



## MEMORANDUM

**TO:** New Jersey Legislature  
**FROM:** Tracy Carluccio, Deputy Director, DRN  
**DATE:** June 10, 2013  
**RE:** Frack waste disposed in New Jersey

An Open Public Records Act ("OPRA") review of NJ Department of Environmental Protection ("NJDEP") and Pennsylvania Department of Environmental Protection ("PADEP") files regarding the receipt of waste from hydraulically fractured gas wells ("frack waste") at New Jersey facilities has been conducted over the past several months by Delaware Riverkeeper Network. A few key findings are summarized in this Memo.

As discussed in earlier memos, three facilities located in New Jersey are listed on the PADEP website as recipients of frack waste from gas wells in Pennsylvania from July 2011 through Dec 2011: 1) Clean Earth of Carteret, 2) Clean Earth of North Jersey and 3) LORCO Petroleum Services. Frack waste was also received by Dupont in Deepwater, NJ through a processing facility in Bucks County, PSC Services, which was confirmed by a Freedom of Information Act review of records at the Delaware River Basin Commission. The frack waste that was trucked to PSC Services was also verified by a Right to Know request filed by Delaware Riverkeeper Network with PADEP.

DRN is preparing a more extensive report on frack waste handling but we wanted to share this information now so it can be considered by you and other Legislators as you consider a vote to override Governor Christie's veto of A575, the Frack Waste Ban Bill.

**Attached** (Attachment #1) to this Memo is the Memo dated July 23, 2012 detailing the frack waste received by New Jersey facilities. This information is valid today and is up to date. PADEP did not post any further shipments of frack waste to New Jersey since the Memo was written, including all of 2012. However, the website postings for the first six months of 2013 are not yet posted on the PADEP website so we do not know if waste was shipped or continues to be shipped to New Jersey facilities between January 1, 2013 and June 30, 2013.

Important additional information was discovered through an OPRA filed with New Jersey and Right to Know requests filed with Pennsylvania. This information is outlined below.

## 1. Clean Earth of North Jersey

Mailing Address:

115 Jacobus Avenue

Kearny, New Jersey 07032

County: Hudson

It was reported on the PADEP website that a total of 30,786 gallons of frack waste (drilling waste or drilling mud) was sent to Clean Earth of North Jersey between July and December 2011. More specifically, 292.79 Bbl (at 42 gallons per Bbl) was sent from the Micks 1H well in Susquehanna County from a shale gas well drilled by WPX Energy Appalachia LLC. It is not clear if another well, Hollenbach, sent an additional 445.13 Bbl units of frack waste to Clean Earth of North Jersey although this shipment was listed on the PADEP database.

A **Notice of Violation** (“NOV”) was issued to Clean Earth of North Jersey (“CENJ”) for accepting **frack waste containing radioactivity that exceeded the limits of their permit**, dated 10.24.11, Activity Number BCI 110022. This NOV was issued during a bi-weekly inspection for failure to comply with a condition of the permit (40 CFR 270.30(a)). The NJDEP report is **attached** (Attachment #2). The *dataminer* summary states that the facility “...accepted and managed ‘solid waste’ that contained diffuse naturally occurring or diffuse accelerator produced radioactive material (defined at N.J.A.C. 7:28-1.4); and 2) CENJ accepted, processed and arranged for the off-site disposition of radioactively contaminated solid waste that contained a combination of Radium-226 and Radium-228 at a concentration above 5 pCi/g dry weight above background. (Analytical result from NJDEP sample #MS002 taken on 8/10/11 was 8.59 pCi/g), in violation of N.J.A.C. 7:26G-12.1 (a) and 40 CFR 270.30(a).”

## 2. Clean Earth of Carteret

Mailing Address:

24 Middlesex Avenue

Carteret, New Jersey 07008

County: Middlesex

PA Right to Know: Of the total 478.90 tons of drill cuttings shown to have been trucked 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. Records show that 313.14 tons of this Cabot waste was classified as a “solid” but contained “residual drilling fluid and cuttings solids – **frac tank clean out**”. The physical appearance was further described as a “Solid/Liquid solution with solids suspended throughout”.

The process description that produced the waste is described as:

“Frac tanks containing historic drilling residuals generated as part of drilling activities within the Marcellus Shale in Susquehanna County, Pennsylvania were staged at various well pad locations. Since the material is historic, we cannot definitely ascribe a specific waste code and it would be most appropriate to call the materials generically drilling residuals.

**For the process generating the waste herein, this is the result of frac tank cleaning following the storage of drilling residuals and represents a composite of the above waste streams.”**

As per Pennsylvania regulations, the waste was sampled and the results filed with PADEP. The lab results are **attached** (Attachment #3). Since Clean Earth of Carteret is permitted to process petroleum contaminated soils and cement, some petroleum-based pollutants, volatile organics, metals, and PCB's may be treated by the facility's system. However, there are many constituents in the laboratory analysis that may not be effectively treated by the facility, which would mean that these pollutants pass through the processing system and remain in the end-product material that Clean Earth of Carteret then sends to designated facilities, called "backend" facilities. Several of these facilities are landfills where the material is used for capping. Much of this frack waste residual material was sent to Brookfield Landfill, Staten Island, the NJDEP approved backend facility.

One major pollutant that was not addressed by Clean Earth of Carteret's processing system is radioactive substances. According to the PA records, radiological analysis revealed results of 9.7 pCi/g for Gross Alpha, 8.88pCi/g for Gross Beta, 9.99 pCi/g for Radium-226 (the longest lived isotope of radium with a half-life of 1600 years) and 18.53 pCi/g for Radium-228<sup>1</sup>. **These levels are all above the level that Clean Earth of Carteret is permitted to process; their facility does not remove radioactivity at this level.**

NJ OPRA: Clean Earth of Carteret applied to NJDEP for approval to accept Marcellus Shale waste on January 13, 2011, **attached** (Attachment #4). The application characterized the waste based on sampling results of frac waste dated January 11, 2011 from shale gas wells in Pennsylvania. The lab results are **attached** (Attachment #5). Based on the application materials, on January 26, 2011 NJDEP approved the material as "petroleum contaminated soil" that met the facility's criteria and approved Brookfield Landfill in Staten Island as the backend facility, **attached** (Attachment #6). **Notably missing from the constituents tested was any radiological. No sampling results for radioactive elements were supplied by Clean Earth of Carteret to NJDEP and none was requested by NJDEP, according to NJDEP records.**

As far as we can tell from the records, Clean Earth of Carteret is still allowed to accept this frack waste and the approval granted in January 2011 by NJDEP is still in place. Frack waste can be brought to this New Jersey facility under these current permits despite the fact that the waste contains radioactive materials.

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<sup>1</sup> Radium-226, a decay product of the Uranium-238 decay chain, is taken up like calcium into bone 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. 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. <http://www.epa.gov/radiation/radionuclides/radium.html#inbody>

### 3. LORCO Petroleum Services

Mailing Address:

450 South Front Street

Elizabeth, NJ 07202

County: Union

PA Right to Know: PADEP records show that 162,000 gallons of “liquid waste” went to LORCO Petroleum (this is an increase over the 105,000 gallons that the PADEP website reported). The waste was classified as “drilling fluids, residuals – Pit Water”. It was described further as “Greyish to Black Solution with Solids Suspended Throughout”.

The process description that produced the waste is described as:

“This waste stream is generated from the collection of drilling fluids (solids and liquids) that are pumped into a reserve pit. Additionally, some surface runoff from the well pad is present in the reserve pit. As the solids settle to the bottom, the water is pumped out of the pit into Baker tanks and either recycled or disposed at a wastewater treatment plant”.

Samples were grabbed from the pit to be tested as per PADEP regulations. The lab results are **attached** (Attachment #7). There was no testing provided in these records for radiologicals or uranium. It is unknown if there were radioactive elements in the wastewater that was processed by LORCO.

Attachments: 7 Attachments