



For Immediate Release  
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## **Drinking Water Contamination in Paulsboro Requires Urgent Attention**

*Solvay Polymers in West Deptford NJ issues deficient Work Plan,  
says Delaware Riverkeeper Network*

West Deptford, NJ - Plastics manufacturer Solvay Specialty Polymers USA, LLC, issued a Work Plan prepared by Integral Consulting regarding the pollution caused by perfluorinated compounds in and around the Delaware River region where the Solvay facility is located.<sup>1</sup> Delaware Riverkeeper Network (DRN) submitted comments on the proposed Work Plan to New Jersey Department of Environmental Protection (NJDEP) concluding the Work Plan is deficient and must be corrected or the information Solvay produces will not be reliable. DRN submitted a technical review by Ground Water Associates that finds the Work Plan misses key environmental media that require investigation to provide information and data needed "...to understand PFC distribution, fate, and ultimately, exposures".<sup>2</sup>

Solvay has used perfluorinated compounds in manufacturing durable plastics since it bought the facility in 2002. The plant began manufacturing fluorocarbons in the 1970's, and Surfion S111, a fluorinated surfactant, was patented in 1985 by Penwalt, who owned the company then. The main component in Surfion S111 is Perfluorononanoate acid (PFNA or "C9"); C11 and C13 are used in lesser amounts.

DRN's comment letter also presses NJDEP to take swift action to protect public health where PFC contamination has been discovered. Most pressing is the extraordinarily high level of

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<sup>1</sup>[http://bit.ly/DRN\\_solvay\\_work\\_plan](http://bit.ly/DRN_solvay_work_plan)

<sup>2</sup>[http://bit.ly/DRN\\_Comment\\_Solvay\\_Sampling](http://bit.ly/DRN_Comment_Solvay_Sampling) p. 7

PFNA found in the drinking water in Paulsboro, NJ, two miles from the Solvay facility. In September 2013, 150 ng/L was found in the water that is delivered to residents by the Paulsboro Water Authority and 140 ng/L was found in the raw water.<sup>3</sup> This data was also included in the Solvay Work Plan.<sup>4</sup> NJDEP found 96 ng/L in Paulsboro's water well in 2009.<sup>5</sup> An international literature search found these are the highest levels recorded anywhere in drinking water sources.

“Immediate action by NJDEP is required to address the contamination of PFCs in the drinking water supplies of the region around the Solvay facility. Solvay's Work Plan is wholly deficient and will not yield the kind of comprehensive data and intelligence that will lead to getting these highly dangerous chemicals out of people's drinking water. Decades of polluting PFNA emissions to the air, soil, groundwater, local creeks, and the Delaware River, and the persistent nature of these toxic compounds that simply do not break down or go away, have led to contamination that is nothing short of a health emergency,” said **Tracy Carluccio, Deputy Director, Delaware Riverkeeper Network**. “Solvay must conduct a Work Plan that investigates all places where PFCs reside as a result of their facility's operations, including all public and private water supplies and representative soils that could have been impacted by air deposition, groundwater or surface water discharges, and the spreading of sewage treatment plant sludge, as well as all dredge spoils, sediments, and other historic repositories of the facility's waste. The Solvay Work Plan doesn't even take a baby step towards that necessary goal. It's up to NJDEP to now make this company accountable by insisting on a comprehensive, scientifically reliable sampling plan to be paid for by Solvay, to publicly disclose this unacceptable ongoing pollution problem, and take action to get these dangerous pollutants out of tap water and the environment,” **added Carluccio**.

Solvay is identified to have had the second highest production capacity for PFNA in the world (2002) according to scientific literature.<sup>6</sup> The remarkably large volume of PFNA used by Solvay during production is verified in U.S. Environmental Protection Agency (EPA) documents.<sup>7</sup> Because of the highly durable nature of PFCs, including PFNA, they do not degrade in the

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<sup>3</sup> Items # 2954 and 2966 respectively, NJDEP database entitled “OPRA NJDEP WQ Copy of PFC all data dated 12-10-2013” received 12.17.2013 through Delaware Riverkeeper Network OPRA request. [http://bit.ly/DRN\\_OPRA\\_PFC](http://bit.ly/DRN_OPRA_PFC)

<sup>4</sup> [http://bit.ly/DRN\\_solvay\\_work\\_plan](http://bit.ly/DRN_solvay_work_plan) Table 2, p. 1-5.

<sup>5</sup> [http://www.delawareriverkeeper.org/resources/Reports/Perfluorinated\\_Chemicals\\_in\\_NJ\\_Drinking\\_Water.pdf](http://www.delawareriverkeeper.org/resources/Reports/Perfluorinated_Chemicals_in_NJ_Drinking_Water.pdf)

<sup>6</sup> Prevedouros K, Cousins IT, Buck RC, Korzeniowski SH (January 2006). "Sources, fate and transport of perfluorocarboxylates". *Environ Sci Technol*. 40 (1): 32–44. doi:10.1021/es0512475. PMID 16433330. [Supporting Information](#) (PDF)

<sup>7</sup> <http://www.epa.gov/opptintr/pfoa/pubs!/Solvay%20Solexis%20report.pdf>

environment. DRN points out that the PFCs emitted over the years can be expected to remain in the environment, which means that aquifers supplying water will remain contaminated and historic sediments are likely to still contain high levels, despite Solvay's statements that they stopped using PFNA in 2010.

No action has been taken by Solvay, NJDEP, or any entity to clean up PFNA or other PFCs in Paulsboro. In fact, people drinking the contaminated water have not been notified of the health risks associated with the compounds. DRN has called for immediate action by NJDEP and also filed a Petition with the U.S. Agency for Toxic Substances and Disease Registry (ATSDR) on August 2 requesting that the Agency conduct a public health assessment of PFNA and other perfluorinated chemicals in the water supply for communities located near the Solvay facility.<sup>8</sup>

DRN's comment letter on the Solvay Work Plan called for NJDEP to immediately conduct its own sampling program, to provide guidance to water purveyors where PFCs have been found in the state, particularly in Paulsboro and proximate water supplies, and to publicly disclose all information related to the contamination and Solvay's Work Plan.

PFNA is one of longer carbon chain PFCs and has known human health effects characteristic of this family of toxic compounds. NJDEP issued an Occurrence Study for perfluorooctanoic acid (PFOA) in New Jersey public drinking water in 2007 and established a PFOA drinking water guidance level of 0.04 parts per billion (ppb)<sup>9</sup> based on lifetime health effects, the strictest in the nation. NJDEP conducted a second round of drinking water sampling for PFCs in 2009 to inform its ongoing health effects study. The data showed PFCs throughout many of New Jersey's water supplies and revealed the highest level of PFNA in raw groundwater to be in Paulsboro's well #7. NJDEP has never issued the report or data documenting the 2009 findings. The state's progress towards establishing a safe drinking water limit that would require treatment to remove PFCs from drinking water supplies was halted when the Drinking Water Quality Institute (DWQI) held its last public meeting in September 2010, shut down by the current state administration.

Several scientific studies on the sources, occurrence, distribution, properties, and health effects of PFCs were available to the DWQI and NJDEP to help inform their analytical process. Many have been published since that time and more continue to be issued by the health and scientific community, including specific information regarding PFNA. The EPA has concluded that PFOA chemicals may be hazardous to human health and says they want the use of this family of

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<sup>8</sup> <http://www.delawareriverkeeper.org/resources/Letters/ATSDR%20Petition%20Final%2008.2.13.pdf>

<sup>9</sup> 0.04 ppb is also expressed as 0.04 ug/L, which equals 40 nanograms per liter (ng/L) or 40 parts per trillion

chemicals phased out; rulemaking issued in 2006 removes exemptions previously given to these chemicals, making them subject to toxic chemical control requirements<sup>10</sup>. A federal report by an independent scientific review panel, the Science Advisory Board, acknowledged in a report dated May 2006 that PFCs are a “likely” cause of cancer. PFCs are known to be linked to other harmful effects such as developmental, reproductive and systemic effects, according to EPA and other sources<sup>11</sup>.

The C8 Science Panel, a group of independent public health scientists, concluded in 2012 that there is a probable link between exposure to PFOA and testicular cancer, kidney cancer, and four other diseases, based on health studies of residents of West Virginia and Ohio and other information<sup>12</sup>. The Panel has also found many other health impacts in human populations exposed to PFOA in drinking water<sup>13</sup>.

PFNA and other longer carbon chain PFCs are more bioaccumulative than PFOA and have similar toxic effects but at lower doses. This makes it even more urgent to address the high levels of PFNA in the environment and drinking water around Solvay.

#### More on Scientific Reports on Health Effects and Occurrence in World and Local Environment

Several studies, including a recent report by Rockwell and others (April 2013), show immunotoxic effects in mice from PFNA<sup>14</sup>. As reviewed in the Rockwell paper, PFNA also causes other effects in animals including liver toxicity, decreased survival and developmental effects in pups, and male-specific reproductive toxicity. It has been associated with increased cholesterol, including LDL (bad) cholesterol in humans.

A 2007 report in Environmental Health Perspectives found PFNA and several other PFCs in the blood serum of more than 98% of U.S. residents tested, and it showed that the blood serum level of PFNA increased in the periods studied<sup>15</sup>, while other perfluorinated compounds stayed constant or declined. Rockwell and colleagues (April 2013) discuss concerns about those people with higher than average blood serum levels due to individual variations or occupational exposures.

Environment Canada found PFCs, including PFNA, in wildlife throughout the globe, including polar bears (PFNA at 400 ppb), seals and birds<sup>16</sup>.

But studies have found the occurrence of PFNA to be greater locally in the Delaware River and Bay than other places. A 2005 report in Environmental Science and Technology reported very high levels of PFNA and C11 in the blood plasma of bottlenose dolphins from the Delaware

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<sup>10</sup> EPA 40 CFR Part 723

<sup>11</sup> <http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/pfcs.html>

<sup>12</sup> [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_Cancer\\_16April2012\\_v2.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Cancer_16April2012_v2.pdf)

<sup>13</sup> <http://www.c8sciencepanel.org/index.html>

<sup>14</sup> <http://www.omicsonline.org/2161-1459/2161-1459-S4-002.php?aid=14207>

<sup>15</sup> <http://www.ncbi.nlm.nih.gov/pubmed/18007991>

<sup>16</sup> [http://www.chem.utoronto.ca/symposium/fluoros/pdfs/Fluoros-PFABiomonitoring\(Muir\).pdf](http://www.chem.utoronto.ca/symposium/fluoros/pdfs/Fluoros-PFABiomonitoring(Muir).pdf)

Bay, higher than other PFCs that were tested for and higher than in the other locations they tested.

Data collected by the Delaware River Basin Commission (DRBC) and published in a report in July 2012 revealed high levels of PFNA in surface water in samples between 2007-2009 in the Delaware River<sup>17</sup>. The highest locations were between River Mile 50 and 88/90. PFNA was elevated starting at River Mile 88/90 and was extremely high at River Mile 80. Samples were analyzed for other PFCs as well, with high results for PFOA and PFHxA.

The DRBC report states that PFNA "...at a maximum of 976 ng/L was the PFAS with the highest concentrations in the DRBC surveys"<sup>18</sup>; this is a notably high level. The report cites other studies that have found significant levels in surface water, but none as high as the Delaware River's 976 ng/L. In fact, in reviewing the literature available on line, no level that was nearly as high can be found in surface water elsewhere. Fish flesh analysis conducted for the study found PFCs between River Mile 58 and 128 with the highest concentrations at River Mile 80 and 91 for PFNA and perfluoroundecanoic acid (PFUnA, C11). The Solvay facility is located at approximately River Mile 90.

The Solvay Work Plan comments filed with NJDEP by DRN are part of a stakeholder review process that NJDEP is leading and involves the U.S. Environmental Protection Agency and others.

Delaware Riverkeeper Network's cover letter and Ground Water Associates report regarding Solvay's Work Plan are at: [http://bit.ly/DRN\\_Comment\\_Solvay\\_Sampling](http://bit.ly/DRN_Comment_Solvay_Sampling)

To read more about PFCs in New Jersey follow the links in the footnotes and see other documents on Delaware Riverkeeper Network's website including:

<http://bit.ly/pfnamemo>

[http://bit.ly/DRN\\_ATSDR\\_Petition](http://bit.ly/DRN_ATSDR_Petition)

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<sup>17</sup> <http://www.state.nj.us/drbc/library/documents/contaminants-of-emerging-concernJuly2012.pdf>

<sup>18</sup> Ibid.