



ALBANY

Tuesday, May 13th, 2014 11:30 A.M.
Hearing Room A 2nd Floor
Legislative Office Building,
Albany, New York

NEW YORK STATE SENATE DOMOCRATIC CONFERENCE

Forum on the public health and environmental risks posed by hydraulic fracturing by-products and the acceptance thereof by New York State publicly owned treatment works and landfills.

Dear distinguished Senators and Assembly members:

My name is Roger Downs and I am the Conservation Director for the Sierra Club Atlantic Chapter. We are a volunteer led environmental organization of 38,000 members statewide dedicated to protecting New York's air, land, water and remaining wild places. Thank you for giving us the opportunity to provide insight into the disposal, processing, and secondary use of hydraulic fracturing waste by-products in New York State.

Although there has been a *de facto* moratorium on the drilling of horizontal gas wells in New York since 2008, the state still suffers from a serious fracking waste problem that threatens air and water resources with the very contaminants we have sought to avoid through precaution. Since 2011, more than 300,000 tons of radioactive drill cuttings have entered at least 5 NY landfills¹ from Pennsylvanian fracked wells, with little oversight from the DEC because of loopholes in the State Environmental Conservation Law.

As you may know, the oil and gas industry is exempt from federal and New York State laws governing hazardous waste transport and disposal. Even though a great deal of the wastewater and drill cuttings generated by hydraulic fracturing, or "fracking" meets the state definition of hazardous, it's not treated as such. Fracking involves injecting water, sand and chemicals into rock formations at extremely high pressure, separating rock fissures and releasing natural gas. Other states that have embraced this form of drilling have experienced contaminated water, polluted air, and adverse human health effects – especially in the handling of wastes.

Fracking chemicals arrive at the drilling site often as regulated hazardous materials;

¹ (attached to this testimony is a spreadsheet of NY waste facilities, types and amounts of drilling wastes compiled by the PA Department of Environmental Protection and made public on their website.

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

complete with transport manifests and added safety features, but federal and state exemptions allow drillers that pump these harmful chemicals into the ground to treat the wastes that come back up as standard industrial waste². Carcinogenic benzene, toluene, and formaldehyde are common frack fluid ingredients and the returning flow back water and drill cuttings also brings up naturally occurring salts, heavy metals and radioactive particles. Fracking wastewater that enters local sewage treatment plants—sometimes with radiation levels hundreds of times the allowable limit for safe effluent discharge—goes right back into the rivers and streams that supply water to millions of people. Drill cuttings, (the residual pulverized slurry that comes out of the initial borehole) from deep shale formations can have high levels of radium-226 and-228 that can be dispersed as airborne particles or become soluble in water or leachate when disposed of in landfills. Human exposure to radium 226 can lead to developmental problems, neurological disorders and cancer.

DEC has consistently ruled that in spite of the potential to have brine from Marcellus shale test as high as 16,000 picocuries per liter (which is more than 3,000 times the legal limit for drinking water at 5 pCi/L)³ the “hot” drill cuttings steeped in this brine still qualify as Naturally Occurring Radioactive Material (NORM) and are not subject to further regulation. None of the 5 New York landfills that take Pennsylvanian drill cuttings are permitted to accept radioactive materials; but since drilling waste is not subject to hazardous waste laws – DEC has essentially declared that they have no authority to intervene in this emerging crisis.

In 2013, radiation alarms were triggered more than a thousand times⁴ at Pennsylvanian landfills⁵ when trucks carrying drilling waste entered their gates. Trucks that failed to meet acceptable radiation levels were turned away, ostensibly redirected to facilities that were permitted to responsibly accept radioactive waste, though it is entirely possible that those loads found their way into NY landfills. Even though New York receives the same

² **Part 371: Identification and Listing Of Hazardous Wastes**

§371.1 – General

(d) Definition of hazardous waste.

(1) A solid waste, as defined in subdivision (c) of this section, is a hazardous waste if:

(i) It is not excluded from regulation as a hazardous waste under paragraph (e)(2) of this section; and (ii) It meets any of the following criteria: . . .

(e) Exclusions. (2) Solid wastes which are not hazardous wastes. The following solid wastes are not hazardous wastes: . . .(v) drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy; . . .

³ Radium Content of Oil- and Gas-Field Produced Waters in the Northern Appalachian Basin (USA): Summary and Discussion of Data Scientific Investigations Report 2011–5135 U.S. Department of the Interior U.S. Geological Survey

⁴ <http://www.post-gazette.com/local/marcellusshale/2013/08/22/Marcellus-Shale-waste-trips-more-radioactivity-alarms-than-other-products-left-at-landfills/stories/201308220367>

⁵ <http://www.forbes.com/sites/jeffmcmahon/2013/04/24/fracking-truck-sets-off-radiation-alarm-at-landfill/>

drilling waste stream as PA there has been not one instance of ‘tripping the alarm’ at it’s landfills because there is no such requirement for radiation detectors – and the voluntary devices installed by private dump operators are improperly calibrated and provide little protection beyond superficial appearances.

Fracking waste is virtually impossible to remediate through traditional wastewater treatment plants and in general, New York’s Publically Owned Treatment Works (POTWs) are largely off limits to direct disposal of oil and gas waste. Just recently, the City of Auburn, NY reversed it’s decision to reopen it’s treatment facility to frack fluid disposal after a city funded study revealed that it would be virtually impossible to provide treatment compliant with the Clean Water Act.⁶ Already, Pennsylvania’s legacy of frack fluid disposal in ill-equipped waste water treatment facilities is showing up in unlikely places. Black Lick Creek, a tributary of the Allegheny River that runs through Western Pennsylvania and empties into Lake Erie, now has a permanent radioactive signature in its sediments according to Duke University researchers. Samples taken from the creek reveal radioactivity 200 times greater than background levels from half a decade of fracking waste treatment at a facility 45 miles upstream in Josephine, PA.⁷ With virtually no way to clean up the contaminated sediments, the radium will bioaccumulate in fish and persist for centuries as a constant public health hazard.

It would appear; however, even if we ban fracking waste from our POTWs the radioactive contaminants will still find their way to New York’s waste treatment facilities through indirect means. Every landfill that accepts drilling waste in NY must mitigate the water runoff that drains through its disposal area into leachate pits. These leachate pits must be emptied on a weekly basis and the slurry, which contains the radioactive and toxic residue of drilling waste, is transported to local POTWs for treatment. The Chemung Landfill – that accepts Marcellus drilling waste – sends nearly 10 million gallons of contaminated leachate per year to the publically owned treatment works in Elmira, which year by year is demonstrating increasingly elevated levels of radioactivity. In a sense, the landfills of the Southern Tier are being used to “launder” fracking waste through leachate disposal in water treatment facilities that otherwise would never be allowed to take radioactive brine.

Sierra Club makes the following recommendations to the NYS legislature to help end this drilling waste crisis:

Ban the disposal of drilling wastes in landfills and POTWs

Because New York lacks the proper regulatory framework, adequate enforcement capacity and the infrastructure to properly handle radioactive and hazardous drilling waste of any kind- all disposal must be banned until these gross deficiencies can be

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http://www.syracuse.com/news/index.ssf/2014/04/fracking_issues_raised_by_auburn_wa_stewater_report.html

⁷ <http://www.bloomberg.com/news/2013-10-02/radiation-in-pennsylvania-creek-seen-as-legacy-of-frackin.html>

remedied. The Sierra Club supports bills like S.5123A (Tkaczyk), S.3333A (Gipson), S.5412 (Gipson) and S448 (Avella) that will prevent the disposal of high volume hydraulic fracturing waste from being transported, spread on our roadways or disposed of in New York State.

Treat wastes from high volume and low volume fracking operations equally

Several bills before the NYS Legislature designed to address some aspect of the fracking waste crisis seek only to mitigate the impact of High Volume Hydraulic Fracking (HVHF) waste while allowing low volume fracking waste to continue to be spread on roadways, dumped in landfills and discharged into POTWS. The new proposed regulations, in accordance with the SGEIS, only pertain to gas wells that consume 300,000 gallons of water or more during the fracking process. Gas wells that consume less than this threshold will only be subject to the permitting conditions established by the 1992 GEIS and existing regulations, which were last updated in 1972. The Sierra Club is concerned that we are creating a two-track system of regulatory controls where there is a chasm between protections. Currently, DEC allows Pennsylvanian low volume waste to be spread on New York roadways as a de-icing agent as part of a Beneficial Use Determination (BUD). But the public is given little assurance that the low volume waste is any safer than brine from a high volume operation. With more and more drillers claiming to recycle their fracking fluids it would be very easy for high volume operation to transfer fluids to a low volume well – and subsequently escape any further regulation attached to the tracking, transport and reporting when it came time to dispose of that fluid. The Sierra Club believes that one standard of regulation should be held for all drilling waste, regardless of the volume of water used.

Close the Hazardous waste loophole for drilling waste

So much of the DEC's unfortunate policy regarding drilling waste stems from federal and state preemptions in Law that declare that oil and gas waste can never be considered hazardous.² The Sierra Club supports closing the hazardous waste loop hole S.674 (Avella) by advancing legislation that would mandate the uniform treatment of waste in NY, meaning that if fracking waste meets the statutory definition of hazardous⁸ then it should be treated as such.

Revisit the regulation of NORM

The New York State Department of Environmental Conservation must adopt more stringent standards in its regulation of Naturally Occurring Radioactive Materials to reflect the public health considerations of increasingly elevated levels of radium 226 in drill cuttings. Current regulations prevent DEC from restricting the disposal of NORM

⁸ NYS ECL § 27-0901. **Definitions.** When used in this title: . . . 3. "Hazardous waste" means a waste or combination of wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may: a. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or b. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed, or otherwise managed.

based upon its radioactivity alone. Other states like Pennsylvania have acknowledged that unearthed rock from 6,000 feet below the earth's surface is not "naturally occurring" and the refinement process of drill cuttings as a processed waste deems it "Technologically Enhanced" and therefore subject to more stringent disposal requirements. For the past year the PA DEP has undertaken a study of TENORM and its potential impact upon human health through direct and indirect exposure. Of particular concern is relationship between TENORM and water, where soluble radionuclides can rapidly contaminate aquatic habitats, seep into soils or biomagnify through ecosystems. Failure on the part of NYS to tighten its own regulations will most certainly mean an even greater flow of drilling waste over the border as the State of Pennsylvania further restricts what it will allow into its own landfills and treatment facilities.

Right now the Hyland landfill in Angelica, NY has a pending permit to increase the rate by which they accept drilling waste and the Chemung County landfill in Lowman, NY has a pending permit to double the foot print of its facility to accommodate an increased flow of radioactive drill cuttings. We urge the legislature to intervene in these proceedings and to push for changes to the regulatory framework governing oil and gas waste so that DEC finally can adopt policies that protect public health, drinking water, and air quality from the most toxic byproducts of fracking. New York State should not be Pennsylvania's toxic dumping ground.

Thank you for your consideration of these comments,

A handwritten signature in cursive script that reads "Roger Downs". The signature is written in black ink and is positioned above the printed name and title.

Roger Downs
Conservation Director
Sierra Club Atlantic Chapter

NY Landfills and Treatment Facilities that Accept Drilling Waste From PA:

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

| <u>Waste Facility/ Location</u> | <u>Time Period</u> | <u>Waste Type</u> | <u>Waste Quantity</u> | |
|------------------------------------------------|--------------------|---------------------------|-----------------------|------|
| Allegany Road Spreading-Bolivar | Jan-Dec 2011 | Produced Fluid | 2,602 | Bbl |
| | Jan-Dec 2013 | Produced Fluid | 338.74 | Bbl |
| Allegany Road Spreading-Cuba | Jan-Dec 2012 | Produced Fluid | 111.86 | Bbl |
| Allied Waste Systems-Niagara Falls | Jan-Jun 2011 | Drill Cuttings | 21,434 | Tons |
| | | Drilling Fluid | 8,590 | Bbl |
| | | Flow-Back Fluid | 1,320 | Bbl |
| | Jan-Jun 2012 | Drill Cuttings | 39,830.31 | Tons |
| | | Drilling Fluid | 7,979.48 | Bbl |
| | | Flow-Back Fracturing Sand | 55.7 | Tons |
| | July-DEC 2012 | Drill Cuttings | 11,955.35 | Tons |
| | | Drilling Fluid | 3348.1 | Bbl |
| | July-Dec 2013 | Produced Fluid | 525 | Bbl |
| B&L Enterprises-Dewittville | Jan-Dec 2010 | Produced Fluid | 5187 | Bbl |
| Brant Disposal-Buffalo | Jan-Dec 2008 | Produced Fluid | 379 | Bbl |
| | Jan-Dec 2009 | Produced Fluid | 781 | Bbl |
| | Jan-Dec 2010 | Produced Fluid | 11,079.98 | Bbl |
| | Jan-Dec 2011 | Produced Fluid | 2936 | Bbl |
| Casella Waste Systems-Painted Post | Jul-Dec 2010 | Drill Cuttings | 5890.66 | Tons |
| | Jan-Jun 2011 | Drill Cuttings | 11,677.62 | Tons |
| Chemung County Landfill-Lowman | Jan-Jun 2011 | Drill Cuttings | 11,101.59 | Tons |
| | | Flow-Back Fracturing Sand | 30 | Tons |
| | Jul-Dec 2011 | Drill Cuttings | 30,007.71 | Tons |
| | Jan-Jun 2012 | Drill Cuttings | 5,436.89 | Tons |
| | Jul-Dec 2012 | Drill Cuttings | 39,812.4 | Tons |
| | Jan-Jun 2013 | Drill Cuttings | 26,042.27 | Tons |
| | | Flowback Fracturing Sand | 50.05 | Tons |
| | July-Dec 2013 | Drill Cuttings | 32,078.96 | Tons |
| Environmental Products and Services of Vermont | Jan-Jun 2013 | Fracking Fluid Waste | 37.96 | Bbl |
| | July- Dec 2013 | Fracking Fluid Waste | 2,568.4 | Bbl |
| | | Produced Fluid | 2,199.99 | Bbl |
| Hakes C&D Landfill-Painted Post | Jul-Dec 2010 | Drill Cuttings | 13,384.51 | Tons |
| | Jan-Jun 2011 | Drill Cuttings | 2,943.84 | Tons |
| | Jul-Dec 2011 | Drill Cuttings | 39.53 | Tons |
| | | Flow-Back Fracturing Sand | 214 | Tons |
| | Jan-Jun 2012 | Drill Cuttings | 9,691.16 | Tons |
| | | Drilling Fluid | 220 | Bbl |
| | Jul-Dec 2012 | Drill Cuttings | 565.67 | Tons |
| | Jan-Jun 2013 | Drill Cuttings | 3,059.72 | Tons |
| | | Drilling Fluid | 112 | Bbl |
| | July-Dec 2013 | Drill Cuttings | 7,621.13 | Tons |

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|---------------------------------------|----------------|---------------------------|-----------|------|
| Hakes Landfill-Painted Post | Jul-Dec 2010 | Drill Cuttings | 308 | Tons |
| | Jan-Jun 2011 | Drill Cuttings | 33,633.73 | Tons |
| | Jul-Dec 2011 | Drill Cuttings | 38,318.86 | Tons |
| | Jul-Dec 2012 | Drill Cuttings | 228.01 | Tons |
| Hyland Facility Association- Angelica | Jul-Dec 2010 | Basic Sediment | 5.55 | Bbl |
| | | Drill Cuttings | 14,181.8 | Tons |
| | Jan-Jun 2011 | Drilling Fluid | 83 | Bbl |
| | | Drill Cuttings | 19,022.31 | Tons |
| | | Flow-Back Fracturing Sand | 199.47 | Tons |
| | Jul-Dec 2011 | Produced Fluid | 445 | Bbl |
| | Jul-Dec 2012 | Drill Cuttings | 37,708.68 | Tons |
| Jan-Jun 2013 | Drill Cuttings | 500.56 | Tons | |
| JJ Bucher TRMT Facility-Bolivar | Jan-Dec 2010 | Drill Cuttings | 559.74 | Tons |
| | | Produced Fluid | 22,160.04 | Bbl |
| NY Road Spreading-Chautauqua | Jan-Dec 2010 | Produced Fluid | 296.78 | Bbl |
| | Jan-Dec 2011 | Produced Fluid | 659.03 | Bbl |
| | Jan-Dec 2012 | Produced Fluid | 750.08 | Bbl |
| | Jan-Dec 2013 | Produced Fluid | 935.02 | Bbl |
| Seneca Meadows Landfill-Waterloo | Jul-Dec 2010 | Drill Cuttings | 2,277.7 | Tons |
| | Jan-Jun 2011 | Drill Cuttings | 2,955.31 | Tons |
| | Jul-Dec 2011 | Drill Cuttings | 3,708.41 | Tons |
| Zentz's Well Service -Roadspreading | Jan-DEC 2010 | Produced Fluid | 50 | Bbl |
| | Jan-Dec 2013 | Basic Sediment | 8 | Bbl |

For more information Contact the New York Sierra Club:

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