

City of Norfolk

Water Quality Analysis

This report covers the 2nd Quarter of 2003

Thursday, December 18, 2003

37th Street Plant

Primary Regulated Compounds

These are compounds for which there are actual limits called Maximum Contaminant Levels, or MCLs. The MCL is the highest level of a contaminant that is allowed in drinking water. The Environmental Protection Agency establishes these levels based on health effects research.

Compound	Result	MCL	Method
1,1,1-Trichloroethane	< 0.5 ug/L	200 ug/L	EPA 524.2
1,1,2-Trichloroethane	< 0.5 ug/L	5 ug/L	EPA 524.2
1,1-Dichloroethylene	< 0.5 ug/L	7 ug/L	EPA 524.2
1,2,4-Trichlorobenzene	< 0.5 ug/L	70 ug/L	EPA 524.2
1,2-Dichloroethane	< 0.5 ug/L	5 ug/L	EPA 524.2
1,2-Dichloropropane	< 0.5 ug/L	5 ug/L	EPA 524.2
2,3,7,8-TCDD	< 2.3 pg/L	30 pg/L	EPA 1613
2,4,5-TP	< 0.2 ug/L	50 ug/L	EPA 515.3
2,4-D	< 0.1 ug/L	70 ug/L	EPA 515.3
Alachlor	< 0.05 ug/L	2 ug/L	EPA 508
Aldicarb	< 0.5 ug/L	stayed	EPA 531.1
Aldicarb sulfone	< 0.7 ug/L	stayed	EPA 531.1
Aldicarb sulfoxide	< 0.5 ug/L	stayed	EPA 531.1
Antimony	< 0.003 mg/L	6 ug/L	EPA 200.9
Arsenic	< 0.005 mg/L	0.010 mg/L	EPA 200.9
Asbestos	< 0.2 MFL	7 MFL	EPA 100.1
Atrazine	< 0.05 ug/L	3 ug/L	EPA 525.2
Barium	0.035 mg/L	2 mg/L	EPA 200.8
Benzene	< 0.5 ug/L	5 ug/L	EPA 524.2
Benzo(a)pyrene	< 0.02 ug/L	0.2 ug/L	EPA 525.2
Beryllium	< 1 ug/L	4 ug/L	EPA 200.8
Cadmium	< 0.002 mg/L	5 ug/L	EPA 200.9
Carbofuran	< 0.9 ug/L	40 ug/L	EPA 531.1
Carbon Tetrachloride	< 0.5 ug/L	5 ug/L	EPA 524.2
Chlordane	< 0.1 ug/L	2 ug/L	EPA 508
Chlorobenzene	< 0.5 ug/L	100 ug/L	EPA 524.2
Chromium	< 0.005 mg/L	100 ug/L	EPA 200.9
cis-1,2-Dichloroethylene	< 0.5 ug/L	70 ug/L	EPA 524.2
Copper	< 0.025 mg/L	1.3 mg/L	SM 3111 B
Cyanide	< 0.025 mg/L	0.2 mg/L	SM 4500-CN F
Dalapon	< 1 ug/L	200 ug/L	EPA 515.3
Di(2-ethylhexyl)adipate	< 0.6 ug/L	400 ug/L	EPA 525.2
Di(2-ethylhexyl)phthalate	< 0.6 ug/L	6 ug/L	EPA 525.2
Dibromochloropropane	< 0.01 ug/L	0.2 ug/L	EPA 504.1
Dichloromethane	< 0.5 ug/L	5 ug/L	EPA 524.2
Dinoseb	< 0.2 ug/L	7 ug/L	EPA 515.3
Diquat	< 0.4 ug/L	20 ug/L	EPA 549.2
Endothall	< 5 ug/L	100 ug/L	EPA 548.1
Endrin	< 0.01 ug/L	2 ug/L	EPA 508
Ethylbenzene	< 0.5 ug/L	700 ug/L	EPA 524.2
Ethylene dibromide	< 0.01 ug/L	0.05 ug/L	EPA 504.1
Glyphosate	< 6 ug/L	700 ug/L	EPA 547
HAA5, Compliance Average	38 ug/L	60 ug/L	Calculated

37th Street Plant

Heptachlor	< 0.01 ug/L	0.4 ug/L	EPA 508
Heptachlor epoxide	< 0.01 ug/L	0.2 ug/L	EPA 508
Hexachlorobenzene	< 0.05 ug/L	0.2 ug/L	EPA 525.2
Hexachlorocyclopentadiene	< 0.05 ug/L	50 ug/L	EPA 525.2
Lead	< 0.003 mg/L	0.015 mg/L	EPA 200.9
Lindane	< 0.01 ug/L	0.2 ug/L	EPA 508
Mercury	<0.0002 mg/L	2 ug/L	EPA 245.1
Methoxychlor	< 0.05 ug/L	40 ug/L	EPA 508
Nitrate-N	0.39 mg/L	10 mg/L	SM 4500-NO3 F
Nitrate/Nitrite-N, Total	0.39 mg/L	10 mg/L	SM 4500-NO3 F
Nitrite-N	< 0.01 mg/L	1 mg/L	SM 4500-NO3 F
o-Dichlorobenzene	< 0.5 ug/L	600 ug/L	EPA 524.2
Oxamyl	< 2 ug/L	200 ug/L	EPA 531.1
p-Dichlorobenzene	< 0.5 ug/L	75 ug/L	EPA 524.2
PCB 1016	< 0.07 ug/L	0.5 ug/L	EPA 508
PCB 1221	< 0.1 ug/L	0.5 ug/L	EPA 508
PCB 1232	< 0.1 ug/L	0.5 ug/L	EPA 508
PCB 1242	< 0.1 ug/L	0.5 ug/L	EPA 508
PCB 1248	< 0.1 ug/L	0.5 ug/L	EPA 508
PCB 1254	< 0.1 ug/L	0.5 ug/L	EPA 508
PCB 1260	< 0.1 ug/L	0.5 ug/L	EPA 508
Pentachlorophenol	< 0.04 ug/L	1 ug/L	EPA 515.3
Picloram	< 0.1 ug/L	500 ug/L	EPA 515.3
Selenium	< 0.005 mg/L	50 ug/L	EPA 200.9
Simazine	< 0.05 ug/L	4 ug/L	EPA 525.2
Styrene	< 0.5 ug/L	100 ug/L	EPA 524.2
TC, Total Coliform Compliance	0.7 %	5% /mo.	Calculated
Tetrachloroethylene	< 0.5 ug/L	5 ug/L	EPA 524.2
Thallium	< 0.001 mg/L	2 ug/L	EPA 200.8
Thallium	< 0.001 mg/L	2 ug/L	EPA 200.8
Toluene	< 0.5 ug/L	1,000 ug/L	EPA 524.2
Toxaphene	< 0.5 ug/L	3 ug/L	EPA 508
trans-1,2-Dichloroethylene	< 0.5 ug/L	100 ug/L	EPA 524.2
Trichloroethylene	< 0.5 ug/L	5 ug/L	EPA 524.2
TTHM, Compliance Average	50 ug/L	80 ug/L	Calculated
Turbidity, Filter Compliance	100 %	TT	TT
Vinyl Chloride	< 0.3 ug/L	2 ug/L	EPA 524.2
Xylenes, Total	< 0.5 ug/L	10,000 ug/L	EPA 524.2

Secondary Regulated Compounds

These compounds have no health significance, but can cause tastes or odors in your water. For this reason, secondary limits called Secondary Maximum Contaminant Levels (SMCLs) have been established. Exceeding these standards does not mean that the water is unhealthy, only that it might taste or smell unusual.

Compound	Result	SMCL	Method
Aggressive Index	10.25	Noncorrosive	Calculated
Aluminum	0.27 mg/L	0.05-0.2 mg/L	EPA 200.7
Chloride	18.9 mg/L	250 mg/l	EPA 235.3
Color	0 CUs	15 CUs	SM 2120 B
Foaming Agents	0.01 mg/L	0.5 mg/L	Hach Crystal Violet
Iron	< 0.025 mg/L	0.3 mg/L	SM 3111 B

37th Street Plant

Langelier Index	-1.78	Noncorrosive	Calculated
Manganese	< 0.015 mg/L	0.05 mg/L	SM 3111 B
pH	7.4 units	6.5-8.5	EPA 150.1
Silver	< 0.002 mg/L	0.1 mg/L	EPA 200.9
Solids, Total Dissolved	106 mg/L	500 mg/L	SM 2540 C
Sulfate	31.68 mg/L	250mg/L	EPA 300.0
Zinc	< 0.006 mg/L	5 mg/l	SM 3111 B

Monitored Unregulated Compounds

These compounds are not regulated by the EPA and have no established limits. Mandatory monitoring for these compounds helps EPA determine where certain compounds occur and whether those compounds need to be regulated.

Compound	Result	Method
1,1,1,2-Tetrachloroethane	< 0.5 ug/L	EPA 524.2
1,1,2,2-Tetrachloroethane	< 0.5 ug/L	EPA 524.2
1,1-Dichloroethane	< 0.5 ug/L	EPA 524.2
1,1-Dichloropropene	< 0.5 ug/L	EPA 524.2
1,2,3-Trichlorobenzene	< 0.5 ug/L	EPA 524.2
1,2,3-Trichloropropane	< 0.5 ug/L	EPA 524.2
1,2,4-Trimethylbenzene	< 0.5 ug/L	EPA 524.2
1,3,5-Trimethylbenzene	< 0.5 ug/L	EPA 524.2
1,3-Dichloropropane	< 0.5 ug/L	EPA 524.2
2,2-Dichloropropane	< 0.5 ug/L	EPA 524.2
3-Hydroxycarbofuran	< 2 ug/L	EPA 531.1
Aldrin	< 0.01 ug/L	EPA 508
Bromobenzene	< 0.5 ug/L	EPA 524.2
Bromochloromethane	< 0.5 ug/L	EPA 524.2
Bromomethane	< 0.5 ug/L	EPA 524.2
Butachlor	< 0.05 ug/L	EPA 525.2
Carbaryl	< 2 ug/L	EPA 531.1
Chloroethane	< 0.5 ug/L	EPA 524.2
Chloromethane	< 0.5 ug/L	EPA 524.2
cis-1,3-Dichloropropene	< 0.5 ug/L	EPA 524.2
DCPA, Total Mono & Diacid Degradate	< 0.2 ug/L	EPA 515.3
Dibromomethane	< 0.5 ug/L	EPA 524.2
Dicamba	< 0.08 ug/L	EPA 515.3
Dichlorodifluoromethane	< 0.5 ug/L	EPA 524.2
Dieldrin	< 0.01 ug/L	EPA 508
Fluorotrichloromethane	< 0.5 ug/L	EPA 524.2
HAA, Dibromoacetic acid	< 1 ug/L	EPA 552.2
HAA, Dichloroacetic acid	13.8 ug/L	EPA 552.2
HAA, Monobromoacetic acid	1.4 ug/L	EPA 552.2
HAA, Monochloroacetic acid	1.2 ug/L	EPA 552.2
HAA, Trichloroacetic acid	18.5 ug/L	EPA 552.2
HAA5, Total	34.9 ug/L	EPA 552.2
Hexachlorobutadiene	< 0.5 ug/L	EPA 524.2
Isopropylbenzene	< 0.5 ug/L	EPA 524.2
m-Dichlorobenzene	< 0.5 ug/L	EPA 524.2
Methomyl	< 1 ug/L	EPA 531.1
Metolachlor	< 0.05 ug/L	EPA 525.2
Metribuzin	< 0.05 ug/L	EPA 525.2
Molinate	< 0.2 ug/L	EPA 525.2

37th Street Plant

MTBE	< 3 ug/L	EPA 524.2
n-Butylbenzene	< 0.5 ug/L	EPA 524.2
n-Propylbenzene	< 0.5 ug/L	EPA 524.2
Naphthalene	< 0.5 ug/L	EPA 524.2
o-Chlorotoluene	< 0.5 ug/L	EPA 524.2
p-Chlorotoluene	< 0.5 ug/L	EPA 524.2
p-Isopropyltoluene	< 0.5 ug/L	EPA 524.2
Perchlorate	< 4 ug/L	EPA 314
Propachlor	< 0.05 ug/L	EPA 525.2
sec-Butylbenzene	< 0.5 ug/L	EPA 524.2
tert-Butylbenzene	< 0.5 ug/L	EPA 524.2
THM, Bromodichloromethane	9.1 ug/L	EPA 502.2
THM, Bromoform	< 0.5 ug/L	EPA 502.2
THM, Chloroform	32.2 ug/L	EPA 502.2
THM, Dibromochloromethane	1.4 ug/L	EPA 502.2
TTHM, Total trihalomethanes	42.7 ug/L	EPA 502.2

Compounds and Physical Characteristics of Interest

These water quality parameters are not regulated, but are frequently requested by customers.

Compound	Result	Method
Alkalinity	27 mg/L	SM 2320B
Calcium	10.4 mg/L	SM 3500-Ca D
Calcium Hardness	26 mg/L	SM 3500-Ca A
Chlorine, Free	0 mg/L	SM 4500-CI F
Chlorine, Total	3.4 mg/L	SM 4500-CI F
Conductivity	153 umho/cm	SM 2510 B
Fluoride	0.89 mg/L	SM 4500-F C
Hardness	36 mg/L	SM 2340 C
Hardness	2.11 gr/Gal	Calculated
Magnesium	2.4 mg/L	SM 3500-Mg E
Potassium	3.295 mg/L	SM 3111 B
Silica	3 mg/L	EPA 370.1
Sodium	20.31 mg/L	SM 3111 B
Solids, Fixed	85.5 mg/L	SM 2540 B
Solids, Total	103 mg/L	SM 2540 B
Solids, Volatile	17.5 mg/L	SM 2540 B
Temperature, C	14.4 C	Calculated
Temperature, F	58 F	SM 2550
Temperature, F, Annual Average	64.1 F	Calculated
Temperature, F, Annual Maximum	86 F	Calculated
Temperature, F, Annual Minimum	41 F	Calculated
Turbidity	0.09 ntu	SM 2130 B

Additional Unregulated Compounds

Although we are not required to monitor for the following compounds, we include them in order to evaluate compliance with future regulations.

Compound	Result	Method
2,4,5-T	< 0.2 ug/L	EPA 515.3
2,4-DB	< 2 ug/L	EPA 515.3
2,4-Dinitrotoluene	< 0.1 ug/L	EPA 525.2
2-Butanone	< 5 ug/L	EPA 524.2
3,5-Dichlorobenzoic acid	< 0.5 ug/L	EPA 515.3

37th Street Plant

4-Methyl-2-Pentanone	< 5 ug/L	EPA 524.2
4-Nitrophenol	< 1 ug/L	EPA 515.3
Acenaphthylene	< 0.1 ug/L	EPA 525.2
Acifluorfen	< 0.2 ug/L	EPA 515.3
alpha-BHC	< 0.01 ug/L	EPA 508
alpha-Chlordane	< 0.05 ug/L	EPA 525.2
Anthracene	< 0.02 ug/L	EPA 525.2
Baygon	< 2 ug/L	EPA 531.1
Bentazon	< 0.5 ug/L	EPA 515.3
Benz(a)anthracene	< 0.05 ug/L	EPA 525.2
Benzo(b)fluoranthene	< 0.02 ug/L	EPA 525.2
Benzo(g,h,i)perylene	< 0.05 ug/L	EPA 525.2
Benzo(k)fluoranthene	< 0.02 ug/L	EPA 525.2
beta-BHC	< 0.01 ug/L	EPA 508
Boron	0.1 mg/L	EPA 200.7
Bromacil	< 0.2 ug/L	EPA 525.2
Bromoethane	< 0.5 ug/L	EPA 524.2
Butylbenzylphthalate	< 0.5 ug/L	EPA 525.2
Caffeine	< 0.05 ug/L	EPA 525.2
Chlorthalonil	< 0.01 ug/L	EPA 508
Chrysene	< 0.02 ug/L	EPA 525.2
Cyanazine	< 0.5 ug/L	EPA 507
delta-BHC	< 0.01 ug/L	EPA 508
Di-isopropyl ether	< 3 ug/L	EPA 524.2
Di-n-Butylphthalate	< 1 ug/L	EPA 525.2
Diazinon	< 0.1 ug/L	EPA 525.2
Dibenz(a,h)anthracene	< 0.05 ug/L	EPA 525.2
Dichlorprop	< 0.5 ug/L	EPA 515.3
Diethylphthalate	< 0.5 ug/L	EPA 525.2
Dimethoate	< 0.5 ug/L	EPA 507
Dimethylphthalate	< 0.5 ug/L	EPA 525.2
Endosulfan I	< 0.01 ug/L	EPA 508
Endosulfan II	< 0.01 ug/L	EPA 508
Endosulfan sulfate	< 0.01 ug/L	EPA 508
Endrin Aldehyde	< 0.01 ug/L	EPA 508
Fluoranthene	< 0.1 ug/L	EPA 525.2
Fluorene	< 0.05 ug/L	EPA 525.2
gamma-Chlordane	< 0.05 ug/L	EPA 525.2
HAA, Bromochloroacetic acid	2.9 ug/L	EPA 552.2
Indeno(1,2,3-cd)pyrene	< 0.05 ug/L	EPA 525.2
Isophorone	< 0.5 ug/L	EPA 525.2
m,p-Xylenes	< 0.5 ug/L	EPA 524.2
Methiocarb	< 2 ug/L	EPA 531.1
Molybdenum	< 0.002 mg/L	EPA 200.8
Nickel	< 0.005 mg/L	EPA 200.9
o-Xylene	< 0.5 ug/L	EPA 524.2
Orthophosphate	< 0.02 mg/L	EPA 365.3
p,p'-DDD	< 0.01 ug/L	EPA 508
p,p'-DDE	< 0.01 ug/L	EPA 508
p,p'-DDT	< 0.01 ug/L	EPA 508
Paraquat	< 2 ug/L	EPA 549.2
Phenanthrene	< 0.02 ug/L	EPA 525.2
Prometryn	< 0.5 ug/L	EPA 525.2

37th Street Plant

Pyrene	< 0.05 ug/L	EPA 525.2
tert-Amyl Methyl Ether	< 3 ug/L	EPA 524.2
tert-Butyl Ethyl Ether	< 3 ug/L	EPA 524.2
Thiobencarb	< 0.2 ug/L	EPA 525.2
trans-1,3-Dichloropropene	< 0.5 ug/L	EPA 524.2
trans-Nonachlor	< 0.05 ug/L	EPA 525.2
Trichlorotrifluoroethane	< 0.5 ug/L	EPA 524.2
Trifluralin	< 0.1 ug/L	EPA 525.2
Vanadium	< 0.003 mg/L	EPA 200.8

Sample collected on: 4/10/2003 Location: 37th Street Water Treatment Plant Effluent

Notes of Interest:

1. The MCLs for Lead and Copper, the "action levels," are measured at the 90th percentile of all samples collected.
2. THMs and HAAs are based on a four quarter running average of eight locations throughout Norfolk.
3. Total coliform positive samples must not exceed 5% of total samples per month. Highest month of quarter is listed.
4. Under "Primary Regulated Compounds," turbidity compliance is based on the percentage of filtered water samples below 0.3 NTU. Highest month of the quarter is listed. "TT" stands for Treatment Technique, a required process intended to reduce the level of a contaminant in drinking water. The turbidity value listed under "Compounds and Physical Characteristics of Interest" is the finished water turbidity leaving the plant on the day of sampling.

For questions concerning this report, please call the Division of Water Quality's Laboratory at 441-5678, Monday thru Friday 8:00am to 4:00pm.

Vernon R. Land
Water Quality Manager <http://www.city.norfolk.va.us/utilities/quality/index.html> <http://www.epa.gov/safewater/mcl.html>