

COMMONWEALTH OF KENTUCKY

Energy and Environment Cabinet

Wastewater Laboratory Certification Program

In Accordance with KRS 224.10-670 and 401 KAR Chapter 5

THIS CERTIFIES THAT

Empirical Laboratories, LLC

621 Mainstream Drive

Nashville, TN 37228

Laboratory Number: 98017

Has fulfilled the requirements governing the Certification of Wastewater Laboratories and is hereby granted certification for the analytes and associated methods listed on the annually updated table.

Given under our hands this 1st day of January, 2017

at Frankfort, Kentucky. This Certificate is valid until December 31, 2017.

Kentucky
UNBRIDLED SPIRIT™

Thomas B. Lablanc

Certification Program Manager

Empirical Laboratories, LLC

KY Lab ID #: 98017

KY Category	CAS #	Analyte	Status	Method	MDL	MRL	Units	ATP	Mod
Field	N/A	pH	Certified	2011	1	1	S.U.		No
Inorganic/Gen Chem	N/A	Alkalinity	Certified	2011	1000	1000	µg/L		No
Inorganic/Gen Chem	7664-41-7	Ammonia	Certified	BG-2011	100	300	µg/L		No
Inorganic/Gen Chem	N/A	Biochemical Oxygen Demand (BOD5)	Certified	2011	2000	2000	µg/L		No
Inorganic/Gen Chem	7726-95-6	Bromide	Certified	Rev 2.1	50	250	µg/L		No
Inorganic/Gen Chem	N/A	(CBOD5)	Certified	2011	2000	2000	µg/L		No
Inorganic/Gen Chem	N/A	Chemical Oxygen Demand	Certified	Rev 2.0	20000	60000	µg/L		No
Inorganic/Gen Chem	16887-00-6	Chloride	Certified	Rev 2.1	170	500	µg/L		No
Inorganic/Gen Chem	57-12-5	Cyanide - Total	Certified	Rev 1.0	5	20	µg/L		No
Inorganic/Gen Chem	7782-41-4	Fluoride	Certified	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	N/A	Kjeldahl Nitrogen - Total (TKN)	Certified	EPA 351.2	500	1500	µg/L		No
Inorganic/Gen Chem	14797-55-8	Nitrate (as N)	Certified	Rev 2.1	33	250	µg/L		No
Inorganic/Gen Chem	N/A	Nitrate-Nitrite (as N)	Certified	EPA 353.2	50	300	µg/L		No
Inorganic/Gen Chem	1594-56-5	Nitrite (as N)	Certified	Rev 2.1	33	250	µg/L		No
Inorganic/Gen Chem	N/A	Oil and Grease	Certified	Rev A (1999)	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	N/A	Phenols (Total Phenolics)	Certified	Rev 1.0	25	100	µg/L		No
Inorganic/Gen Chem	7723-14-0	Phosphorus	Certified	E-2011	20	80	µg/L		No
Inorganic/Gen Chem	7664-93-9	Sulfate	Certified	Rev 2.0	330	2500	µg/L		No
Inorganic/Gen Chem	9073-75-0	Sulfide	Certified	CF-2011	800	4000	µg/L		No
Inorganic/Gen Chem	N/A	Total Dissolved Solids	Certified	2011	20000	20000	µg/L		No
Inorganic/Gen Chem	N/A	Total Organic Carbon (TOC)	Certified	2011	1250	3000	µg/L		No
Inorganic/Gen Chem	N/A	Total Suspended Solids	Certified	2011	4000	4000	µg/L		No
Inorganic/Metals	7429-0-5	Aluminum	Certified	Rev 4.4	50.0	200	µg/L		No
Inorganic/Metals	7440-36-0	Antimony	Certified	Rev 4.4	5.00	10	µg/L		No
Inorganic/Metals	7440-38-2	Arsenic	Certified	Rev 4.4	3.00	10.0	µg/L		No
Inorganic/Metals	7440-39-3	Barium	Certified	Rev 4.4	5.00	40.0	µg/L		No
Inorganic/Metals	7440-41-7	Beryllium	Certified	Rev 4.4	1.00	5.00	µg/L		No
Inorganic/Metals	7440-42-8	Boron	Certified	Rev 4.4	10.0	40	µg/L		No
Inorganic/Metals	7440-43-9	Cadmium	Certified	Rev 4.4	1.00	5.00	µg/L		No
Inorganic/Metals	7440-70-2	Calcium	Certified	Rev 4.4	1000	5000	µg/L		No

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Inorganic/Metals	7440-47-3	Chromium	Certified	Rev 4.4	2.00	10.0	µg/L		No
Inorganic/Metals	7440-48-4	Cobalt	Certified	Rev 4.4	5.00	12.5	µg/L		No
Inorganic/Metals	7440-50-8	Copper	Certified	Rev 4.4	4.00	10.0	µg/L		No
Inorganic/Metals	7439-89-6	Iron	Certified	Rev 4.4	30.0	100	µg/L		No
Inorganic/Metals	7439-92-1	Lead	Certified	Rev 4.4	1.50	5.00	µg/L		No
Inorganic/Metals	7439-95-4	Magnesium	Certified	Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7439-96-5	Manganese	Certified	Rev 4.4	3.00	15.0	µg/L		No
Inorganic/Metals	7439-97-6	Mercury	Certified	Rev 3.0	0.0800	0.20	µg/L		No
Inorganic/Metals	7439-98-7	Molybdenum	Certified	Rev 4.4	5.00	20	µg/L		No
Inorganic/Metals	7440-02-0	Nickel	Certified	Rev 4.4	3.00	10.0	µg/L		No
Inorganic/Metals	7440-09-7	Potassium	Certified	Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7782-49-2	Selenium	Certified	Rev 4.4	3.00	10	µg/L		No
Inorganic/Metals	7440-22-4	Silver	Certified	Rev 4.4	1.00	10.0	µg/L		No
Inorganic/Metals	7440-23-5	Sodium	Certified	Rev 4.4	1000	5000	µg/L		No
Inorganic/Metals	7440-28-0	Thallium	Certified	Rev 4.4	3.00	8.00	µg/L		No
Inorganic/Metals	7440-31-5	Tin	Certified	Rev 4.4	10.0	30.0	µg/L		No
Inorganic/Metals	7440-32-6	Titanium	Certified	Rev 4.4	5.00	20	µg/L		No
Inorganic/Metals	7440-62-2	Vanadium	Certified	Rev 4.4	5.00	12.5	µg/L		No
Inorganic/Metals	7440-66-6	Zinc	Certified	Rev 4.4	5.00	20.0	µg/L		No
ORG/Pest/Herb/PCB	72-54-8	4,4-DDD	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	72-55-9	4,4-DDE	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	50-29-3	4,4-DDT	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	309-00-2	Aldrin	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	57-74-9	Chlordane	Certified	EPA 608	0.0170	0.100	µg/L		No
ORG/Pest/Herb/PCB	60-57-1	Dieldrin	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	959-98-8	Endosulfan I	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	33213-65-9	Endosulfan II	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	1031-07-8	Endosulfan Sulfate	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	72-20-8	Endrin	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	7421-93-4	Endrin aldehyde	Certified	EPA 608	0.00500	0.0200	µg/L		No
ORG/Pest/Herb/PCB	76-44-8	Heptachlor	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	1024-57-3	Heptachlor epoxide	Certified	EPA 608	0.00330	0.0200	µg/L		No

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ORG/Pest/Herb/PCB	58-89-9	Lindane (gamma-BHC)	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	72-43-5	Methoxychlor	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	12674-11-2	PCB-1016	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	11104-28-2	PCB-1221	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	11141-16-5	PCB-1232	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	53469-21-9	PCB-1242	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	12672-29-6	PCB-1248	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	11097-69-1	PCB-1254	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	11096-82-5	PCB-1260	Certified	EPA 608	0.125	0.500	µg/L		No
ORG/Pest/Herb/PCB	8001-35-2	Toxaphene	Certified	EPA 608	0.330	1.00	µg/L		No
ORG/Pest/Herb/PCB	319-84-6	α-BHC (Alpha-BHC)	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	319-85-7	β-BHC (Beta-BHC)	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Pest/Herb/PCB	319-86-8	δ-BHC (Delta-BHC)	Certified	EPA 608	0.00330	0.0200	µg/L		No
ORG/Semi-Volatiles	95-94-3	1,2,4,5-Tetrachlorobenzene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	120-82-1	1,2,4-Trichlorobenzene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	122-66-7	1,2-diphenylhydrazine	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	39638-32-9	chloroisopropyl)ether	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	95-95-4	2,4,5-trichlorophenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	88-06-2	2,4,6-Trichlorophenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	120-83-2	2,4-Dichlorophenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	105-67-9	2,4-Dimethylphenol	Certified	EPA 625	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	51-28-5	2,4-Dinitrophenol	Certified	EPA 625	8.33	50.0	µg/L		No
ORG/Semi-Volatiles	121-14-2	2,4-Dinitrotoluene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	606-20-2	2,6-Dinitrotoluene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	91-58-7	2-Chloronaphthalene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	95-57-8	2-Chlorophenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	8071-51-0	2-Methyl-4,6-Dinitrophenol	Certified	EPA 625	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	88-75-5	2-Nitrophenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	91-94-1	3,3-Dichlorobenzidine	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	101-55-3	4-Bromophenyl phenyl ether	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	59-50-7	4-Chloro-3-methyl phenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	7005-72-3	4-Chlorophenyl phenyl ether	Certified	EPA 625	1.25	5.00	µg/L		No

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ORG/Semi-Volatiles	100-02-7	4-Nitrophenol	Certified	EPA 625	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	83-32-9	Acenaphthene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	208-96-8	Acenaphthylene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	120-12-7	Anthracene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	92-87-5	Benzidine	Certified	EPA 625	25.0	100	µg/L		No
ORG/Semi-Volatiles	56-55-3	Benzo(a)anthracene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	50-32-8	Benzo(a)pyrene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	205-99-2	Benzo(b)fluoranthene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	191-24-2	Benzo(g,h,i)perylene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	207-08-9	Benzo(K)fluoranthene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	111-91-1	bis(2-chloroethoxy)methane	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	111-44-4	bis(2-chloroethyl)ether	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	117-81-7	bis(2-ethylhexyl)phthalate	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	85-68-7	Butyl Benzyl Phthalate	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	218-01-9	Chrysene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	53-70-3	Dibenzo(a,h)anthracene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	84-66-2	Diethyl phthalate	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	131-11-3	Dimethyl phthalate	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	84-74-2	Di-n-butyl phthalate	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	117-84-0	Di-n-octyl phthalate	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	206-44-0	Fluoranthene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	86-73-7	Fluorene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	118-74-1	Hexachlorobenzene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	87-68-3	Hexachlorobutadiene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	77-47-4	Hexachlorocyclopentadiene	Certified	EPA 625	2.50	10.0	µg/L		No
ORG/Semi-Volatiles	67-72-1	Hexachloroethane	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	193-39-5	Indeno(1,2,3-cd)pyrene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	78-59-1	Isophorone	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	91-20-3	Naphthalene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	98-95-3	Nitrobenzene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	62-75-9	N-Nitrosodimethylamine	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	621-64-7	N-Nitrosodi-n-propylamine	Certified	EPA 625	1.25	5.00	µg/L		No

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ORG/Semi-Volatiles	86-30-6	N-Nitrosodiphenylamine	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	87-86-5	Pentachlorophenol	Certified	EPA 625	5.00	20.0	µg/L		No
ORG/Semi-Volatiles	85-01-8	Phenanthrene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	108-95-2	Phenol	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Semi-Volatiles	129-00-0	Pyrene	Certified	EPA 625	1.25	5.00	µg/L		No
ORG/Volatiles	71-55-6	1,1,1-Trichloroethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	79-34-5	1,1,2,2,-Tetrachloroethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	79-00-5	1,1,2-Trichloroethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-34-3	1,1-Dichloroethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-34-4	1,1-Dichloroethene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	107-06-2	1,2-Dichloroethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	78-87-5	1,2-Dichloropropane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	541-73-1	1,3-Dichlorobenzene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	110-75-8	2-Chloroethylvinyl ether	Certified	EPA 624	1.25	5.00	µg/L		No
ORG/Volatiles	107-02-8	Acrolein	Certified	EPA 624	1.25	5.00	µg/L		No
ORG/Volatiles	107-13-1	Acrylonitrile	Certified	EPA 624	2.50	10.0	µg/L		No
ORG/Volatiles	71-43-2	Benzene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-27-4	Bromodichloromethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-25-2	Bromoform	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	74-83-9	Bromomethane (Methylbromide)	Certified	EPA 624	0.50	2.00	µg/L		No
ORG/Volatiles	56-23-5	Carbon tetrachloride	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	108-90-7	Chlorobenzene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-00-3	Chloroethane	Certified	EPA 624	0.50	2.00	µg/L		No
ORG/Volatiles	67-66-3	Chloroform	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	74-87-3	Chloromethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	542-75-6	cis-1,3-Dichloropropene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	124-48-1	Dibromochloromethane	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-71-8	Dichlorodifluoromethane	Certified	EPA 624	0.50	2.00	µg/L		No
ORG/Volatiles	100-41-4	Ethylbenzene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-09-2	Methylene chloride	Certified	EPA 624	0.50	2.00	µg/L		No

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ORG/Volatiles	127-18-4	Tetrachloroethene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	108-88-3	Toluene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	156-60-5	trans-1,2-Dichloroethene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	99614-02-5	trans-1,3-Dichloropropene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	79-01-6	Trichloroethene	Certified	EPA 624	0.25	1.00	µg/L		No
ORG/Volatiles	75-69-4	Trichlorofluoromethane	Certified	EPA 624	0.50	2.00	µg/L		No
ORG/Volatiles	75-01-4	Vinyl chloride	Certified	EPA 624	0.25	1.00	µg/L		No