



# Memo

To: 200 / Leona Dickens-Adams

CC: 250 / Janine Pollack for GET;  
740 / Steve Naus (FOM)

From: 250 / PGT Water Team

Date: July 15, 2009

Attachments: 2009 Second Quarter Drinking Water Study Sample Results

Re: Second Quarter Drinking Water Results for GSFC – Building 090

---

The Proxtronics Goddard Team (PGT) conducted quarterly drinking water testing for Goddard Space Flight Center's (GSFC) main campus. Samples were collected from the Child Development Center (Building 90). The samples were taken from the kitchen utility sink located in Room 106. The samples were collected on June 4, 2009 and analyzed for the following parameters: Alkalinity, Bacteria Analysis, Free Available Chlorine (FAC), Chloride, Haloacetic Acids, Hardness, Metals, Nitrate, Orthophosphate, pH, Sulfate, Temperature, Total Dissolved Solids, Total Organic Carbon, and Total Trihalomethanes. A report of these results is attached.

The paragraphs below detail areas of concern.

- The Langlier Index is an indication of the water's likeliness to corrode pipes and fittings. Building 90 was found to be mildly corrosive. Corrosion can lead to leaching of metals into the water distributed, especially after remaining stagnant in piping for an extended period of time, such as overnight. All metals were below their respective goals. Therefore, the water does not appear to be sufficiently corrosive to cause the release of metals into the water distributed.
- Total Trihalomethanes (TTHM) were detected at 88.5 µg/L and above the Primary Drinking Water Standard of 80 µg/L. Bromodichloromethane and Chloroform, components of TTHM, are common reaction byproducts when chlorinated water comes into contact with natural organics present in the water supply. Together these components caused the Maximum Contamination Level for TTHM to be exceeded. Because these components can be a health concern, each was analyzed to determine the level of risk associated with them. Upon analysis neither component was found to be at a level that posed a threat. Bromodichloromethane and Chloroform are discussed individually hereafter.

- Bromodichloromethane was detected at 15 µg/L. Based on the *EPA 2006 Edition of the Drinking Water Standards and Health Advisories*, a 10 kg child should not be exposed to a level higher than 1,000 µg/day. The exposure level is well above the sample level detected, therefore Bromodichloromethane at this level does not pose a health risk. For adults, the EPA established advisory limits based on the amount ingested. An average sized adult should not be exposed to a level higher than 210 µg/day. An adult would need to drink 14 L of water to equal the EPA advisory level. Because this amount is well above the average daily intake of water, Bromodichloromethane at this level does not pose a health risk.
- Chloroform was detected at 71 µg/L. Based on the *EPA 2006 Edition of the Drinking Water Standards and Health Advisories*, a 10 kg child should not be exposed to a level higher than 4,000 µg/day. The exposure level is well above the sample level detected, therefore Chloroform at this level does not pose a health risk. For adults, the EPA established advisory limits based on the amount ingested. An average sized adult should not be exposed to a level higher than 700 µg/day. An adult would need to drink 9.9 L of water to equal the EPA advisory level. Because this amount is well above the average daily intake of water, Chloroform at this level does not pose a health risk.

### Results of Quarterly Child Development Center Sampling

Date	Time	Bldg	Location	Analyte	Results	Standard and Type
6/4/2009	9:30	090	Kitchen Sink	Alkalinity	39,000 ug/l	ug/l NA
				Bromodichloromethane	15 ug/l	80 ug/l P
				Bromoform	<5 ug/l	80 ug/l P
				Cadmium	<3 ug/l	5 ug/l P
				Chloride	37,000 ug/l	250,000 ug/l S
				Chloroform	71 ug/l	80 ug/l P
				Copper	<5 ug/l	1,000 ug/l S
				Degrees C	20.1 degrees C	degrees C NA
				Dibromoacetic Acid	<1 ug/l	60 ug/l NA
				Dibromochloromethane	2.5 ug/l	80 ug/l P
				Dichloroacetic Acid	9.1 ug/l	60 ug/l P
				E. Coli	<1 CFU	CFU NA
				Free available chlorine	170 ug/l	4,000 ug/l P
				Haloacetic acids	32.1 ug/l	60 ug/l P
				Hardness	65,000 ug/l	ug/l NA
				Heterotrophic plate count	<2 CFU	500 CFU P
				Iron	110 ug/l	300 ug/l S
				Langlier Index	-0.88 units	NA
				Lead	<5 ug/l	15 ug/l AL
				Monobromoacetic Acid	<1 ug/l	60 ug/l NA
				Monochloroacetic acid	<2 ug/l	60 ug/l P
				Nitrate	1,000 ug/l	10,000 ug/l P
				Orthophosphate	2,000 ug/l	NA
				pH	7.46 pH	6.5-8.5 pH S
				Sulfate	8,000 ug/l	250,000 ug/l S
				Total Coliform	<1 CFU	0 CFU P
				Total Dissolved Solids	120,000 ug/l	500,000 ug/l S
				Total organic carbon	2,000 ug/l	ug/l NA
				Total trihalomethanes	88.5 ug/l	80 ug/l P
				Trichloroacetic Acid	23 ug/l	60 ug/l P
				Zinc	<20 ug/l	5,000 ug/l S

Sample 20090604-090

Report printed 7/13/2009 1:51:18 PM