

COMMONWEALTH OF KENTUCKY

Energy and Environment Cabinet

2018

Wastewater Laboratory Certification Program
In Accordance with KRS 224.10-670 and 401 KAR Chapter 5:320

THIS CERTIFIES THAT

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Laboratory ID Number: KY98017

The above laboratory has complied with Kentucky Administrative Regulation 401 KAR 5:320, Wastewater Laboratory Certification Program, for the analyses of wastewater samples, as specified in 33 U.S.C. 1342, for the method-analyte pairs specified on the attached certification list.

Effective From: January 1, 2018

To: December 31, 2018



Kevin Stewart

Certification Program Manager

Empirical Laboratories, LLC
 KY Lab ID #: 98017

KY Category	CAS #	Analyte	Status	Reference Method	MDL	MRL	Units	ATP	Mod
Field	N/A	pH	Certified	SM4500 H+ B-2011	0.1	0.1	S.U.		No
Inorganic/Gen Chem	N/A	Alkalinity	Certified	SM2320B-2011	1000	1000	µg/L		No
Inorganic/Gen Chem	7664-41-7	Ammonia	Certified	SM4500 NH3-BG-2011	100	300	µg/L		No
Inorganic/Gen Chem	N/A	Biochemical Oxygen Demand (BOD5)	Certified	SM5210B-2011	2000	2000	µg/L		No
Inorganic/Gen Chem	7726-95-6	Bromide	Certified	EPA 300.0 Rev 2.1	50	250	µg/L		No
Inorganic/Gen Chem	N/A	(CBOD5)	Certified	SM5210B-2011	2000	2000	µg/L		No
Inorganic/Gen Chem	N/A	Chemical Oxygen Demand	Certified	EPA 410.4 Rev 2.0	20000	60000	µg/L		No
Inorganic/Gen Chem	16887-00-6	Chloride	Certified	EPA 300.0 Rev 2.1	170	500	µg/L		No
Inorganic/Gen Chem	57-12-5	Cyanide - Total	Certified	EPA 335.4 Rev 1.0	5	20	µg/L		No
Inorganic/Gen Chem	7782-41-4	Fluoride	Certified	EPA 300.0 Rev 2.1	33	250	µg/L		No
Inorganic/Gen Chem	N/A	Hardness - Total	Certified	EPA 200.7	660	33000	µg/L		No
Inorganic/Gen Chem	14797-55-8	Nitrate (as N)	Certified	EPA 300.0 Rev 2.1	33	250	µg/L		No
Inorganic/Gen Chem	N/A	Nitrate-Nitrite (as N)	Certified	EPA 353.2	250	300	µg/L		No
Inorganic/Gen Chem	1594-56-5	Nitrite (as N)	Certified	EPA 300.0 Rev 2.1	33	250	µg/L		No
Inorganic/Gen Chem	N/A	Oil and Grease	Certified	EPA 1664A Rev A (1999)	1400	5000	µg/L		No
Inorganic/Gen Chem	N/A	Oil and Grease	Certified	EPA 1664A Rev B (2010)	1400	5000	µg/L		No
Inorganic/Gen Chem	98059-61-1	Ortho-phosphate	Certified	SM 4500 P-E	10	40	µg/L		No
Inorganic/Gen Chem	7723-14-0	Phosphorus	Certified	SM 4500 PB5-E-2011	20	80	µg/L		No
Inorganic/Gen Chem	7664-93-9	Sulfate	Certified	EPA 300.0 Rev 2.0	330	2500	µg/L		No
Inorganic/Gen Chem	9073-75-0	Sulfide	Certified	SM 4500 S2-CF-2011	800	4000	µg/L		No
Inorganic/Gen Chem	N/A	Total Dissolved Solids	Certified	SM2540C-2011	20000	20000	µg/L		No
Inorganic/Gen Chem	N/A	Total Organic Carbon (TOC)	Certified	SM5310C-2011	1250	3000	µg/L		No
Inorganic/Gen Chem	N/A	Total Suspended Solids	Certified	SM2540D-2011	4000	4000	µg/L		No
Inorganic/Metals	7429-0-5	Aluminum	Certified	EPA 200.7 Rev 4.4	50.0	200	µg/L		No
Inorganic/Metals	7440-36-0	Antimony	Certified	EPA 200.7 Rev 4.4	5.00	10	µg/L		No
Inorganic/Metals	7440-38-2	Arsenic	Certified	EPA 200.7 Rev 4.4	3.00	10.0	µg/L		No
Inorganic/Metals	7440-39-3	Barium	Certified	EPA 200.7 Rev 4.4	5.00	40.0	µg/L		No
Inorganic/Metals	7440-41-7	Beryllium	Certified	EPA 200.7 Rev 4.4	1.00	5.00	µg/L		No
Inorganic/Metals	7440-42-8	Boron	Certified	EPA 200.7 Rev 4.4	10.0	40	µg/L		No
Inorganic/Metals	7440-43-9	Cadmium	Certified	EPA 200.7 Rev 4.4	1.00	5.00	µg/L		No
Inorganic/Metals	7440-70-2	Calcium	Certified	EPA 200.7 Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7440-47-3	Chromium	Certified	EPA 200.7 Rev 4.4	2.00	10.0	µg/L		No
Inorganic/Metals	7440-48-4	Cobalt	Certified	EPA 200.7 Rev 4.4	5.00	12.5	µg/L		No
Inorganic/Metals	7440-50-8	Copper	Certified	EPA 200.7 Rev 4.4	4.00	10.0	µg/L		No
Inorganic/Metals	7439-89-6	Iron	Certified	EPA 200.7 Rev 4.4	30.0	100	µg/L		No
Inorganic/Metals	7439-92-1	Lead	Certified	EPA 200.7 Rev 4.4	3.0	8	µg/L		No

Empirical Laboratories, LLC
KY Lab ID #: 98017

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Inorganic/Metals	7439-95-4	Magnesium	Certified	EPA 200.7 Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7439-96-5	Manganese	Certified	EPA 200.7 Rev 4.4	3.00	15.0	µg/L		No
Inorganic/Metals	7439-97-6	Mercury	Certified	EPA 245.1 Rev 3.0	0.0800	0.20	µg/L		No
Inorganic/Metals	7439-98-7	Molybdenum	Certified	EPA 200.7 Rev 4.4	5.00	20	µg/L		No
Inorganic/Metals	7440-02-0	Nickel	Certified	EPA 200.7 Rev 4.4	3.00	10.0	µg/L		No
Inorganic/Metals	7440-09-7	Potassium	Certified	EPA 200.7 Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7782-49-2	Selenium	Certified	EPA 200.7 Rev 4.4	3.00	10	µg/L		No
Inorganic/Metals	7440-22-4	Silver	Certified	EPA 200.7 Rev 4.4	1.00	10.0	µg/L		No
Inorganic/Metals	7440-23-5	Sodium	Certified	EPA 200.7 Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7440-28-0	Thallium	Certified	EPA 200.7 Rev 4.4	3.00	8.00	µg/L		No
Inorganic/Metals	7440-31-5	Tin	Certified	EPA 200.7 Rev 4.4	10.0	30.0	µg/L		No
Inorganic/Metals	7440-32-6	Titanium	Certified	EPA 200.7 Rev 4.4	5.00	20	µg/L		No
Inorganic/Metals	7440-62-2	Vanadium	Certified	EPA 200.7 Rev 4.4	5.00	12.5	µg/L		No
Inorganic/Metals	7440-66-6	Zinc	Certified	EPA 200.7 Rev 4.4	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	95-94-3	1,2,4,5-Tetrachlorobenzene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	120-82-1	1,2,4-Trichlorobenzene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	122-66-7	1,2-diphenylhydrazine	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	39638-32-9	chloroisopropyl)ether	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	95-95-4	2,4,5-trichlorophenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	88-06-2	2,4,6-Trichlorophenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	120-83-2	2,4-Dichlorophenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	105-67-9	2,4-Dimethylphenol	Certified	EPA 625.1	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	51-28-5	2,4-Dinitrophenol	Certified	EPA 625.1	8.33	50.0	µg/L		No
ORG/Semi-Volatiles	121-14-2	2,4-Dinitrotoluene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	606-20-2	2,6-Dinitrotoluene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	91-58-7	2-Chloronaphthalene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	95-57-8	2-Chlorophenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	8071-51-0	2-Methyl-4,6-Dinitrophenol	Certified	EPA 625.1	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	88-75-5	2-Nitrophenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	91-94-1	3,3-Dichlorobenzidine	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	101-55-3	4-Bromophenyl phenyl ether	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	59-50-7	4-Chloro-3-methyl phenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	7005-72-3	4-Chlorophenyl phenyl ether	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	100-02-7	4-Nitrophenol	Certified	EPA 625.1	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	83-32-9	Acenaphthene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	208-96-8	Acenaphthylene	Certified	EPA 625.1	1.25	5.00	µg/L		No

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ORG/Semi-Volatiles	120-12-7	Anthracene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	92-87-5	Benzidine	Certified	EPA 625.1	25.0	100	µg/L		No
ORG/Semi-Volatiles	56-55-3	Benzo(a)anthracene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	50-32-8	Benzo(a)pyrene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	205-99-2	Benzo(b)fluoranthene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	191-24-2	Benzo(g,h,i)perylene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	207-08-9	Benzo(K)fluoranthene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	111-91-1	bis(2-chloroethoxy)methane	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	111-44-4	bis(2-chloroethyl)ether	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	117-81-7	bis(2-ethylhexyl)phthalate	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	85-68-7	Butyl Benzyl Phthalate	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	218-01-9	Chrysene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	53-70-3	Dibenzo(a,h)anthracene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	84-66-2	Diethyl phthalate	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	131-11-3	Dimethyl phthalate	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	84-74-2	Di-n-butyl phthalate	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	117-84-0	Di-n-octyl phthalate	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	206-44-0	Fluoranthene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	86-73-7	Fluorene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	118-74-1	Hexachlorobenzene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	87-68-3	Hexachlorobutadiene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	77-47-4	Hexachlorocyclopentadiene	Certified	EPA 625.1	2.50	10.0	µg/L		No
ORG/Semi-Volatiles	67-72-1	Hexachloroethane	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	193-39-5	Indeno(1,2,3-cd)pyrene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	78-59-1	Isophorone	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	91-20-3	Naphthalene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	98-95-3	Nitrobenzene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	62-75-9	N-Nitrosodimethylamine	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	621-64-7	N-Nitrosodi-n-propylamine	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	86-30-6	N-Nitrosodiphenylamine	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	87-86-5	Pentachlorophenol	Certified	EPA 625.1	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	85-01-8	Phenanthrene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	108-95-2	Phenol	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	129-00-0	Pyrene	Certified	EPA 625.1	1.25	5.00	µg/L		No
ORG/Volatiles	71-55-6	1,1,1-Trichloroethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	79-34-5	1,1,2,2,-Tetrachloroethane	Certified	EPA 624.1	0.25	1.00	µg/L		No

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ORG/Volatiles	79-00-5	1,1,2-Trichloroethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-34-3	1,1-Dichloroethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-34-4	1,1-Dichloroethene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	107-06-2	1,2-Dichloroethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	78-87-5	1,2-Dichloropropane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	541-73-1	1,3-Dichlorobenzene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	110-75-8	2-Chloroethylvinyl ether	Certified	EPA 624.1	1.25	5.00	µg/L		No
ORG/Volatiles	107-02-8	Acrolein	Certified	EPA 624.1	1.25	5.00	µg/L		No
ORG/Volatiles	107-13-1	Acrylonitrile	Certified	EPA 624.1	2.50	10.0	µg/L		No
ORG/Volatiles	71-43-2	Benzene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-27-4	Bromodichloromethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-25-2	Bromoform	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	74-83-9	Bromomethane (Methylbromide)	Certified	EPA 624.1	0.50	2.00	µg/L		No
ORG/Volatiles	56-23-5	Carbon tetrachloride	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	108-90-7	Chlorobenzene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-00-3	Chloroethane	Certified	EPA 624.1	0.50	2.00	µg/L		No
ORG/Volatiles	67-66-3	Chloroform	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	74-87-3	Chloromethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	542-75-6	cis-1,3-Dichloropropene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	124-48-1	Dibromochloromethane	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-71-8	Dichlorodifluoromethane	Certified	EPA 624.1	0.50	2.00	µg/L		No
ORG/Volatiles	100-41-4	Ethylbenzene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-09-2	Methylene chloride	Certified	EPA 624.1	0.50	2.00	µg/L		No
ORG/Volatiles	127-18-4	Tetrachloroethene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	108-88-3	Toluene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	156-60-5	trans-1,2-Dichloroethene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	99614-02-5	trans-1,3-Dichloropropene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	79-01-6	Trichloroethene	Certified	EPA 624.1	0.25	1.00	µg/L		No
ORG/Volatiles	75-69-4	Trichlorofluoromethane	Certified	EPA 624.1	0.50	2.00	µg/L		No
ORG/Volatiles	75-01-4	Vinyl chloride	Certified	EPA 624.1	0.25	1.00	µg/L		No