NYC DEP 2019 Emerging Contaminants Monitoring Project Summary, 5/15/19

Background

DEP employees closely monitor New York City's drinking water supply to ensure that our customers receive the highest quality water. We annually perform more than 240,000 tests in the upstate watersheds that feed our reservoir system, and another 400,000 tests of water in distribution pipes throughout the five boroughs. These tests continue to show that the City's drinking water is some of the best in the world, meeting or surpassing all state and federal standards. Detailed information about this testing program can be found in DEP's 2018 Drinking Water Supply and Quality Report at https://www1.nyc.gov/site/dep/about/drinking-water-supply-quality-report.page.

New York City's reservoirs collect water from rain and melting snow throughout our watershed. As water travels over the surface of the land or underground, a variety of minerals, organic materials and other substances can dissolve into the water.

For decades, DEP scientists have regularly tested our water supply to understand the substances that could enter our reservoirs now and in the future. Modern testing techniques allow our laboratory experts to detect some substances at levels as low as one part per trillion – an amount so small that it represents one drop of water in 56 Olympic-sized swimming pools, or 1 second of time in 31,700 years.

In addition to potential contaminants that are known today, DEP also focuses on protecting our drinking water in the future. That's why we worked with the U.S. Geological Survey and the New York State Department of Health in 2009 to develop a list of 72 emerging contaminants – substances that are not regulated today but deserve further analysis. These substances primarily include pharmaceutical and personal-care products that are typically used in our homes. DEP scientists detected some of these materials, but only at levels so low that they posed no concern for the health of our customers. Reports were published and are available at https://www1.nyc.gov/site/dep/about/document-portal.page.

2019 Monitoring Summary

Experts have added new substances to the list of emerging contaminants over the past decade, prompting DEP scientists to begin a new study in 2019. The latest study focuses on more than 140 materials, the vast majority of which were not detected in our reservoirs or the stream, creeks and rivers that feed them. Our latest analysis also included several perfluorinated compounds. These materials were often not detected, or they were detected at levels far below New York State's proposed standard of 10 parts per trillion, which will become the most stringent limit in the United States when it takes effect later this year. Only two samples, collected from small streams near the Westchester County Airport, measured higher.

The monitoring plan for this new project is published on DEP's website at (https://www1.nyc.gov/html/dep/pdf/water/project-plan-emerging-contaminants-monitoring-

project.pdf). DEP will repeat this testing every three months this year and it will continue to publish the results, including a full report after completion of the project.

DEP Emerging Contaminant Monitoring Project 2019

Quarter 1 Summary Results (ng/L unless otherwise indicated)*

Compound	Sources	Standard	Sampling location/Sampling Date: CroGH 2/5/2019	Del18DT 2/5/2019	DEL17 2/5/2019	CatAlum 2/5/2019	MB-1 1/29/2019	N5-1 1/29/2019	N12 1/29/2019	BG9 1/29/2019	WHIP 1/29/2019	E9 1/29/2019	E10 1/29/2019	E11 1/29/2019
UCMR3														
Strontium (ug/L)	Erosion of natural deposits	1500 (EPA health ref level)	74	20	15	15	170	150	140	120	91	120	260	110
Vanadium (ug/L)	Erosion of natural deposits	21 (EPA health ref level)	ND**	ND	ND	ND	0.32	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (ug/L)	Erosion of natural deposits	10 (Califonia MCL)	0.034	0.040	0.046	0.040	0.020	0.078	0.056	ND	0.058	0.033	0.058	0.033
Chlorate (ug/L)	Pesticide runoff, DBP)	15 (EPA health ref level)	ND	ND	ND	ND	280	ND	26	ND	28	ND	ND	ND
1,4- Dioxane (ug/L)	Solvents	1 (NYS proposed MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Industrial/Consumer products	50,000 (NYS UOC MCL)***	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSSA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic acid (PFBS)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	2.7	2.3	ND	2.2	3.1	ND	26	13
Perfluorodecanoic acid (PFDA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0	ND
Perfluorododecanoic acid (PFDoA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	2.6	ND	ND	2.3	49	16
Perfluorohexanesulfonic acid (PFHxS)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	2.8	ND	ND	ND	ND	ND	240	58
Perfluorohexanoic acid (PRHxA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	2.2	ND	ND	ND	2.6	2.0	2.8	ND	2.5	3.5	120	33
Perfluorononanoic acid (PFNA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	43	16
Perfluorooctanoic acid (PFOA)	Industrial/Consumer products	10 (NYS proposed MCL)	3.3	ND	ND	ND	5.8	5.0	4.4	4.7	5.5	6.2	100	47
Perfluorooctanesulfonic acid (PFOS)	Industrial/Consumer products	10 (NYS proposed MCL)	2.1	ND	ND	ND	4.9	3.7	8.0	3.1	2.8	ND	420	29
Perfluorotetradecanoic acid ((PFTA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUnA)	Industrial/Consumer products	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	ND
UCMR4														
Germanium (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese (ug/L)	Erosion of natural deposits	300 (NYS Secondary MCL)	50	12	9.8	18	220	87	28	100	28	28	440	62
α-HCH (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorpyrifos (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethipin (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethoprop (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Oxyfluorfen (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Profenofos (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tebuconazole (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Permethrin (trans and cis) (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tribufos (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o - Toluidine (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Quinolone (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butylated hydroxanisole (BHA) (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1- butanol (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2- methoxyethanol (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2- propen-1-ol (allyl alcohol) (ug/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Microcystin LA (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Microcystin-LF (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Microcystin-LR (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Microcystin-LY (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Microcystin-RR (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Microcystin-YR (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Anatoxin -a (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Cylindrospermopsin (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x
Nodularin-R (ug/L)			ND	ND	ND	ND	x	x	x	x	x	x	x	x

2,4-D	Pesticide	70,000 (NYS MCL)	5.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-nonylphenol (semi-quantitative)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-tert-octylphenol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acesulfame -K	Artificial sweetener	50,000 (NYS UOC MCL)	280	ND	ND	ND	ND	ND	89	53	120	38	170	ND
Bendroflumethiazide			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bisphenol A (BPA)	Polycarbobate plastics	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	32	ND
Butalbital			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butylparaben			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloramphenicol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Clofibric Acid			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diclofenac			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Estradiol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Estriol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Estrone			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethinyl-Estradiol - 17 - alpha			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylparaben			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gemfibrozil			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ibuprofen			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iohexol	x-ray medication drug	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	ND	ND
Iopromide			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isobutylparaben			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylparaben			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naproxen			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propylparaben			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Salicylic Acid			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sucralose	Artificial sweetener	50,000 (NYS UOC MCL)	470	ND	ND	ND	ND	ND	ND	160	250	ND	180	ND
Triclocarban			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Triclosan			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Warfarin			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,7-Dimethylxanthine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetaminophen			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Albuterol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Amoxicillin (semi - quantitative)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Androstenedione			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Atenolol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Atrazine	Pesticide	3,000 (NYS MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.1	ND
Bezafibrate			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromacil			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Caffeine	Coffee, tea	50,000 (NYS UOC MCL)	16	ND	ND	ND	19	ND	ND	ND	ND	ND	ND	ND
Carbadox			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbamazepine	Anti-convulsant drug	100,000 (Australian guideline)	ND	ND	ND	ND	ND	ND	ND	ND	6.7	ND	ND	ND
Carisoprodol			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloridazon			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorotoluron			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cimetidine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cotinine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyanazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DACT			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEA			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEET			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dehydronifedipine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIA			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diazepam			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dilantin			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diltiazem			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diuron			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Erythromycin			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Flumeqine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoxetine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isoproturon			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ketoprofen			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ketorolac			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Lidocaine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Lincomycin			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Linuron			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Lopressor			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Meclofenamic Acid			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Meprobamate			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Metazachlor			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Metformin	Diabetes treatment drug	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	
Metolachlor			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Nifedipine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Norethisterone			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfometuron Methyl			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Oxolinic acid			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Pentoxifylline			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Phenazone			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Primidone			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Progesterone			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Propazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Quinoline	Manufacture of dyes	50,000 (NYS UOC MCL)	ND	ND	ND	ND	ND	ND	ND	8.6	ND	ND	ND	ND	
Simazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfachloropyridazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfadiazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfadimethoxine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfamerazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfamethazine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfamethoxazole			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfamethizole			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sulfathiazole			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
TCEP			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
TCPP			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
TDCPP			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Testosterone			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Theobromine			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Theophylline			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thiabendazole			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trimethoprim			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
RADIONUCLIDE SUITE															
Radium 226 (pC/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Radium 228 (pC/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Alpha, Gross (pC/L)	Natural or man-made sources	15 (NYS MCL)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0	ND	
Beta, Gross (pC/L)	Natural or man-made sources	4 mrem/year (MCL)	3.4	ND	ND	ND	ND	3.4	ND	ND	ND	ND	4.3	ND	
Uranium (pC/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Uranium (pC/L)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

* ng/L = nanograms per liter = parts per trillion (1 ppt = 1 second of time in 31,700 years)

** ND = not detected

*** NYS UOC MCL = New York State Unregulated Organic Contaminant Maximum Contaminant Level