ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

ROUX

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December 3, 2013

Erica Bergman
NJDEP - Bureau of Case Management
401 E. State Street - Mail Code 401-05
P.O. Box 420
Trenton, NJ 08625-0420

Re: West Deptford Municipal Well Sampling Results
Solvay West Deptford Plant
10 Leonard Lane
West Deptford, NJ 08086-2150

Dear Ms. Bergman:

As the Licensed Site Remediation Professional (LSRP) retained by Solvay Specialty Polymers USA, LLC (Solvay), I have reviewed the attached sampling results for perfluorinated compounds (PFCs) from the West Deptford Municipal Utility Authority (MUA) wells and I am submitting them on behalf of Solvay. Enclosed are three copies of the data in New Jersey Department of Environmental Protection (NJDEP) electronic data delivery (EDD) format and a summary report for your internal distribution. These EDDs were verified by Solvay to be complete and free of errors with NJDEP's online tool, Electronic Data Submittal Applications (EDSA7) version 7.1.5.

The report includes a description of the wells that were sampled, a figure illustrating where samples were collected within the distribution system, and a table summarizing laboratory results. In addition, the report includes a table that summarizes some of the current state and federal interim drinking water guidelines for PFCs. While these guidelines are non-binding at this time and would apply to finished (blended) water rather than individual samples as reported, they may provide WDMUA with a helpful perspective to facilitate communication of findings to the community.

As noted in the PFC Work Plan that I submitted to you on November 15, 2013, Solvay is coordinating with seven municipalities to sample well water for PFCs. The enclosures constitute the first of seven MUA data reports. Results include split samples to assess variability between NJDEP-certified laboratories as well as data validation conducted by a third party independent validator. In the future, each dataset will continue to undergo independent data validation, but Solvay will randomly select 10-20 percent of samples for evaluation of inter-laboratory variability. Please feel free to contact Mitch Gertz with any questions.

Sincerely,

Thomas R. Buggey, LSRP #580659
Principal Hydrogeologist

cc: Mitch Gertz – Solvay
Phil Goodrum – Integral
Enclosures

DATA REPORT

West Deptford MUA
Sampling on October 30, 2013

Prepared for
Solvay Specialty Polymers USA, LLC
10 Leonard Lane
West Deptford, NJ 08086

Prepared by

integral consulting inc.
200 Harry S. Truman Parkway
Suite 330
Annapolis, MD 21401

December 3, 2013

On October 30, 2013, Integral Consulting Inc., consultant to Solvay Specialty Polymers USA, LLC (Solvay), collected water samples from the six water supply wells maintained by the West Deptford Municipal Utility Authority (MUA). The samples were submitted to Eurofins Eaton Analytical, Inc. (Morovia, CA), a New Jersey-certified analytical testing laboratory. In addition, some samples were split and submitted to TestAmerica Laboratories, Inc. (Edison, NJ), also a New Jersey-certified analytical laboratory to evaluate inter-laboratory variability.

Table 1 summarizes the results for each sample. The data are also provided in the New Jersey Department of Environmental Protection (NJDEP) electronic data delivery (EDD) format. These EDDs were verified by Solvay to be complete and free of errors with NJDEP's online tool, Electronic Data Submittal Applications (EDSA7) version 7.1.5, available online at www.state.nj.us/dep/srp/hazsite/software/edsa/. All of the laboratory results were validated by Laboratory Data Consultants, Inc. (Carlsbad, CA), an independent third party validator.

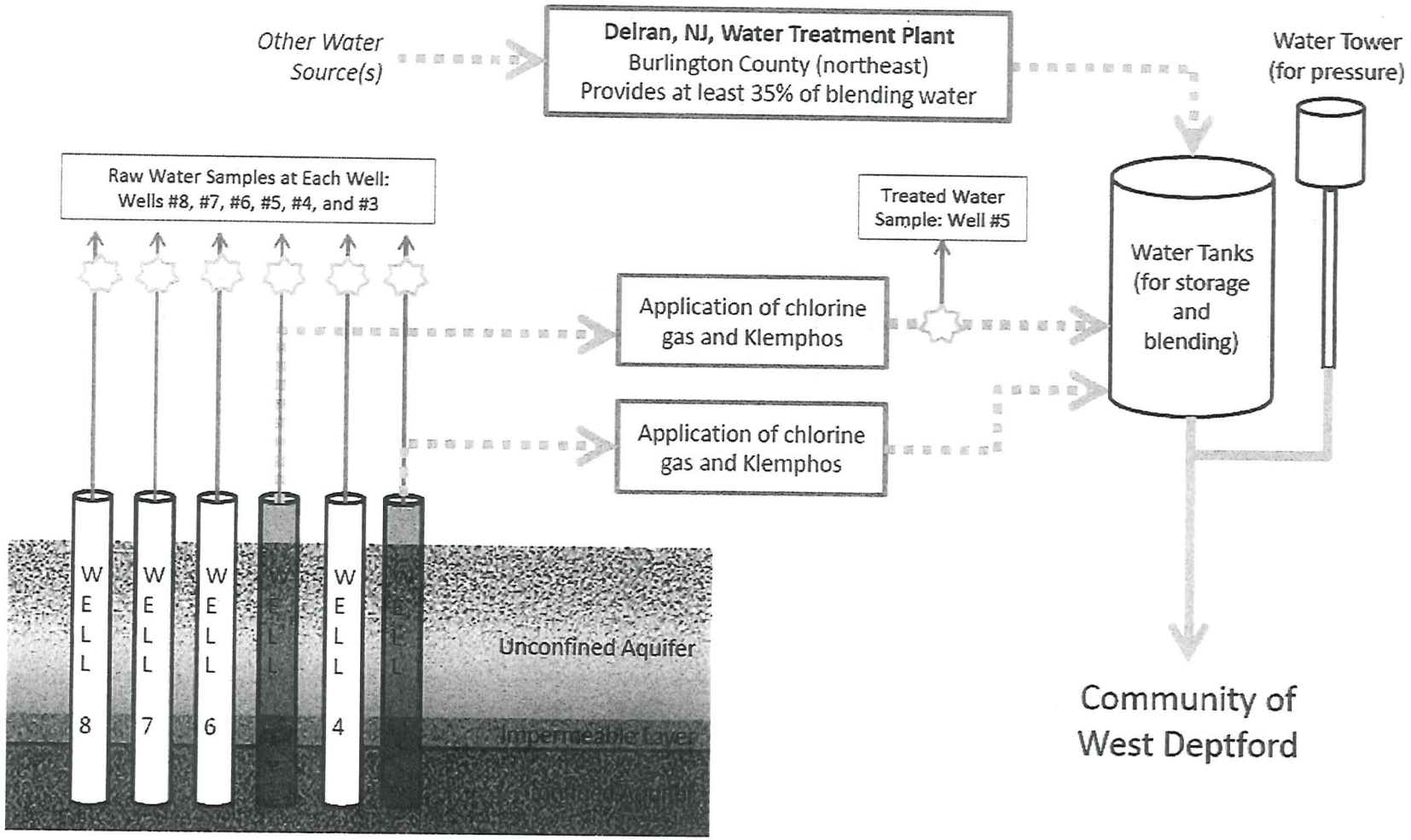
The data from the split samples indicate that there is very close agreement between results reported by the laboratories with most samples having no detectable perfluorinated compounds (PFCs). The validated split sample results from Well #3 indicate perfluorononanoic acid (PFNA) was detected at 48 parts per trillion (ppt) at one laboratory and 38 ppt at the other laboratory. The relative percent difference (RPD = difference/average) for these two results is 23 percent. Similarly, perfluorooctanoate acid (PFOA) was detected in Well #3 at 10 ppt (estimated value between method detection limit and method reporting limit) and 7.6 ppt (RPD=27 percent). The split sample variability observed for Well #3 results is within the expected range of variability for the low levels detected.

PFCs are currently unregulated in drinking water. Table 2 summarizes a range of non-binding drinking water guidelines for PFOA and perfluorooctanesulfonic acid (PFOS) available from U.S. Environmental Protection Agency, New Jersey, North Carolina, and Minnesota. For this sampling event at West Deptford MUA, PFCs were not detected in five of the six wells, including Well #5, which serves as the primary active well to provide drinking water. At Well #3, which operates intermittently based on demand at this time of year, PFCs were detected for the eight- and nine-carbon (i.e., C8 and C9) compounds PFOA and PFNA, but not PFOS or the C10 to C13 compounds. Concentrations did not exceed the New Jersey drinking water guidelines for PFOA or PFOS in either split sample.

Figure 1 illustrates where samples were collected within the West Deptford MUA treatment system. Based on our understanding of West Deptford MUA operations, the concentrations measured at individual wells do not directly reflect the finished water that is distributed to the community because the finished water is a blend of sources. West Deptford MUA, by state requirement, obtains at least 35 percent of its blended water from the New Jersey American Water Company water treatment plant in Delran, NJ. In addition, West Deptford MUA blends treated water from active wells. Currently, Well #5 is the primary source of water and treated water from Well #3 is added only intermittently on an as-needed basis. Thus, the water from

Well #3 is diluted when mixed with both the New Jersey American treatment plant and water from Well #5 prior to delivery into the water distribution system. As a result, any data associated with Well # 3 alone may not be indicative of finished water system quality.

It would be informative to collect samples of finished water as distributed to the community in order to provide a measure of PFCs in drinking water after blending from multiple sources has occurred. A sampling plan that achieves this objective will be developed following discussions with West Deptford MUA and NJDEP of the results presented in this report.



Note that actual wells are not adjacent to each other but span an area of several square miles. Depths and screening intervals are not available at this time. All six wells pump from Potomac-Raritan-Magothy (PRM) confined aquifer. Only Wells #3 and #5 were supplying water at the time of sampling due to low seasonal demand, but all six were in working order and available for raw water sampling.

integral consulting inc.

Figure 1.
Location of Raw and Treated Water Samples Collected at the West Deptford MUA

Table 1. PFC Concentrations from Samples Collected October 30, 2013 at the West Deptford MUA [a,b]

	Well #8	Well #7	Well #6	Well #5			Well #4	Well #3	
Chemical Name	RW	RW	RW	RW	FW	FW-Dup	RW	RW	FW
PFOA	--	--	--	--	-- (--)	--	--	7.6 (10 J)	NA
PFOS	--	--	--	--	-- (--)	--	--	-- (--)	NA
PFNA	--	--	--	--	-- (--)	--	--	38 (48)	NA
PFDA	--	--	--	--	-- (--)	--	--	-- (--)	NA
PFUnA	--	--	--	--	-- (--)	--	--	-- (--)	NA
PFDoDA	--	--	--	--	-- (--)	--	--	-- (--)	NA
PFTriA	--	--	--	--	-- (--)	--	--	-- (--)	NA

Notes:

FW = finished water (before further blending and distribution as drinking water - see Figure 1)

FW-Dup = finished water laboratory duplicate sample

J = result was detected at or greater than the method detection limit and less than method reporting limit

MUA = Municipal Utility Authority

NA = plumbed tap for sampling was not available at Well #3 for finished water

PFC = perfluorinated compound

RW = raw water

-- = anlayte was not detected at the calculated method detection limit

[a] Units for all results are parts per trillion (ppt).

[b] Results are based on chemical analyses performed by Eurofins Eaton Analytical. A subset of split samples were analyzed by TestAmerica and results are reported in parentheses.

Table 2. Federal and State PFC Guidelines for Drinking Water

Agency	Chemical Name [a]						
	PFOA	PFOS	PFNA	PFDA	PFUnA	PFDoDA	PFTriA
U.S. Environmental Protection Agency [b]	400	200	--	--	--	--	--
North Carolina Department of Environmental and Natural Resources [c]	200	--	--	--	--	--	--
New Jersey Department of Environmental Protection [d]	40	20	--	--	--	--	--
Minnesota Department of Health [e]	300	300	--	--	--	--	--

Sources:

USEPA. 2009. Provisional Health advisories for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Available at: http://water.epa.gov/action/advisories/drinking/upload/2009_01_15_criteria_drinking_pha-PFOA_PFOS.pdf. U.S. Environmental Protection Agency. 5 pp. January 8.

NJDEP. 2007. Determination of perfluorooctanoic acid (PFOA) in aqueous samples. Final Report. New Jersey Department of Environmental Protection, Division of Water Supply, Bureau of Safe Drinking Water, Trenton, NJ. 17 pp. January.

NCDENR. 2013. Appendix #1: Interim maximum allowable concentrations (IMACs). pp. 23-24. In: North Carolina Administrative Code Title 15A - Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina. Last amended April 1. Available at: http://portal.ncdenr.org/web/wq/ps/csu/gwstandards. North Carolina Department of Environmental and Natural Resources, Division of Water Quality, Raleigh, NC. 31 pp.

MDH. 2013. Health guidelines for perfluorochemicals (PFCs) in drinking water. www.health.state.mn.us/divs/eh/hazardous/topics/pfcs/drinkingwater.html. Minnesota Department of Health, Environmental Health Division, St. Paul, MN.

Notes:

PFC = perfluorinated compound

-- = provisional guidelines are not available for drinking water

[a] Units for all results are parts per trillion (ppt).

[b] USEPA (2009) provisional drinking water advisory for short-term exposure.

[c] NCDENR (2013) recommended interim maximum allowable concentration (IMAC) in drinking water, effective date December 6, 2006.

[d] NJDEP (2007) health-based guidance value intended to protect for chronic (lifetime) exposure.

[e] MDH (2011) health risk limit (HRL) in drinking water for chronic exposure.