



Before the New Jersey Assembly Environment and Solid Waste Committee

Testimony on A-575

“Frack Waste Bill”

Tracy Carluccio, Deputy Director, Delaware Riverkeeper Network

June 14, 2012

Waste produced by natural gas drilling and hydraulic fracturing (“fracking”) is considered by the US Department of Energy to be highly toxic, ten times more toxic than produced waters from off shore oil drilling.¹ The U.S. General Accounting Office concludes that the wastewater produced by hydraulic fracturing in shale formations is of such poor quality and varies so greatly in its make-up that it is difficult and expensive to treat.² They also conclude that the most influential factor determining how this waste is treated is cost.³ There are no treatment plants in New Jersey that are designed to treat wastewater from hydraulic fracturing.

The “flowback”⁴ that erupts back to the surface when a gas well is fracked carries many contaminants, many of them health and environmental hazards. According to the Department of Energy, the produced waste “...can include, but are not limited to: salts (chlorides, bromides, and sulfides of calcium, magnesium, and sodium); metals (including barium, manganese, iron, and strontium); oil, grease, and dissolved organics (including benzene and toluene); naturally occurring radioactive materials; and production chemicals from hydraulic fracturing...Exposure to these contaminants at high levels may pose risks to human health and the environment”.⁵

Radioactive materials are contained in the flowback from Marcellus Shale well development. The Marcellus Shale contains radionuclides including uranium-238, thorium-232, and their decay products. Radioactive concentrations in the Marcellus Shale formation are at concentrations 20 to

¹ U.S. Dept. of Energy, Argonne National Laboratory, “A White Paper Describing Produced Water from Production of Crude Oil, Natural Gas, and Coal Bed Methane”, January 2004.

² US General Accountability Office, ***Information on the Quantity, Quality, and Management of Water Produced During Oil and Gas Production***, GAO-12-56, January 2012.

³ Ibid.

⁴ In shale gas stimulation employing hydraulic fracturing, the mix of water, chemicals and proppants that are injected during hydraulic fracturing returns to the surface mixed with formation water from the deep geologic layer that is being stimulated – this is “flowback”.

⁵ U.S. Dept. of Energy, Argonne National Laboratory, “A White Paper Describing Produced Water from Production of Crude Oil, Natural Gas, and Coal Bed Methane”, January 2004.

25 times background, making shale gas wastewater extremely radioactive.⁶ Sampling and data-gathering by New York State detected radiological parameters in Marcellus Shale flowback, including Radium-226⁷, the longest lived isotope of radium with a half-life of 1600 years. Gross Alpha, Gross Beta, Total Alpha Radium and Radium-228 were also found.⁸ Radium-226, a decay product of the Uranium-238 decay chain, is taken up like calcium into bone⁹ where it concentrates. Radium-226 can cause lymphoma, bone cancer, and diseases that affect the formation of blood, such as leukemia and plastic anemia. The radioactive decay product of radium is radon, which is very dangerous and is the second leading cause of lung cancer in the United States.¹⁰

EPA has set federal air limits, cleanup standards, and a maximum contaminant level for radium 226 and 228 under the Safe Drinking Water Act due to human health hazards.¹¹ EPA has the authority to regulate all Naturally Occurring Radioactive Materials (NORM), but generally has not done so, leaving a regulatory gap in terms of human health and a lack of data regarding impacts to the natural environment, such as aquatic life.¹²

There are many other highly dangerous materials in frack waste, including arsenic, mercury, and hazardous hydrocarbons such as BTEX. Barium, bromides, Total Dissolved Solids that are high in toxic salts, and other pollutants, many of which are carcinogenic or have other health effects, are known to be present in sampled Marcellus Shale frack wastewater from Pennsylvania and West Virginia. New York State has identified 154 parameters¹³ in this wastewater and in testimony before the U.S. Senate, Dr. Conrad Volz of University of Pittsburgh verified that levels of barium, benzene, bromides, 2-butoxyethanol (2-BE) and strontium, all exceeded safe levels set by USEPA in discharges from a “brine” treatment plant in Pennsylvania that discharges frack wastewater to Blacklick Creek, a tributary to the Allegheny River.¹⁴

The threat of radioactivity being released into waterways became an issue in Pennsylvania in 2011 when the USEPA notified PADEP that radioactivity must be tested for in the State’s waterways due to discharges of gas drilling wastewater.¹⁵ EPA also advised PADEP that existing permits for publicly owned sewage treatment works and waste facilities did not allow the acceptance of gas drilling wastewater without “critical provisions necessary to effective processing

⁶ Marvin Resnikoff, Ph.D., Radioactive Waste Management Associates, “Comments on Marcellus Shale Development”, October 2011.

⁷ Ibid. Table 5.24.

⁸ Ibid.

⁹ <http://www.epa.gov/radiation/radionuclides/radium.html#inbody>

¹⁰ Ibid.

¹¹ Ibid.

¹² Glenn C. Miller, Ph. D., **Comments to Delaware Riverkeeper Network on the Delaware River Basin Commission’s Draft Proposed Natural Gas Development Regulations**, 2011.

¹³ New York State Department of Environmental Conservation, *Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program, Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and other Low-Permeability Gas Reservoirs*, September 2011, Table 5.9.

¹⁴ Volz, Conrad Daniel, PhD., Before the Senate Committee on Environment and Public Works and its Subcommittee on Water and Wildlife, Joint Hearing, April 12, 2011.

¹⁵ USEPA letter from Shawn M. Garvin, Regional Administrator to The Honorable Michael Krancer, Acting Secretary, PADEP, 3.7.11.

and treatment” of the wastewater.¹⁶ This led to the State asking wastewater discharge facilities in the state to stop discharging gas drilling wastewater but not all discharges have stopped. Still, the cutback in what is being processed in-state has caused gas drillers in Pennsylvania to send waste elsewhere, such as Ohio. But gas waste injection wells in the Youngstown Ohio region then became overloaded, causing earthquakes. Ohio has put a moratorium of waste being injected in some of Ohio’s disposal wells. The squeeze for places to dispose of this waste has led to operators traveling very long distances to get rid of their waste.

New Jersey is a likely target because of its proximity to the Marcellus Shale region. In fact, the drive from Susquehanna County wells where the waste that was already shipped here originated, is shorter to New Jersey (3 hours) than to Pennsylvania’s “brine” discharge plants (5 hours) or the Ohio disposal wells (5 ½ hours).

And the drilling pace has kept the frack waste flowing - 1.4 billion gallons of frack waste was produced in Pennsylvania alone in 2011.¹⁷ The amount of flowback that initially erupts to the surface in Pennsylvania shale gas wells varies but is estimated to be about 10% of the volume injected; on average, approximately 5 million gallons of water is used to hydraulically fracture the well. This results in about a half million gallons of wastewater on average per well. Considering the large number of wells involved (PADEP issued 5,728 drilling permits for oil and gas wells in 2011; 2,907 new oil and gas wells were spudded in 2011)¹⁸, the volume of wastewater produced in Pennsylvania has increased exponentially over the past 5 years and the number of permitted facilities where the waste can be shipped is still inadequate.

And the shipping of frack wastewater to New Jersey facilities is not new. In 2009-2010, 1,386,595 gallons of fracking wastewater was sent to Dupont’s Chambers Works facility in Salem County primarily from Susquehanna County. Traveling hundreds of miles to get rid of toxic wastewater is part of doing business for shale drillers. Another 1.4 million gallons were sent to Bucks County PA for discharge into a tributary to the Delaware River, Neshaminy Creek. Both these discharges – to Dupont and to Hatfield Township Municipal Treatment Plant in Bucks County - were illegal because they were not approved by the Delaware River Basin Commission, the agency in charge of water resources of the Delaware River Watershed. And yet no enforcement action has been taken by any agency—PADEP, DRBC or NJ Department of Environmental Protection. These environmental agencies have not prosecuted this illegal wastewater dumping; and more – legal and illegal -- could be happening that we don’t even know about. That’s why we need the New Jersey Assembly to stand up for our drinking water and communities. No one else has our back.

Further compounding the frack waste backlog is the lack of enough landfills and drilling mud processing facilities in the Marcellus Shale region. That is why drilling mud and drill cuttings have been brought to New Jersey to Clean Earth facilities in Kearney in Hudson County and Carteret in Middlesex County. 737.92 barrels (30,786 gallons) of “drilling waste” or drilling mud was taken to Clean Earth of North Jersey between July and December 2011 and 478.90 tons of drill cuttings

¹⁶ USEPA letter from Shawn M. Garvin, Regional Administrator to The Honorable Michael Krancer, Acting Secretary, PADEP, 3.7.11, p.2.

¹⁷ <https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/DataExports/DataExports.aspx>

¹⁸ PADEP website, 1.24.12

were sent to Clean Earth of Carteret between July and Dec 2011.¹⁹ The waste that went to Kearney was called “drilling waste” or “drilling mud” and was measured in barrels, not tons like the drill cuttings that went to Carteret. It is debatable whether this waste was considered a solid or a liquid by the receiving facility and it is unclear how distinctly the definition of solid and liquid is applied at the source—the gas well site.

There have been instances in New York State where runny sludgy-type waste was delivered to landfills as “solids”. Since there is no adopted regulatory standard at the source where the waste is loaded or at the receiving end as to what is a “waste solid” and what is “wastewater”, the terms are inexact and operators have used this to ship waste to landfills that perhaps should have gone to wastewater facilities (which may be more expensive but required by law). This is an important reason why the proposed bill must cover solids, sludge, cuttings and other by-products, not only wastewater; if these materials are not included, the Bill could be creating a dangerous loophole that can be easily exploited by operators who want to dispose of the waste fluids as inexpensively as possible.

Also, frack waste solids and cuttings have all the same contaminants and can even pose greater health risks. Contaminants concentrate in the residual sludge – for instance, membranes screen out toxic levels of salts from the “brine” produced by fracking and radioactivity concentrates in wet rock cuttings that are produced by drilling, producing a waste with proportionally higher radioactivity. The cuttings, separated from the drilling fluid by screens, may contain up to 20% radioactive liquid.²⁰ These materials are typically shipped off to a hazardous waste plant or landfill. Were radioactive cuttings received in Carteret? This facility is not designed to accept highly radioactive materials – concentrated radioactive waste has to be sent to a licensed disposal facility that is designed to handle radioactive wastes, such as Energy Solutions in Utah.²¹ That kind of facility does not exist in New Jersey.

But because Utica Shale is located in New Jersey, the issue of frack waste is not an import issue—it is a discharge, treatment, disposal and storage issue for New Jersey-produced frack waste as well. The Utica is much deeper than the Marcellus shale so much more waste will be produced – the drill bores will be longer and produce at least twice as much in muds and cuttings, and will require much larger volumes of water and chemicals to frack and will, in turn, produce much larger quantities of flowback, which must be disposed of. The radioactivity and other deep geology pollutants that comprise the flowback from the Marcellus exist and could be worse for the Utica. Utica Shale wells in Ohio are proving to contain “wet” gas, which means they are high in hydrocarbons and oil, posing additional environmental impacts from the off-gassing of polluting volatile organic compounds from frack pits, condensate tanks, and well sites.

Frack waste, whether from New Jersey or elsewhere, must be banned from New Jersey. We don’t have the facilities to safely treat it now and we won’t know how to design those plants until the federal government finishes studying how to treat the waste safely. EPA is developing standards,

¹⁹ <https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteByWasteFacility.aspx>

²⁰ Ibid.

²¹ Ibid.

expected to be proposed in 2014. This will only address part of the management issues and will leave some critical loopholes in place that pose environmental threats. Because of a 1988 oil and gas industry waste exemption from the Resource Conservation and Recovery Act (RCRA), these regulations will not regulate the wastewater as hazardous, even though there are hazardous constituents in the wastewater.²² The list of RCRA exempt wastes includes produced water, drilling fluids and muds, drill cuttings, hydrocarbons, hydraulic fracturing fluids, pit sludges, certain gases and hydrocarbons, workover wastes and sediment from the bottom of tanks.²³ The treatment regulations will be proposed by EPA without reclassifying the waste, which will not address the essential problem that hazardous waste is being handled as if it were not hazardous, posing pollution issues. There is also no incentive for companies to minimize hazardous waste since they do not have to meet the high level of management and treatment this hazardous waste requires for all other generators. So the conundrum of “what to do with frack waste” is far from being answered.

The proof of how difficult this issue is can be seen in all the pollution problems that are occurring where shale gas is being developed. Some of these are caused by poor performance by operators where about 11 violations of environmental permits by drillers occur in Pennsylvania per day.²⁴ In 2011, there were 4,382 violations of environmental permits by drillers, about 12 per day, up from 6 per day in 2010.²⁵ Some are caused by inadequate regulation and oversight of gas drilling, hydraulic fracturing, and well site and wastewater handling practices such as water, air and soil pollution being investigated in Washington County, Dimock, Beaver County, Butler County, Bradford County, Susquehanna County and other areas in Pennsylvania.²⁶ Some are due to deficiencies in the processes used to extract and produce shale gas and the lack of adequate regulation of how to dispose of the waste.

We cannot afford that kind of damaging activity in New Jersey, the most densely populated state in the Nation, with the highest number of superfund sites in the Nation. We can't tolerate any more pollution entering our waterways, especially frack waste. The technology and the regulations that govern how waste from gas drilling and fracking must be treated to be safe have simply not been developed.

This is the moment in time when New Jersey could institute a ban on frack waste that will be effective at stopping current dumping but also force protections to prevent pollution from frack waste generated here in NJ if they drill the Utica. NJDEP is not doing this for us; no one is

²² Oil and Gas operations are exempt from portions of major federal environmental laws including: Clean Air Act; Clean Water Act; Safe Drinking Water Act; Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act (the Superfund Law); and Emergency Planning and Community Right-to-Know Act. Amy Mall, et. al., Natural Resources Defense Council, *Drilling Down*, October 2001, p.iv.

²³ U.S. Environmental Protection Agency, “Exemption of Oland Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations,” p. 10-11, <http://epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf>

²⁴ http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance

²⁵ Ibid.

²⁶ <http://thetimes-tribune.com/news/dep-asks-gas-driller-to-help-remedy-franklin-twp-methane-spike-1.1287791#axzz1pIWELhB8>; <http://www.propublica.org/article/so-is-dimocks-water-really-safe-to-drink> ; <http://shale.sites.post-gazette.com/index.php/news/daily-headlines/24402-3202012-another-nepa-methane-spike-new-well-sites-in-beaver>; <http://shale.sites.post-gazette.com/index.php/news/archives/24313-dep-fines-chesapeake-over-multiple-incidents>; <http://shale.sites.post-gazette.com/>

stepping up to prevent pollution from frack waste here and now. We need the Legislature to affect a ban on the discharge, disposal, processing and long term storage in New Jersey. We need you to have our backs.

Memorandum on Frack Waste Disposal in New Jersey

From: Tracy Carluccio, Deputy Director
Delaware Riverkeeper Network

Date: June 13, 2012 (updated)

RE: Waste produced by hydraulic fracturing for gas and oil being disposed of in New Jersey

The following information about Clean Earth facilities and LORCO has been gleaned from public websites and the websites of Pennsylvania Department of Environmental Protection (PADEP) and New Jersey Department of Environmental Protection (NJDEP). The information about Dupont was gathered from Freedom of Information Act requests filed by Delaware Riverkeeper Network (DRN) that yielded documents from the Delaware River Basin Commission.

PADEP routinely discloses information about the fate of waste produced during the hydraulic fracturing process for Marcellus Shale gas production in the State on their website, including the name of the operator and location where the waste was produced, the type of waste, the facility and location where the waste was sent for disposal, and the amount of waste produced.

<https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteHome.aspx>

Operators are required as part of their permit obligations to file reports on this activity with PADEP, which provides the data that is reported publicly. Currently they are showing waste movement for the July 2011 to December 2011 period and prior periods. According to the website, data for 2012 will not be released until this six month reporting period has ended. Therefore, the Jan 2012 - Jun 2012 data will not be released until the end of June 2012.

Three facilities in New Jersey have or are still accepting waste directly from hydraulic fracturing operations in Pennsylvania's Marcellus Shale according to PADEP reports.

For the July 2011-Dec 2011 period, there were 3 facilities in New Jersey that received waste from Pennsylvania's Marcellus shale development: **1) Clean Earth of Carteret, 2) Clean Earth of North Jersey and 3) LORCO Petroleum Services.**

CLEAN EARTH

The Clean Earth facilities (locations in Kearny and Carteret shown below) are receiving **drill cuttings** from Marcellus Shale (primarily from Cabot Oil & Gas and WPX Energy) and then appear to be dumping them in landfills. These drill cuttings are traveling a long way to Clean Earth (from northeastern and western PA to eastern NJ). A letter and Open Public records Act request is being filed with NJDEP to get more details about the disposal of this waste.

Here is the Company profile from their website:

Clean Earth Inc. is one of the nation's largest specialty waste companies providing recycling and remediation services to energy, infrastructure, commercial and industrial customers along the East Coast of the United States. Headquartered in Hatboro, Pa., it operates a network of 10 full-service facilities from New York through Florida that handle more than three million tons of material annually.

Corporate Office

Clean Earth Inc.
334 South Warminster Road
Hatboro, PA 19040
Tel: 215 734-1400
Fax: 215.734.1417
President/CEO: Chris Dods

1. Clean Earth of North Jersey

Clean Earth of North Jersey, Inc. (Clean Earth) owns and operates a commercial solid and hazardous waste treatment, storage, and transfer facility on Block 289, Lots 14, 14A, and 14R in the Town of Kearny. This type of operation has been conducted at the site since 1984. Clean Earth of North Jersey is a subsidiary of Clean Earth, Inc.

US EPA ID No: NJD 991291105

Capacity: Hazardous waste: 249,500 gallons (or tons equivalent); Non-hazardous/industrial waste: 2,800 tons per day

Description of Site in

Kearny: [http://www.cleanearthinc.com/attachments/download/CENJ Compliance Manual Sept 2010sm.pdf](http://www.cleanearthinc.com/attachments/download/CENJ_Compliance_Manual_Sept_2010sm.pdf)

Facility Address:

105 Jacobus Avenue
Kearny, New Jersey 07032

Mailing Address:

115 Jacobus Avenue
Kearny, New Jersey 07032
Tel: (973) 344-4004
Fax: (973) 344-8652

PADEP records show that a total of 737.92 barrels (30,786 gallons) of “drilling waste” or drilling mud was taken to Clean Earth of North Jersey between July and December 2011. The waste was from Susquehanna County, PA produced by WPX Energy Appalachia, LLC. <https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteByWasteFacility.aspx>

EPA records for Clean Earth of North Jersey show 3 Notices of Violation or Informal Enforcement for RCRA violations on 05/15/2008; 08/07/2009; and 10/24/2011(five year history). EPA records

show 1 Formal Enforcement Action for TSCA by EPA on 09/30/2003 for “Notice of Noncompliance” on with \$00 penalty (five year history). These records also show 2 Formal Enforcement Actions for RCRA by New Jersey for Compliance Orders on 08/05/2008 (initial) and 09/11/2008 (final) with \$35,000 penalty and 2 Formal Enforcement Actions for RCRA by New Jersey for Compliance Orders on 11/13/2009 (initial) and 02/02/2010 (final) with \$2,700 penalty (five year history). <http://www.epa-echo.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=110000492002>

EPA has on on-line filing of a description of Clean Earth of North Jersey’s facility at http://oaspub.epa.gov/enviro/fii_query_dtl_disp_program_facility?pgm_sys_id_in=NJD991291105&pgm_sys_acrnm_in=RCRAINFO

2. Clean Earth of Carteret

Clean Earth of Carteret, Inc. (CEC) is the first fixed based bioremediation facility permitted in the state of New Jersey and the largest of its design in the U.S. The facility uses a proven biological system that removes petroleum hydrocarbons from soil. The system is comprised of elements unique to our process: a proprietary nutrient, an engineered blend of bacteria chosen for their ability to quickly and effectively metabolize organic contaminates.

NJ approved Class B Recycling Facility for PCS Waste (Non Hazardous Petroleum Waste)
NJ Class B Recycling Permit#: 132310
NJ Solid Waste Permit #: CBG080002
Capacity: 13,500 tons/week

Mailing Address:
24 Middlesex Avenue
Carteret, New Jersey 07008
County: Middlesex
Tel: 732 541-8909
Fax: 732 541-8105

PADEP records show that a total of 478.90 tons of drill cuttings were sent to Clean Earth of Carteret between July and Dec 2011. 341.90 tons were from Susquehanna County, PA produced by Cabot Oil and Gas Corporation; 137.00 tons were from Wyoming County, PA produced by Citrus Energy Corporation.

<https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteByWasteFacility.aspx>

3. LORCO Petroleum Services, Inc.

Mailing Address:
450 South Front Street
Elizabeth, NJ 07202
Phone: 800-734-0910
Fax: 908-820-8412
<http://www.lorcopetroleum.com/>

PADEP reported the shipment of **2,500 barrels (105,000 gallons) of “drilling fluid”** to LORCO in Elizabeth, NJ produced by Cabot Oil and Gas Corporation in Dimock, Susquehanna County,

Pennsylvania. However, NJDEP has stated that LORCO was approached (by phone) about accepting this waste but rejected the offer due to low level radioactivity and other properties of the material. PADEP reports that this was shipped between July and September 2010 and shows no reports for shipment at any other time.

<https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteByWasteFacility.aspx>

When the next 6-month report is issued by PADEP at the end of June 2012, whether shipments have been made in 2012 to any of these facilities or other facilities in New Jersey can be verified.

4. Dupont Chambers Works Facility

According to a memo in the Delaware River Basin Commission's (DRBC) PSC Industrial Services ("PSC") files, PSC - a centralized treatment facility located in Hatfield Township, PA - "treated and sent" "frac water" waste produced by natural gas drilling and hydraulic fracturing in 2009-2010. They sent 1,386,595 gallons to Dupont; 1,375,060 gallons to Hatfield Township Municipal Authority Wastewater Treatment Plant ("HTMA"); and approximately 100,000 gallons "went elsewhere".²⁷ The wastewater was produced by Cabot Oil and Gas Corporation at shale gas wells they developed in Susquehanna County, PA. PSC Services has a contract with Dupont and other treatment facilities to send them the waste produced by their processing plant.

Dupont confirmed by phone that in 2009-2010 Dupont accepted from PSC and treated and discharged from the Dupont Chambers Works treatment facility in Deepwater, New Jersey (Salem County) 1,386,595 gallons of treated hydraulic fracturing wastewater. This facility discharges into the Delaware River. An email from the Deputy Executive Director of the DRBC indicates that this waste-stream was to facilitate an experimental treatability study being conducted by DuPont. DuPont later submitted to DRBC a statement that "The wastewater shipped by PSC to Chambers Works was pretreated and commingled with other waste streams. All waste streams received by Chambers Works conformed to preapproved wastewater profiles on file at Chambers Works."²⁸ DRBC notified Dupont that the acceptance by Dupont of the frack waste was not in compliance with the DRBC permit governing Dupont's Chambers Works facility. Questions about the discrepancy of whether the waste was part of a Dupont treatability study or whether it was received from PSC as a co-mingled waste product and directly discharged with Dupont's Chamber Works facility waste stream have not been reconciled. DRN has requested DRBC to further investigate the handling and ultimate fate of the waste.

In May of 2011 DRBC approved Docket No. D-1988-085-3, renewing and modifying DRBC approval for the Dupont Chambers Works treatment facility. Docket condition "v" *prohibits* DuPont from accepting, treating or discharging hydraulic fracturing wastewater without first applying for and obtaining the Commission's approval. To date, there is no application submitted to DRBC for such an approval.

DRN filed an Open Public Records Act request with NJDEP for files regarding Dupont's acceptance of or interest in applying to accept gas drilling wastewater and the results on February 22, 2012 were "NJDEP claims to have no responsive records re Dupont Chambers Works Facility accepting wastewater". This sheds little light on the acceptance by Dupont of 1.3+ million gallons of "frac water" from PSC.

²⁷ Email communication from Skip Garner [<mailto:sgarner@cps-2comply.com>] to Walsh, Steve with cc to 'Smith, Matt (PSC)'; 'Fink, Greg (PSC)'; Mlogan@cps-2comply.com, Wednesday, September 07, 2011 10:40 AM

²⁸ Letter from F. Marc Holman, Plant Manager, DuPont Chambers Works to William J. Muszynski, Water Resources Engineer, DRBC, March 3, 2012.