

# REVIEW OF BAY HEAD DRINKING WATER QUALITY

Prepared by the

**Bay Head Environmental Commission**

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## SUMMARY OF FINDINGS

Overall, the *Bay Head Environmental Commission* (BHEC) has concluded that the quality of the drinking water and the source of the water that is delivered to the Borough of Bay Head are relatively safe and are secure. Based on test results conducted from 2013 through 2015 and published by the New Jersey American Water Company, Bay Head's drinking water has consistently tested safe and well within state and national standards. It is important to note, however, that the data from these tests is from past sampling and each sample only reveals a snap shot, at a very particular location and point in time. Therefore, the BHEC will continue to examine the Annual Reports for Water Quality as published by the New Jersey American Water Company and obtain additional relevant data from within Bay Head.

The BHEC also recommends that stricter standards for chromium and chromium-6 be supported and adopted nationally and statewide. It appears that the current standard of 100 parts per billion, implemented over 25 years ago, should be reviewed and may well be too high.

## BACKGROUND

At the request of the Mayor and Council, the BHEC was asked to look into the safety of the water supply and water quality of the Borough's drinking water. The request for this review was based on questions from a concerned resident as well as growing public interest resulting from the many news stories about lead and chromium-6. It was felt it was a prudent time to examine our water supply.

To accomplish this analysis, the BHEC has contacted the New Jersey American Water Company, reviewed the *2015 Annual Water Quality Report* for the New Jersey American Water Coastal North System, and spoken with David Pringle of Clean Water Action, in addition to reading many articles and papers on the topic of lead and chromium-6.

By way of background, the Borough's drinking water supply is delivered by New Jersey American Water; Bay Head's water system is part of what NJ American Water calls its *Coastal North System*.<sup>1</sup> The Coastal North System is a water system that delivers water to many towns and obtains its water from many sources. For Bay Head, there are 5 wells that can be drawn from and one surface water source.<sup>2</sup>

The BHEC was told by NJ American Water that the wells are mostly used in the summer time to meet additional demand and the Jumping Brook Treatment Plant is the primary source of drinking water<sup>3</sup>. What this means is that the primary source of the Borough's water supply is water that comes from a reservoir and supplemented from water in underground wells. The Jumping Brook Treatment Plant is located in Neptune and is fed by the Glendola reservoir in Neptune, NJ.

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<sup>1</sup> <http://www.amwater.com/ccr/coastalnorth.pdf>

<sup>2</sup> <http://www.amwater.com/ccr/coastalnorth.pdf>

<sup>3</sup> Phone interview with NJ American Water Customer Service 11/3/16

## ANALYSIS OF BAY HEAD WATER QUALITY

Below is a chart provided by NJ American Water to depict the risks associated with the water sources of the Coastal North System. This chart is taken from the *2015 Annual Water Quality Report for the Coastal North System* and ranks each evaluated category High(H), Medium(M), or Low(L) risk.

	Sources	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection By-product Precursors		
		H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Shrewsbury Area	Wells - 10			10			10			10			10		8	2		9	1			10		8	2
	GUDI - 0																								
	Surface water intakes - 5	5			1	4			2	3		5		3	2				5			5	5		
Lakewood Area	Wells - 14		1	13	4		10			14	4	10	4	6	4	1	6	7		5	9	1	13		
	GUDI - 0																								
	Surface water intakes - 1	1				1			1		1			1			1			1		1			
Ocean County Area	Wells - 5			5			5			5		5		4	1		3	2			5		5		
	GUDI - 0																								
	Surface water intakes - 0																								

## 2015 Annual Water Quality Report for the Coastal North System- Table of Detected Contaminants

### Regulated Substances <sup>1</sup>

Contaminant	Units	MCL	MCLG	Range Detected	Highest Level Detected	Compliance Achieved	Typical Source
<b>Inorganic Chemicals</b>							
Fluoride <sup>2</sup>	ppm	4	4	ND to 0.68	0.68	Yes	Erosion of natural deposits; Water additive which promotes strong teeth
Nitrate	ppm	10	10	ND to 1.16	1.16	Yes	Runoff from fertilizer use; Industrial or domestic wastewater discharges; Erosion of natural deposits
Chromium	ppb	100	100	ND to 0.2	0.2	Yes	Discharge from steel and pulp mills; Erosion of natural deposits
<b>Treatment By-Products Stage-2</b>							
Total Trihalomethanes [TTHMs]	ppb	80	NA	26.8 to 94.8	72.5 <sup>3</sup>	Yes	By-product of drinking water disinfection
Total Haloacetic Acids [THAA5]	ppb	60	NA	6.8 to 61.2	24.3 <sup>3</sup>	Yes	By-product of drinking water disinfection
<b>Turbidity</b>							
Turbidity <sup>22</sup>	ntu	TT	NA	0.05 to 0.27	0.27	Yes	Soil runoff
<b>Treatment By-products Precursor Removal</b>							
Total Organic Carbon	ppm	TT	NA	1.03 to 2.14	2.14	Yes	Naturally present in the environment
<b>Disinfectants</b>							
Chloramines	ppm	MRDL = 4	MRDLG = 4	0.02 to 2.9	1.32 <sup>4</sup>	Yes	Water additive used to control microbes
Chlorite <sup>20</sup>	ppm	1	0.8	ND to 0.48	0.48	Yes	By-product of drinking water disinfection
Chlorine Dioxide <sup>24</sup>	ppb	MRDL = 800	MRDLG = 800	40 to 520	520	Yes	Water additive used to control microbes
<b>Radiological Substances</b>							
Alpha Emitters <sup>9</sup>	pCi/L	15	0	ND to 9.2	9.2	Yes	Erosion of natural deposits
Combined Radium 226 and 228	pCi/L	5 <sup>5</sup>	0	ND to 3.9	3.9	Yes	Erosion of natural deposits
<b>Tap water samples were collected for lead and copper analysis from homes in the service area</b>							
Contaminant	Units	Action Level	MCLG	Amount Detected (90 <sup>th</sup> %tile)	Homes Above Action Level	Compliance Achieved	Typical Source
Copper <sup>13</sup> 2014	ppm	1.3	1.3	0.234	none	Yes	Corrosion of household plumbing systems
Lead <sup>13</sup> 2014	ppb	15	0	3	1	Yes	Corrosion of household plumbing systems

As shown on the prior page and taken from New Jersey American Water's 2015 Annual Water Quality Report for the Coastal North System, the *Table of Detected Contaminants* shows several contaminants with varying ranges, but in all cases compliance was achieved under current standards.

As the Coastal North system is very large and has many water sources, some of which never reach Bay Head, the report while accurate, gives a blended view of the entire Coastal North System. More specific data would better allow for an evaluation of Bay Heads water. The BHEC will endeavor to get further data that is specific to Bay Head, but this was not readily available.

The table also shows that lead was reported in one home in the system. However, this low occurrence of lead does not mean that lead will not be in your home or business, especially if you have old lead pipes. The water company does not test for lead at the customers tap.

If you have older plumbing, it is recommended that you have your water tested. You can visit [www.epa.gov/safewater/labs](http://www.epa.gov/safewater/labs) for more information. There are many tests available and some are even free. You can pick up a test at Home Depot or Lowes for a basic water test. If you have lead or lead pipes in your home you should replace them, there is no safe level of lead in drinking water.

When testing, note that running your tap will greatly reduce the amount of lead in the water and can flush other contaminants in your pipes. This tap running is especially important if you have not used your water for prolonged periods, such as after a vacation or at seasonal house.

Next, we looked at chromium and the more dangerous chromium-6 (hexavalent chromium-6); this is the compound that has been in the news lately and was made famous by the film and real-life activist Erin Brockovich. Chromium is a heavy metal that occurs throughout the environment and there are many types of chromium. Chromium-6 is a carcinogenic chemical compound that can be found naturally, but more likely from coal ash discarded by power plants and steel mills, industrial processes such as anti-corrosion coatings, pigments and dyes, and paints to name a few. In New Jersey, power plants are the most likely source for chromium-6 according to David Pringle of Clean Water Action.<sup>4</sup>

#### **EPA STANDARD FOR CHROMIUM-6**

Much of the debate surrounding chromium-6 is centered on what the acceptable regulatory standards for drinking water should be. In January 2011, the U.S. Environmental Protection Agency (EPA) recommended that water systems monitor for chromium-6 due to reports raising concerns about the presence of chromium-6 in drinking water supplies in various areas throughout the country.<sup>5</sup> In 1991 the EPA set the standard for total chromium maximum contaminate level, meaning all forms of chromium, at 100 parts per billion (ppb). This ratio remains the current national standard as well as the applicable NJ standard against which the Bay Head water is tested.

By comparison, in July 2014 the California State Water Board set a maximum contaminate level of 10 ppb for the more toxic chromium-6, making California the only state to have a standard for chromium-6. In 2011 California also declared a Public Health Goal for chromium-6 at 0.02ppb. What this means is California has decided

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<sup>4</sup> Telephone interview of David Pringle, Clean Water Action, 10/10/16

<sup>5</sup> <http://www.amwater.com/njaw/ensuring-water-quality/chromium-6/index.html>

that 0.02ppb is the level should be strived for, based on long term exposure, but has not made it a standard or regulation. Several other state's regulatory agencies and state sponsored panels have also recommend chromium-6 levels below 0.10ppb for drinking water, but to date none has been adopted as a standard. It is likely the debate will continue as more scientific studies are needed and politically drinking water standards have wide ranging impacts that can be at odds with industry.

Returning to Bay Head's water supply, published reports from 2013, 2014, 2015 indicate testing was done in Bay Head by the water company and that zero chromium-6 was detected in 2013 & 2014 & the amount detected in 2015 was very low and well below current regulatory standards.

Outside of Bay Head, other areas within the NJ American Water's overall system tested as high as 0.53ppb. While this is well below the current regulated standards, it's also higher than the 0.10ppb that is being talked about as safe for long term exposure by the most stringent of regulations.

At this point the BHEC does not have the expertise or background to comment further on what anything higher than 0.0ppb v 0.10ppb or 10ppb fully means. Given that chromium-6 is in the water system in other areas of NJ, the BHEC will continue to monitor the annual reports, follow the debate on standards, and will further look into what can be done for more frequent testing.

## **CONCLUSIONS**

Based upon our analysis, we conclude that the drinking water and the source of the water that is delivered to the Borough of Bay Head are relatively safe and are secure. The BHEC will continue to examine the Annual Reports for Water Quality as published by the New Jersey American Water Company as well as reviewing additional relevant data from within Bay Head.

The BHEC would also recommend that stricter standards for chromium and chromium-6 be supported and adopted nationally and statewide. It appears the current standard of 100ppb, implemented over 25 years ago should be reviewed as it does not discriminate between the several forms of chromium and may well be too high.