.1, Selection, Preparation and Extraction of Filter Material, EPA/625/R-96/010a, June 1999, available at <http://www.epa.gov/ttn/amtic/files/ambient/inorganic/mthd-3-1.pdf>

Note9: Compendium Method IO-3.4, Determination of Metals in Ambient Particulate Matter Using Inductively Coupled Plasma (ICP), EPA/625/R-96/01a, June 1999, available at <http://www.epa.gov/ttn/amtic/files/ambient/inorganic/mthd-3-4.pdf>

Note10: Compendium Method IO-3.5, Determination of Metals in Ambient Particulate Matter Using Inductively Coupled Plasma/Mass Spectroscopy (ICP/MS), EPA/625/R-96/01a, June 1999, available at <http://www.epa.gov/ttn/amtic/files/ambient/inorganic/mthd-3-5.pdf>

Note11: EPA Method 1681, July 2006, EPA-821-R-06-013, Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using A-1 Medium.

Note12: EPA Method 1682, July 2006, EPA-821-R-06-014, *Samonella* in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport-Vassiliadis (MSRV) Medium.

Note13: EPA 625/R-92/013 – "White House Document" Environmental Regulations and Technology – Control of Pathogens and Vector Attraction in Sewage Revised July 2003, U.S. Environmental Protection Agency.

2. Process for Director Approved Methods (A.A.C. R9-14-610.C.)
(This is a summary of the steps needed for approval, please refer to the rule cited for detailed instructions.)

Note: For a request for an alternate method or method alteration approval, there is a \$50 fee payable to the Department of Health Services.

- A. Request for approval of a different method or method alteration that is required by an EPA, ADEQ, the U.S. Food and Drug Administration or 9 A.A.C. 8.

1. Name, address, and telephone number of the licensee submitting the request.
2. Name, address, and telephone number of the laboratory for which approval is requested.
3. Identification of the parameter for which approval is requested.
4. Reference to the EPA, ADEQ, the U.S. Food and Drug Administration or 9 A.A.C. 8 that requires or authorizes the use of the method or method alteration for which approval is requested.

- B. Request for approval of a different method or method alteration that is **not** required by an EPA or ADEQ statute or rule.

1. Name, address, and telephone number of the licensee submitting the request.
2. Name, address, and telephone number of the laboratory for which approval is requested.
3. Identification of the parameter for which approval is requested.
4. Written justification for using the method or method alteration for which approval is requested, including the following:
 - a. A detailed description of the method or method alteration.
 - b. References to published or other studies confirming the general applicability of the method or method alteration to the parameter.
 - c. Reference to the EPA, ADEQ, the U.S. Food and Drug Administration or 9 A.A.C. 8 requirement to test the parameter.
 - d. Data that demonstrates the performance of the method or method alteration in terms of accuracy, precision, reliability, ruggedness, ease of use, and ability to achieve a detection limit appropriate to the proposed use of the method or method alteration.

The Department, before approving a method or method alteration that is not required or authorized by EPA or ADEQ statute or rule, may require that the method or method alteration be performed by a designated laboratory to verify that the method or method alteration complies with (C)(2)(d)(iv).