Water waste by natural gas companies

Natural gas companies can damage and drain aquifers in the fracking process. As our service we proposed to raise the cost of water for these companies to decrease their usage.

Tag Words: fracking; water waste; natural gas; water supply; recycling water

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Summary

A massive amount of water is used from ground water sources called aquifers in the process of obtaining natural gas, fracking. This depletes local water supply for residents and can also contaminate groundwater with chemicals used in the fracking process. As our service project we are proposing an addition to the recent Pennsylvania tax proposal that would include a tax on water usage by natural gas companies. This would make them more conscious of their usage and possibly lower it or promote the recycling of their waste water. The income generated from this tax would go to the Pennsylvania Department of Environmental Protection for oversight of this program and toward other environmentally friendly programs.

Video Link

Horizontal Drilling and Hydraulic Fracturing: http://youtu.be/O0kmskvJFt0
The Issue: Fracking

Introduction (Matt)
Of all the natural resources our planet has, nothing is more important than water. But for natural gas companies, water is just a factor in their process for conducting business. These companies waste millions of gallons of water per well by a drilling process called hydraulic fracturing, or fracking. When the water is removed from the well, it now contains acids and other toxins that became mixed into the water during the fracking process. This becomes a problem for people who use this now polluted groundwater as their main source for water. The amount of water that is wasted by these companies per year is in the hundreds of millions of gallons. And afterwards the water is now contaminated, leaving it unsafe for human consumption. Something must be done to put a stop to all the water waste these companies are contributing to. This paper will focus on four key points; water usage by the companies, water sources for fracking, effects these companies have and finally the legal aspect allowing these companies to do business. If these companies are allowed to continue what they’re doing to these wells and regions, we may run out of clean water much faster than previously anticipated.

Reference:
http://www.celsias.com/article/natural-gas-companies-poisoning-your-ground-water/

Water Usage by natural gas companies (Dan)
How much water is used in deep shale gas development?
Water is an essential component of Chesapeake Energy’s (Chesapeake) deep shale gas development. Chesapeake uses water for drilling, where a mixture of clay and water is used to carry rock cuttings to the surface, as well as to cool and lubricate the drill bit. Drilling a typical Chesapeake deep shale gas well requires between 65,000 and 600,000 gallons of water. Water is also used in hydraulic fracturing, where a mixture of water and sand is injected into the deep shale at a high pressure to create small cracks in the rock and allows gas to freely flow to the surface. Hydraulically fracturing a typical Chesapeake horizontal deep shale gas well requires an average of 4.5 million gallons per well.

Reference:
http://www.chk.com/Media/CorpMediaKits/Water_Use_Fact_Sheet.pdf

Water Sources for the fracking process (Dan)
Where does the water come from?
Chesapeake utilizes several sources of water in deep shale gas exploration including rivers, creeks, lakes, discharge water from industrial or city wastewater treatment plants, groundwater and the reuse of fracturing water. Chesapeake often works directly with local officials to arrange water purchases from a municipality when drilling inside city limits. This water is typically transported via temporary pipelines or trucked to drilling locations for storage prior to use in tanks or impoundments. The overall mix of water sources used depends on the region and the availability of sources near drilling sites.
What is hydraulic fracturing?
Hydraulic fracturing, commonly referred to as fracing, is the process of creating fissures, or fractures, in underground formations to allow natural gas to flow. In Chesapeake Energy Corporation’s (Chesapeake’s) deep shale gas plays, water, sand and other additives are pumped under high pressure into the formation to create fractures. The fluid is more than 99% water and sand, along with a small amount of special-purpose additives. The newly created fractures are “propped” open by the sand, which allows the natural gas to flow into the wellbore and be collected at the surface. Normally a hydraulic fracturing operation is only performed once in the life of a well. Variables such as rock formations and thickness of the targeted shale formation are studied by scientists before hydraulic fracturing is conducted. The result is a highly sophisticated process that optimizes the network of fractures and keeps them safely contained within the boundaries of the deep shale gas formation.

Fracturing Fluid Makeup
In addition to water and sand, other additives are used in fracturing fluids to allow fracturing to be performed in a safe and effective manner. Additives used in hydraulic fracturing fluids include a number of compounds found in common consumer products.
Reference:
http://www.chk.com/Media/CorpMediaKits/Hydraulic_Fracturing_Fact_Sheet.pdf

Effects

a. Drainage of aquifers (Julie)
Aquifers are actually made of the water that is found in the tiny little spaces (or "pores") in between the particles that make up the soils and rock under the ground (or in the "subsurface").
These particles can actually act as a natural filter to help remove impurities from the water. This makes groundwater some of the cleanest water on the planet! The aquifer portion of the subsurface is the part that is completely soaked (or "saturated") with water. This water is usually called "groundwater". The uppermost layer of water of the aquifer is called the "water table".

Water on the surface that comes from rain or snow melt soaks into the ground. This process is called "infiltration". The water slowly percolates down into the aquifer by travelling in a very windy path through the pores that are connected together. When water infiltrates into the aquifer from above it is said to have "recharged" the aquifer. Some aquifers can be recharged in a matter of hours. In others the water travels so slowly that it make take hundreds or thousands of years to make it into the aquifer.

There is a number of reasons why what we do to our aquifers is so important. In many places people are draining the aquifers faster than nature can recharge them. In some areas this rapid pumping has caused the water table to drop. This has led to many streams and springs drying up and an increase in desert-like conditions.

Source: [http://wapi.isu.edu/envgeo/aquifer_facts.pdf](http://wapi.isu.edu/envgeo/aquifer_facts.pdf)

Similarly, water is being withdrawn from underground stores (aquifers) many times faster than it is being replaced by nature -- all to support the expanding human enterprise. Most people realize there are limits to how much oil can be pumped, but few realize that humanity is also mining a finite reservoir of groundwater. Overdrafts can destroy aquifers permanently. The water-filled cavities in rock formations sometimes collapse after the water is pumped out, or, in coastal areas, aquifers may be infiltrated by salt water.

Source: [http://www.ditext.com/ehrlich/2.html](http://www.ditext.com/ehrlich/2.html)

b. Waste water created by the operation (Julie)

Much of the wastewater is the byproduct of a drilling process called hydraulic fracturing, or fracking, which pumps at least a million gallons of water per well deep into the earth to break layers of rock and release gas. When the water is sucked back out, it contains natural toxins dredged up during drilling, including cadmium and benzene, which both carry cancer risks. It can also contain small amounts of chemicals added to enhance drilling.

Oil and gas wells disgorge about 9 million gallons of wastewater a day in Pennsylvania, according to industry estimates used by the DEP. By 2011 that figure is expected to rise to at least 19 million gallons, enough to fill almost 29 Olympic-sized swimming pools every day. That’s more than all the state’s waterways, combined, can safely absorb, DEP officials say. [http://www.scientificamerican.com/article.cfm?id=wastewater-sediment-natural-gas-mckeesport-sewage&page=4](http://www.scientificamerican.com/article.cfm?id=wastewater-sediment-natural-gas-mckeesport-sewage&page=4)

Wastewater from natural gas drilling in New York State is radioactive, as high as 267 times the limit safe for discharge into the environment and thousands of times the limit safe for people to drink [http://www.scientificamerican.com/article.cfm?id=marcellus-shale-natural-gas-drilling-radioactive-wastewater](http://www.scientificamerican.com/article.cfm?id=marcellus-shale-natural-gas-drilling-radioactive-wastewater)

The second problem is the continuing flow of acid mine drainage, wildcat sewers, and other sources of contamination flowing into Pittsburgh area waterways. Add to that all the gas drilling wastewater that has been getting trucked to any waste treatment plant that would accept it. The wastewater was then being processed with various degrees of wastewater treatment before getting dumped back in area waterways. All of these sources (gas drilling wastewater, acid mine
drainage, wildcat sewage flow) contribute to a high TDS (total dissolved solids) level.

The bad marriage
When you lower river flow and increase TDS levels. The serious problems begin. Gas drilling companies are contributing to the problem on two levels, and it has become the proverbial straw that broke the camel's back. Whatever fragile balance that existed with Pittsburgh river water in the past has now been skewed by the increased drilling and hydrofracing of horizontal wells. http://www.marcellus-shale.us/water.htm

Regulation: (Mikhail)
Large volumes of water are required to complete a Marcellus Shale natural gas well, and large volumes of waste water are generated as part of the drilling process. This wastewater is considered industrial wastewater and is a residual waste in the commonwealth. DEP, in cooperation with the Susquehanna and Delaware River basin commissions, has created additional permit guidelines for drilling in the Marcellus Shale formation to create consistent rules for water withdrawal, usage, treatment and disposal in all areas of the state, and to ensure that the water quality and uses of waters of the commonwealth are not threatened by drilling operations. As part of the permit application process, drilling companies must identify where they plan to obtain and store the water used in their drilling operations. When applying for a permit, drillers must specify the sources and location of fresh water and the anticipated impacts of water withdrawals on water resources, and obtain approval from the appropriate river basin commission. Pits or impoundments with an embankment used to temporarily store water for drilling activities must meet DEP standards for construction and may also require a DEP dam permit. Drilling companies must also identify where the produced wastewater will be stored, treated and disposed. Pits or impoundments with an embankment for temporarily storing drilling wastes must meet DEP standards for construction (e.g., synthetic liners) and may also require a DEP dam permit. Waste water (fluids) must be reused and recycled, or collected and treated at an authorized waste water treatment facility. DEP approval is required before the receiving treatment facility can accept the wastewater for processing and/or disposal.

Legislation: (Mikhail)
Recently The Pennsylvania House of Representatives has passed a proposal that would tax gas drillers 39 cents per thousand cubic feet of gas extracted, with provisions for increases in the fee if gas prices rise above about $5.50 per million British thermal units. It’s approximately a 10% tax, which would net more than $316 million in 2011-2012 and $578 million by 2014-2015, according to a legislative analysis. Of that, 32 percent would go toward environmental needs, 16 percent would go to municipalities and most of the rest would go to the state general fund. However, for the first three years, that split will be made only after the first $70 million goes to the cash-strapped general fund and $5 million for job training.

In a related issue, the New York State Senate has passed a moratorium on natural gas drilling, until May 15, 2011. Meanwhile, the U.S. Environmental Protection Agency is investigating hydrofracking and its potential effects on the state's natural resources. The reason why New Yorkers find the issue so important, is that the Marcellus Shale is also partially responsible for New York City's pure tap water. Shale is a flaky, porous rock, so the Marcellus Shale acts as a filtration system for water running
underground into the city's reservoirs. Critics of drilling say that the process used to retrieve the gas, called fracking,' could soil the water. To quote city councilman James F. Gennaro “It is beyond unacceptable to imperil the New York City Water Supply Watershed, the crown jewel of big-city water supplies in the country, for the sake of some short-term economic benefit from natural gas revenues.”

http://www.pahouse.com/curry/Marcellus-Shale/docs/drilling-regulations.asp


The Service Project: Tax Proposal

For our community service project, we decided to suggest an addition to the tax proposal recently passed in the Pennsylvania House of Representatives. Our addition would put a price on the water used in drilling for natural gas, whether it is taken from an underground or a ground level source. In our proposal, the natural gas companies would be charged somewhere in the ballpark of an average cost per one gallon of municipal water in the US.

The Proposal

In 2007, the average price for a cubic meter of municipal water in the US was $0.66. That is just $0.0025 per gallon. Assuming that the prices have risen since 2007, we can round the price up to $0.005, or even a whole cent (it doesn’t play much of a role). If we then assume that an average natural gas rig uses up 4.5 million gallons per its lifetime, one rig would generate somewhere in the range of $22,500 to $45,000 per its lifetime. In Pennsylvania, 2300 permits had been issued in the first nine months of 2010. Nearly half of those wells have been drilled. If all of these permits eventually actualize into drilling rigs, that would net the state a potential profit of between $52 million to $104 million. This money would be split up by the same scheme as proposed in the legislation for a tax on natural gas. If this system is approved, the natural gas companies would be required to monitor the amount of water that they use, which is something that they currently do not practice.

Pros and Cons

The strengths of this proposal are that the natural gas companies will finally start to monitor their use of water, and will be forced to pay for it, which might encourage them to be more economical with their water use. The shortcomings are the relative inexpensiveness with which we are offering our water. Keeping in mind that not all of the permits given are to the same company, but rather to a multitude of them, the projected sum would be split up amongst them, which would soften the financial incentive for a more reasonable use of water. Raising the price would also prove to be difficult, since the proposal for a tax on natural gas has already met great opposition by the Pennsylvania’s Senate republicans, with the tax amount being considered too high. Adding even more financial pressure on the companies might cause the bill to fail.

Conclusion
Despite the fact that our proposed price is not a large one and that the natural gas companies should be charged more, this proposal is a good start. After all, these companies have been using up this precious commodity for so long without even paying a close attention to just how much are they using, that it is about time that they began to pay.

References


AN ACT concerning water quality and water supply, establishing the
Pennsylvania Clean Water, Drought Mitigation and Water
Resource Trust Fund, imposing user fees on water consumption
and diversion, supplementing Title 58 of the Revised Statutes,
and amending P.L.1981, c.293.

BE IT ENACTED by the Senate and General Assembly of the State
of Pennsylvania:

1. (New section) Sections 1 through 11 of P.L. ,
c. (pending before the Legislature as this bill) shall be
known and may be cited as the "Pennsylvania Clean Water, Drought
Mitigation and Water Resource Trust Fund Act."

2. (New section) The Legislature finds and declares that
Pennsylvania, continues to experience deterioration of its water resources; that
these resources, by virtue of their capacity to sustain substantial
reserves of potable water, afford flood protection, serve as habitat
for countless animal, bird, and plant species, purify the air, provide
recreational opportunities, and otherwise promote the environment
necessary for a high quality of life, constitute not only an invaluable
and irreplaceable asset to the present citizens of Pennsylvania, but
also, a trust for future generations; and that as the steward of that
trust, it is incumbent upon the State to commit itself to the
preservation in perpetuity of those resources indispensable to the
continued supply of clean water and to the health and welfare of its
citizens.

The Legislature further finds and declares that a commitment to
the preservation and improvement of the State's water resources
requires the adoption of a mechanism, supported by a substantial
and stable source of revenue, to transfer water between public water
systems during a state of water emergency to avert a drought
emergency in all or any part of the State, and to protect existing
water supplies through the acquisition of watershed and wetlands
areas; and that the State must also commit itself to the
interconnection of existing water supplies, the extension of potable
water supplies to areas with contaminated groundwater, and to
water supply infrastructure projects undertaken by water purveyors
for the purpose of drought mitigation.

The Legislature therefore determines that it is in the public
interest to establish a stable source of funding, based on user fees
43 on water consumption and water diversion, for the long-term
44 preservation and protection of the State's water resources.

3. (New section) As used in 1 sections 1 through 11 of P.L.,
2 c. (C.) (pending before the Legislature as this bill):
3 "Authority" means the Pennsylvania Water Supply Authority
4 established pursuant to section 4 of P.L.1981, c.293 (C.58:1B-4).
5 "Consumptive use" means any use of water diverted from surface
6 or ground waters other than a nonconsumptive use as defined in this
7 act.
8 "Department" means the Department of Environmental
9 Protection.
10 "Diversion" or "divert" means the taking or impoundment of
11 water from a river, stream, lake, pond, aquifer, well, other
12 underground source, or other water body, whether or not the water
13 is returned thereto, consumed, made to flow into another stream or
14 basin, or discharged elsewhere.
15 "Fund" means the Pennsylvania Clean Water, Drought Mitigation
16 and Water Resource Trust Fund established pursuant to section 4 of
17 this act.
18 "Local government unit" means (1) a State authority, district
19 water supply commission, county, municipality, municipal, county
20 or regional utilities authority, municipal water district, joint meeting
21 or any other political subdivision of the State authorized pursuant to
22 law to operate or maintain a public water system or to construct,
23 rehabilitate, operate or maintain water supply facilities or otherwise
24 provide water for human consumption; or (2) a municipality,
25 county, or other political subdivision of this State authorized to
26 administer, protect, develop, and maintain water quality, or any
27 agency thereof, the primary purpose of which is to administer,
28 protect, develop, and maintain water quality.
29 "Nonconsumptive use" means the use of water diverted from
30 surface or ground waters in such a manner that it is returned to the
31 surface or ground water at or near the point from which it was taken
32 without substantial diminution in quantity or substantial impairment
33 of quality.
34 "Person" means any individual, corporation, company,
35 partnership, firm, association, owner or operator of a public water
36 system, political subdivision of the State and any state, or interstate
37 agency or Federal agency.
38 "Public community water system" means a public water system
39 which serves at least 15 service connections used by year-round
40 residents or regularly serves at least 25 year-round residents.
41 "Public water system" means a system for the provision to the
42 public of water for human consumption through pipes or other
43 constructed conveyances, if such system has at least 15 service
44 connections or regularly serves an average of at least 25 individuals
45 daily at least 60 days out of the year. Such term includes: (1) any
46 collection, treatment, storage and distribution facilities under
47 control of the operator of such system and used primarily in
48 connection with such system; and (2) any collection or pre
49 treatment storage facilities not under such control which are used
50 primarily in connection with such system.
51 "Safe or dependable yield" or "safe yield" means that
52 maintainable yield of water from a surface or ground water source
53 or sources which is available continuously during projected future
54 conditions, including a repetition of the most severe drought of
55 record, without creating undesirable effects, as determined by the
56 department.
57 "Small water company" means any company, purveyor or entity,
58 other than a governmental agency, that provides water for human
59 consumption and which regularly serves less than 1,000 customer
60 connections, including nonprofit, noncommunity water systems
61 owned or operated by a nonprofit group or organization.
62 "Unaccounted-for water" means the difference between the
63 amount of water that leaves a public water system and the amount
64 of water delivered through service meters for which the local
65 government unit or water purveyor bills, expressed as a total
66 amount and as a percentage of the local government unit's or water
67 purveyor's total water output.
68 "Water purveyor" means any investor-owned water company or
69 small water company that owns or operates a public water system.
70 "Water quality and water supply projects" mean projects to
71 accomplish the purposes set forth in section 6 of this act.
72 "Water supply infrastructure project" means a water supply
73 project undertaken by or on behalf of a water purveyor for the
74 purpose of drought mitigation.
75
76 4. (New section) a. There is established in the Department of
77 the Treasury a special non-lapsing fund, to be known as the
78 Pennsylvania Clean Water, Drought Mitigation and Water Resource Trust
79 Fund. Moneys in the fund shall be used for State water quality and
80 water supply projects and to provide grants or low-interest loans to
81 assist local government units and water purveyors in funding water
82 quality and water supply projects authorized pursuant to section 6
83 of this act.
84 The fund shall be administered by the Pennsylvania Water Supply
85 Authority and shall be credited with all revenue collected pursuant
to sections 7 and 8 of this act, all interest received on moneys in the fund, and all sums received as repayment of principal and interest on outstanding loans made from the fund. The authority may use up to 1% of the total revenues deposited in the fund during the fiscal year to cover administrative expenses incurred in implementing the provisions of this act.

b. The authority may make and contract to make low-interest loans to local government units or water purveyors in accordance with and subject to the provisions of this act to finance the cost of water quality and water supply projects authorized pursuant to section 6 of this act. The loans may be made subject to those terms and conditions as the authority shall determine to be consistent with the purposes thereof. Each loan and the terms and conditions thereof shall be subject to approval by the State Treasurer, and the authority shall make available to the State Treasurer all information, statistical data, and reports of independent consultants or experts as the State Treasurer deems necessary in order to evaluate the loan.

c. To be eligible for a grant pursuant to this act, a local government unit or water purveyor shall demonstrate the ability to match the grant requested by generating funds in ratios specified by the authority. Moneys raised for projects authorized pursuant to section 6 of this act, up to three years prior to the date of enactment of this act, may be eligible for State assistance under the provisions of the above mentioned matching format, but under no circumstances may funds generated prior to that time qualify for a grant under the provisions of this act.

d. Commencement of the work on any project funded pursuant to this act shall begin within two years of the effective date of the appropriation therefore or the funds that are awarded shall lapse into the fund established pursuant to this section.

5. (New section) On or before January 15 of each year, the authority shall submit to the Legislature a financial plan designed to implement the financing of the projects on the project priority list approved pursuant to section 6 of this act. The financial plan shall contain an enumeration of the projects for which the authority intends to provide funds and the terms and conditions of any loans or grants associated therewith, the anticipated rate of interest per annum, and the repayment schedule for any loans. The financial plan shall also set forth a complete operating and financial statement covering the authority's proposed operations during the forthcoming fiscal year, shall summarize the status of each project for which grants or loans have been made, and shall describe any major impediments to the accomplishment of the planned projects.
a. Moneys in the fund may be used for the following purposes:
   (1) The costs of transferring water between public water systems during a state of water emergency or to avert a drought emergency in all or any part of the State;
   (2) The protection of existing water supplies through the acquisition of watershed and wetlands areas;
   (3) The interconnection of existing water supplies, and the extension of water supplies to areas with contaminated ground water supplies;
   (4) The costs of water supply infrastructure projects undertaken by water purveyors for the purpose of drought mitigation; and
   (5) The making of a grant to a local government unit to acquire a public water system owned or operated by a water purveyor if the water purveyor cannot meet the State's primary drinking water regulations adopted by the department pursuant to the provisions of P.L.1977, c.224 (C.58:12A-1 et seq.), provided that the local government unit is in the process of acquiring the water purveyor's public water system pursuant to law and is providing water to the customers of the water purveyor at an equalized rate. Any grant made pursuant to this paragraph shall be in an amount equal to 25% of the acquisition cost.

b. Whenever any moneys in the fund are used for the protection of existing water supplies through the acquisition of watershed and wetlands areas as provided in paragraph (2) of subsection a. of this section, the percentage of moneys used for such acquisitions in the Highlands areas of Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex and Warren counties in this State shall be an amount equivalent to not less than the percentage of total revenues deposited in the fund pursuant to sections 7 and 8 which were collected from user fee payers within the Highlands areas, and the percentage of moneys used for such acquisitions in the Pinelands area designated pursuant to section 10 of P.L.1979, c.111 (C.13:18A-11) shall be an amount equivalent to not less than the percentage of total revenues deposited in the fund pursuant to sections 7 and 8 which were collected from user fee payers within the Pinelands area.

c. On or before May 15 of each fiscal year, the authority shall prepare and submit to the Legislature for approval a project priority list recommending the particular water quality and water supply projects, including water supply infrastructure projects, to be funded for the upcoming fiscal year. The project priority list shall
include a description of each project, its purpose, impact, cost, and
cost, and an explanation of the manner in which
priorities were established.

d. No expenditure from the fund shall be made except by an
appropriation made pursuant to law and in accordance with the
project priority list developed by the authority. Each such
appropriation act shall clearly set forth all terms and conditions
governing the expenditure of the appropriation, shall identify each
specific project or projects for which an appropriation is made, and
may provide such sums as may be necessary to cover the costs
associated with the administration thereof.

7. (New section) a. There is imposed upon the owner or
operator of every public community water system a water
consumption user fee of between $0.005 to $0.01 per gallon of water
delivered to a consumer, not including water delivered for resale.

b. (1) Every person subject to the water consumption user fee
shall, on the effective date of this section, and quarterly thereafter,
render a return under oath to the Director of the Division of
Taxation, on such forms as may be prescribed by the director,

indicating the number of gallons of water delivered to a consumer,
and at that time shall pay the full amount due. The director may
prescribe a consolidated form for reporting the amount due under
the water consumption user fee imposed by this section and the tax

(2) Every person subject to the water consumption user fee
shall, within 30 days after the effective date of this act, register with
the director on forms prescribed by the director.

c. If a return required by this section is not filed, or if a return
when filed is incorrect or insufficient in the opinion of the director,
the amount due shall be determined by the director from such
information as may be available. Notice of the determination shall
be given to the person subject to the water consumption user fee.
The determination shall finally and irrevocably fix the amount due,
unless the person on whom it is imposed, within 90 days after the
giving of the notice of the determination, shall file a protest in
writing as provided in R.S.54:49-18 and request a hearing, or unless
the director on the director's own motion shall redetermine the
same. After the hearing the director shall give notice of the
determination to the person on whom the water consumption user
fee is imposed.

d. Any person subject to the water consumption user fee who
fails to file a return when due or to pay any user fee when it
24 becomes due, as herein provided, shall be subject to such penalties and interest as provided in the "State Tax Uniform Procedure Law," R.S.54:48-1 et seq. If the director determines that the failure to comply with any provision of this section was excusable under the circumstances, the director may remit that part or all of the penalty as shall be appropriate under the circumstances.

e. The director shall deposit all revenues collected pursuant to this section in the Pennsylvania Clean Water, Drought Mitigation and Water Resource Trust Fund created pursuant to section 4 of this act.

f. In addition to the other powers granted to the director in this section, the director is authorized:

(1) To delegate to any officer or employee of the division those powers and duties as the director deems necessary to carry out efficiently the provisions of this section, and the person to whom the power has been delegated shall possess and may exercise all of these powers and perform all of the duties delegated by the director;

(2) To prescribe and distribute all necessary forms for the implementation of this section.

g. Any person subject to the water consumption user fee who is subject to the jurisdiction or rate regulation of the Board of Public Utilities as a public utility shall collect the water consumption user fee imposed by this section by imposing an automatic surcharge on any tariff established pursuant to law for water rates and charges. The Board of Public Utilities shall issue an appropriate order adjusting the tariffs established pursuant to law to reflect these payments. In issuing any order required by this subsection, the Board of Public Utilities shall be exempt from the provisions of R.S.48:2-21.

h. Any person subject to the water consumption user fee may collect the water consumption user fee imposed by this section by including the amount of user fee due as a separate line item on every customer bill or other statement presented to consumers. The person subject to the water consumption user fee may use up to 1% of all revenues collected to defray the costs of administration and collection of the water consumption user fee. The director shall credit the proper amount to the person subject to the water consumption user fee upon receipt of written documentation of the actual costs expended for the collection of the water consumption user fee.

i. The water consumption user fee imposed by this section shall be governed in all respects by the provisions of the "State Tax Uniform Procedure Law," R.S.54:48-1 et seq., except only to the
19 extent that a specific provision of this section may be in conflict
20 therewith.
21 j. The water consumption user fee imposed by this section
22 shall be collected in the same manner as the tax imposed under
24
25 8. (New section) a. There is imposed upon every person
26 required to obtain a diversion permit issued by the department
27 pursuant to the provisions of sections 6 and 7 of P.L.1981, c.262
28 (C.58:1A-6 and 58:1A-7), including any person who is required to
29 apply for and obtain a water use registration pursuant to rules and
30 regulations adopted by the department to administer and enforce the
31 provisions of P.L.1981, c.262 (C.58:1A-1 et seq.) or P.L.1993,
32 c.202 (C.58:1A-7.3 et al.), a water diversion user fee. The water
33 diversion user fee shall be levied at the rate of $0.04 per thousand
34 gallons of water diverted for a consumptive use.
35 b. (1) Every person subject to the water diversion user fee
36 shall, on the effective date of this section, and quarterly thereafter,
37 render a return under oath to the Director of the Division of
38 Taxation, on such forms as may be prescribed by the director,
39 indicating the number of gallons of water diverted, and at that time
40 shall pay the full amount due.
41 (2) Every person subject to the water diversion user fee shall,
42 within 30 days after the effective date of this act, register with the
43 director on forms prescribed by the director.
44 c. If a return required by this section is not filed, or if a return
45 when filed is incorrect or insufficient in the opinion of the director,
46 the amount due shall be determined by the director from such
47 information as may be available. Notice of the determination shall
48 be given to the person subject to the water diversion user fee. The
49 determination shall finally and irrevocably 1 fix the amount due,
50 unless the person on whom it is imposed, within 90 days after the
51 giving of the notice of the determination, shall file a protest in
52 writing as provided in R.S.54:49-18 and request a hearing, or unless
53 the director on his own motion shall redetermine the
54 same. After the hearing the director shall give notice of the
55 determination to the person on whom the water diversion user fee is
56 imposed.
57 d. Any person subject to the water diversion user fee who fails
58 to file a return when due or to pay any user fee when it becomes
59 due, as herein provided, shall be subject to such penalties and
60 interest as provided in the "State Tax Uniform Procedure Law,"
61 R.S.54:48-1 et seq. If the director determines that the failure to
14 comply with any provision of this section was excusable under the
15 circumstances, the director may remit that part or all of the penalty
16 as shall be appropriate under the circumstances.
17 e. The director shall deposit all revenues collected pursuant to
18 this section in the Pennsylvania Clean Water, Drought Mitigation and
19 Water Resource Trust Fund created pursuant to section 4 of this act.
20 f. In addition to the other powers granted to the director in this
21 section, the director is authorized:
22 (1) To delegate to any officer or employee of the division those
23 powers and duties as the director deems necessary to carry out
24 efficiently the provisions of this section, and the person to whom
25 the power has been delegated shall possess and may exercise all of
26 these powers and perform all of the duties delegated by the director;
27 and
28 (2) To prescribe and distribute all necessary forms for the
29 implementation of this section.
30 g. The water diversion user fee imposed by this section shall be
31 governed in all respects by the provisions of the "State Tax Uniform
32 Procedure Law," R.S.54:48-1 et seq., except only to the extent that
33 a specific provision of this section may be in conflict therewith.
34 h. The water diversion user fee imposed by this section shall
35 not be imposed on:
36 (1) water diverted for agricultural or horticultural purposes
37 under a water usage certification required pursuant to the provisions
38 of section 6 of P.L.1981, c.262 (C.58:1A-6) or as provided in
39 section 2 of P.L.1981, c.277 (C.58:1A-7.2);
40 (2) water diverted for a nonconsumptive use. In the case of
41 those permittees or persons with diversion privileges to divert water
42 for both a consumptive use and a nonconsumptive use, the
43 calculation of the amount of water diverted for nonconsumptive use
44 shall be determined by the department based on water use as
45 reported to the department pursuant to P.L.1981, c.262 (C.58:1A-1
46 et seq.) or P.L.1993, c.202 (C.58:1A-7.3 et al.), or if not reported,
47 based on standard industry water use profiles;
48 (3) surface water diverted by permittees or persons required to
49 apply for and obtain a water use registration 1 in such a manner that it
50 is returned to another surface water body;
51 (4) water diverted for the purpose of storage for future water
52 supplies;
53 (5) water diverted for the purpose of transferring water between
54 public water systems;
55 (6) water diverted for the remediation of areas with
56 contaminated ground water supplies, or for other remedial actions
57 and
9 as provided by law;
10 (7) water diverted for emergency purposes, including fire
11 fighting, flood prevention, response to a discharge of hazardous
12 substances, or for other emergency purposes as may be determined
13 by the department;
14 (8) water delivered to a consumer, including water delivered for
15 resale, or a bulk sale of water delivered to a consumer in another
16 public water system; or
17 (9) unaccounted-for water lost during transmission between
18 public water systems or delivery to a consumer.
19 i. Any person subject to the water diversion user fee shall be
20 eligible for water conservation credits against the water diversion
21 user fee. Water conservation credits shall be granted to any
22 permittee or person required to apply for and obtain a water use
23 registration who can demonstrate a net reduction in annual water
24 use over any 10-year period commencing January 1, 2005. The
25 water conservation credits shall be equal to 50% of the difference
26 between the maximum year withdrawal during this period and the
27 current year, where the reduction can be documented as attributable
28 to water conservation. The department shall approve the diversion
29 permit or water use registration modification to reflect the water
30 conservation credits granted.
31
32 9. (New section) The department shall undertake a safe or
33 dependable yield analysis of the State's surface and ground water
34 sources to ascertain what actions may be required to maintain safe
35 yield.
36 10. (New section) a. The department shall undertake a review
37 of the beneficial reuse technology available to treat wastewater
38 effluent for its non-consumptive use in manufacturing processes,
39 investigate where such opportunities may exist within the State,
40 and, in conjunction with water purveyors and dischargers, plan how
41 to maximize these opportunities.
42 11. (New section) a. The authority shall adopt, pursuant to the
44 seq.), rules and regulations as are necessary to effectuate the
45 purposes of this act.
46 b. The Director of the Division of Taxation, in consultation
47 with the department and pursuant to the "Administrative Procedure
48 Act," shall adopt rules and regulations as are necessary to effectuate
49 the provisions of sections 7 and 8 of this act.
50
51 12. Section 6 of P.L.1981, c.293 (C.58:1B-6) is amended to read
52 as follows:
53 6. a. The authority is hereby empowered to design, initiate,
16 acquire, construct, maintain, repair and operate projects or cause the
17 same to be operated pursuant to a lease, sublease, or agreement with
18 any person or governmental agency, and to issue bonds of the
19 authority to finance these projects, payable from the revenues and
20 other funds of the authority.
23 b. The authority shall be subject to compliance with all State
24 health and environmental protection statutes and regulations and
25 any other statutes and regulations not inconsistent herewith. The
26 authority may, upon the request of a governmental agency, enter
27 into a contract to provide services for any project.
28 c. The authority shall consult with the Water Supply Advisory
29 Council from time to time prior to final action on any project or
30 undertaking authorized pursuant to this section.
31 d. The authority shall consult with the Highlands Water
32 Protection and Planning Council, established pursuant to section 4
33 of P.L.2004, c.120 (C.13:20-4), from time to time prior to final
34 action on any project or undertaking authorized pursuant to this
35 section in the Highlands Region, as defined in section 3 of
36 P.L.2004, c.120 (C.13:20-3). The provisions of section 16 of
37 P.L.2004, c.120 (C.13:20-16) shall apply to the authority.
38 e. The authority is hereby empowered to administer the
39 Pennsylvania Clean Water, Drought Mitigation and Water Resource Trust
40 Fund established pursuant to section 4 of P.L. , c. (C. )
41 (pending in the Legislature as this bill).
42 (cf: P.L.2004, c.120, s.75)
43
44 13. Section 7 of P.L.1981, c.293 (C.58:1B-7) is amended to read
45 as follows:
46 7. Except as may be otherwise [limited by the act,] expressly
47 provided in the provisions of P.L.1981, c.293 (C.58:1B-1 et seq.),
48 the authority shall have the power:
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12
1 a. To sue and be sued.
2 b. To have an official seal and alter the same at pleasure.
3 c. To make and alter bylaws for its organization and internal
4 management and for the conduct of its affairs and business.
5 d. To maintain an office at such place or places within the State
6 as it may determine.
7 e. To acquire, lease as lessee or lessor, rent, hold, use and
8 dispose of real or personal property for its purposes.
9 f. To borrow money and to issue its negotiable bonds and to
10 secure the same by a mortgage on its property or any part thereof
11 and otherwise to provide for and secure the payment thereof and to
12 provide for the rights of the holders thereof.
13 g. To fix and revise from time to time and charge and collect
14 rents, fees and charges for any of the services rendered by the
15 authority, which shall be equitably assessed.
16 h. To procure insurance against any losses in connection with
17 its property, operations or assets in such amounts and from such
18 insurers as it deems desirable.
19 i. Subject to any agreement with bondholders to invest moneys
20 of the authority not required for immediate use, including proceeds
21 from the sale of any bonds, in such obligations, securities and other
22 investments as the authority shall deem prudent.
23 j. To appoint and employ an executive director and such
24 additional officers who need not be members of the authority and
25 accountants, financial advisors or experts and such other or
26 different officers, agents and employees as it may require and
27 determine their qualifications, terms of office, duties and
28 compensation, all without regard to the provisions of [Title 11,
29 Civil Service, of the Revised Statutes] Title 11A of the Pennsylvania
30 Statutes, except with respect to those officers and employees of the
31 Water Supply Facilities Element who are transferred to the
32 authority pursuant to section 24 of [this act] P.L.1981, c.293
33 (C.58:1B-24), and these officers and employees shall remain subject
34 to the provisions of that Title.
35 k. To contract for and to accept any gifts or grants or loans of
36 funds or property or financial or other aid in any form from the
37 United States of America or any agency or instrumentality thereof,
38 or from the State or any agency, instrumentality or political
39 subdivision thereof, or from any other source and to comply,
40 subject to the provisions of [this act] P.L.1981, c.293 (C.58:1B-1 et
41 seq.), with the terms and conditions thereof.
42 l. To acquire, hold, rent, lease, use and dispose of real or
43 personal property in the exercise of its powers and the performance
44 of its duties under [this act] the provisions of P.L.1981, c.293
45 (C.58:1B-1 et seq.).
46 m. To acquire, subject to the provisions of any other statute, in
47 the name of the authority by purchase or otherwise, on such terms
48 and conditions and in such manner as it may deem proper, except
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13
with respect to property owned by the State, by the exercise of the
2 power of eminent domain, any land and other property, which it
3 may determine is reasonably necessary for any of its projects and
4 any and all rights, title and interest in that land and other property,
5 including, providing there is no prudent and feasible alternative,
6 public lands, reservations, highways or parkways, owned by or in
7 which the State or any county, municipality, public corporation, or
8 other political subdivision of the State has any right, title or
9 interest, or parts thereof or rights therein and any fee simple
10 absolute or any lesser interest in private property, and any fee
11 simple absolute in, easements upon or the benefit of restrictions
12 upon, abutting property to preserve and protect the project.
13 n. To do and perform any acts and things authorized [by the
14 act] under the provisions of P.L.1981, c.293 (C.58:1B-1 et seq.)
15 under, through, or by means of its officers, agents or employees or
16 by contract with any person.
17 o. To establish and enforce rules and regulations for the use
18 and operation of its projects and the conduct of its activities, and
19 provide for the policing and the security of its projects.
20 p. To do any and all things necessary or convenient to carry out
21 its purposes in accordance with the powers given and granted [in
22 the act] under the provisions of P.L.1981, c.293 (C.58:1B-1 et
23 seq.).
24 q. To administer the Pennsylvania Clean Water, Drought
25 Mitigation and Water Resource Trust Fund established pursuant to
26 section 4 of P.L. , c. (C.) (pending in the Legislature as
27 this bill).
28 (cf: P.L.1981, c.293, s.7)
29
30 14. Section 18 of P.L.1981, c.293 (C.58:1B-18) is amended to
31 read as follows:
32 18. a. Nothing in [this act] the provisions of P.L.1981, c.293
33 (C.58:1B-1 et seq.) shall be construed to authorize or permit the
34 authority to plan, initiate, acquire, construct, maintain, repair or
35 operate any retail water system or project.
36 b. The authority may provide funding for State water quality
37 and water supply projects, including grants or low-interest loans to
38 assist local government units and water purveyors in funding water
39 quality and water supply projects, pursuant to the provisions of
40 P.L. , c. (C.) (pending in the Legislature as this bill).
41 (cf: P.L.1981, c.293, s.18)
42
43 15. Section 19 of P.L.1981, c.293 (C.58:1B-19) is amended to
44 read as follows:
45 19. The authority may establish and alter rates and charges, and
46 collect rents, fees and charges for water sold from, and for the use
47 of services of any water system project and contract in the manner
48 provided in this section with one or more persons, one or more
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14
governmental entities, or any combination 1 thereof, receiving the use
2 or services of any project, and fix the terms, conditions, rents, rates,
3 fees and charges for such use or services.
4 The contract may provide for acquisition by such person or
5 governmental agency of all or any part of the project for such
6 consideration payable over the period of the contract or otherwise
7 as the authority in its discretion determines to be appropriate, but
8 subject to the provisions of any resolution of the authority
9 authorizing the issuance of bonds or any trust agreement securing
10 the same. Any water supply entity which has the power to
11 construct, operate and maintain water management facilities may
12 enter into a contract or lease with the authority whereby the use or
13 services of any project of the authority will be made available to the
14 entity and pay for the use or services such rents, rates, fees and
15 charges as may be agreed to by the authority and the entity.
16 Any one or more public or private entity may cooperate with the
17 authority in the acquisition or construction of a project and shall
18 enter into such agreements with the authority as are necessary, with
19 a view to effective cooperative action and safeguarding of the
20 respective interests of the parties thereto, which agreements shall
21 provide for such contributions by the parties thereto in such
22 proportion as may be agreed upon and such other terms as may be
23 mutually satisfactory to the parties including without limitation the
24 authorization of the construction of the project by one of the parties
25 acting as agent for all of the parties and the ownership and control
26 of the project by the authority to the extent necessary or appropriate
27 for purposes of the issuance of bonds by the authority. Any
28 governmental agency may provide such contribution as is required
29 under such agreements by the appropriation of money or, if
30 otherwise authorized by law to issue bonds or levy taxes or
31 assessments and issue bonds in anticipation of the collection
32 thereof, by the issuance of bonds or by the levying of taxes or
33 assessments and the issuance of bonds in anticipation of the
34 collection thereof, and by the payment of such appropriated money
35 or the proceeds of the bonds to the authority pursuant to such
36 agreements.
37 The provisions of this section shall not apply to any water
38 quality project or water supply project developed pursuant to the
39 provisions of P.L. , c. (C. ) (pending in the Legislature as
40 this bill).
41 (cf: P.L.1981, c.293, s.19)
42
43 16. This act shall take effect immediately, except that sections 7
44 and 8 of this act shall take effect on the first day of the third full
45 fiscal quarter following the effective date of this act.
A2603 MCKEON
This bill would establish a Pennsylvania Clean Water, Drought Mitigation and Water Resource Trust Fund (fund), to be administered by the Pennsylvania Water Supply Authority (authority). Moneys in the fund would be derived from: (1) a water consumption user fee imposed on the owner or operator of every public community water system equal to four cents per thousand gallons of water delivered to a consumer; and (2) a water diversion user fee imposed on every person required by law to obtain a diversion permit or a water use registration equal to four cents per thousand gallons of water diverted for a consumptive use. The water consumption user fee would be collected in the same manner as the water tax on public community water systems imposed under section 11 of P.L.1983, c.443 (C.58:12A-21), the "Safe Drinking Water Act."

The following water uses would be exempt from the water diversion user fee:

1. water diverted for agricultural or horticultural purposes under a water usage certification required pursuant to law;
2. water diverted for a nonconsumptive use. In the case of those permittees or persons with diversion privileges to divert water for both a consumptive use and a nonconsumptive use, the calculation of the amount of water diverted for nonconsumptive use would be determined by the Department of Environmental Protection (DEP) based on water use as reported to the DEP pursuant to law, or if not reported, based on standard industry water use profiles;
3. surface water diverted by permittees or persons required to apply for and obtain a water use registration in such a manner that it is returned to another surface water body;
4. water diverted for the purpose of storage for future water supplies;
5. water diverted for the purpose of transferring water between public water systems;
6. water diverted for the remediation of areas with contaminated ground water supplies, or for other remedial actions as provided by law;
7. water diverted for emergency purposes, including fire fighting, flood prevention, response to a discharge of hazardous substances, or for other emergency purposes as may be determined by the DEP;
8. water delivered to a consumer, including water delivered for resale, or a bulk sale of water delivered to a consumer in another public water system; or
46 (9) unaccounted-for water lost during transmission between
47 public water systems or delivery to a consumer.
48 Any person subject to the water diversion user fee would be

eligible for water conservation credits against the water diversion
user fee. Water conservation credits would be granted to any
permittee or person required to apply for and obtain a water use
registration who can demonstrate a net reduction in annual water
use over any 10-year period commencing January 1, 2005. The
water conservation credits would be equal to 50% of the difference
between the maximum year withdrawal during this period and the
current year, where the reduction can be documented as attributable
9 to water conservation. The DEP would approve the diversion
permit or water use registration modification to reflect the water
conservation credits granted.

12 The fund would be administered by the authority and would be
credited with all water consumption user fee and water diversion
user fee revenue collected under sections 7 and 8 of the substitute
bill, all interest received on moneys in the fund, and all sums
received as repayment of principal and interest on outstanding loans
made from the fund. The authority would be authorized to use not
more than 1% of the total revenues deposited in the fund during the
fiscal year to cover administrative expenses incurred in
implementing the provisions of the committee substitute.

16 The moneys in the fund may be used for the following water
quality and water supply projects:

(1) the costs of transferring water between public water systems
during a state of water emergency or to avert a drought emergency
in all or any part of the State;

(2) the protection of existing water supplies through the
acquisition of watershed and wetlands areas;

(3) the interconnection of existing water supplies, and the
extension of water supplies to areas with contaminated ground
water supplies;

(4) the costs of water supply infrastructure projects undertaken
by water purveyors for the purpose of drought mitigation; and

(5) the making of a grant to a local government unit to acquire a
public water system owned or operated by a water purveyor if the
water purveyor cannot meet the State's primary drinking water
regulations, provided that the local government unit is in the
process of acquiring the water purveyor's public water system
pursuant to law and is providing water to the customers of the water
purveyor at an equalized rate. Any grant made for this purpose
would be in an amount equal to 25% of the acquisition cost.
Whenever any moneys in the fund are used for the protection of existing water supplies through the acquisition of watershed and wetlands areas, the percentage of moneys used for such acquisitions in the Highlands areas would be an amount equivalent to not less than the percentage of total revenues deposited in the fund which were collected from user fee payers within the Highlands areas of Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex and Warren counties, and the percentage of moneys used for such acquisitions in the Pinelands area would be an amount equivalent to not less than the percentage of total revenues deposited in the fund which were collected from user fee payers within the Pinelands area.

The authority would be authorized to make low-interest loans to local governments and water purveyors to finance the cost of authorized water quality and water supply projects. To be eligible for a grant, a local government or water purveyor would be required to demonstrate the ability to match the grant requested by generating funds in ratios specified by the authority. Moneys raised for authorized projects up to three years prior to the date of enactment of the committee substitute into law may be eligible for State assistance under the provisions of the above-mentioned matching format.

On or before January 15 of each year, the authority would submit to the Legislature a financial plan designed to implement the financing of the projects on the project priority list submitted to the Legislature for approval by May 15 of that year. The financial plan would contain an enumeration of the projects for which the authority intends to provide funds and the terms and conditions of any loans or grants associated therewith, the anticipated rate of interest per annum and repayment schedule for any loans. The financial plan would also set forth a complete operating and financial statement covering its proposed operations during the forthcoming fiscal year, summarize the status of each project for which grants or loans have been made, and describe any major impediments to the accomplishment of the planned projects.

On or before May 15 of each fiscal year, the authority would prepare and submit to the Legislature for approval a project priority list recommending the particular water quality and water supply projects to be funded for the upcoming fiscal year. The project priority list would include a description of each project, its purpose, impact, cost, and construction schedule, and an explanation of the manner in which priorities were established.

The bill provides that no expenditure from the fund would be made except by an appropriation made pursuant to law and in
accordance with the project priority list developed by the authority. Each such appropriation act would clearly set forth all terms and conditions governing the expenditure of the appropriation, would identify each specific project or projects for which an appropriation is made, and may provide such sums as may be necessary to cover the costs associated with the administration thereof.

The bill would require the DEP to undertake a safe or dependable yield analysis of the State's surface and ground water sources to ascertain what actions may be required to maintain safe yield, and to include the results of the analysis in revisions and updates of the Pennsylvania Statewide Water Supply Plan.

The bill would also require the DEP to undertake a review of the beneficial reuse technology available to treat wastewater effluent for its non-consumptive use in manufacturing processes, investigate where such opportunities may exist within the State, and, in conjunction with water purveyors and dischargers, plan how to maximize these opportunities. The DEP would include the findings of this review of beneficial reuse technology in revisions and updates of the Pennsylvania Statewide Water Supply Plan.

Lastly, the bill would take effect immediately, except that sections 7 and 8, the sections imposing the water consumption user fee and the water diversion user fee, would take effect on the first day of the third full fiscal quarter following enactment into law.
To Whom It May Concern:

Ever since the Bush administration, hydraulic fracturing has become one of the most popular methods used for obtaining natural gas. This process, also called fracking, involves taking millions of gallons of water and blasting it into the earth to release gas trapped under rock. One of the main problems with this is the amount of water these natural gas companies are using during each fracking session. Since these companies are charged such a low rates for the water they use, they are not concerned with how much water they are actually using.

There is however, a possible way to help resolve this issue. We are proposing that a raise in the cost of water made available to these companies for their hydraulic fracturing. In 2007, these companies were only being charged 0.0025 dollars per gallon of water. Our proposal would include a price increase on the water being taken by these companies. Hopefully an increase in price would make these companies realize how much water they are actually using and force them to be more economical with their water. Although the idea of this proposal comes with negative feedback from some, including Pennsylvania’s Senate Republicans, the plan would greatly benefit the local communities where these companies are taking their water.

While our proposal for raising the price of water may seem insignificant, it is a good start. Water is the most important element needed for survival, and these companies are using it like there is an endless supply at their disposal. These companies need to become fully aware of how much water they are using, and essentially wasting, when they perform their fracking processes. Raising the price of water taken by natural gas companies would be a smart step in the right direction.

Thank you.

Emailed to the New York Times
Letter to the Editor

Daniel Leuffgen
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The other threat posed by gas drilling

Most of the attention placed on natural gas drilling processes is focused on the obvious health risk, but we neglect the waste of our water supplies. A single natural gas well requires an average of 5 million gallons of water which is either trucked in or drawn from a groundwater well. The price of water is insubstantial to gas companies and this allows them to waste millions of gallons with very little cost or reprimand.
Clean fresh water is a scarce commodity and these gas companies waste millions of gallons of it and could potentially contaminate millions of gallons more. Once used, the water is so toxic that it has to be specially handled to prevent contamination but even with precautions there is a high risk of groundwater contamination. This was well represented in the documentary “Gasland,” a problem at our doorstep that can threaten the water supply of millions of unsuspecting people.

We need to implement state regulations to discourage this dangerous process or develop a safer manner of attaining natural gas without polluting the surrounding areas.

Daniel Leuffgen

Matt O’Donnell 11/03/2010
Letter to the Editor, The Coast Star

Water waste and contamination caused by Hydraulic Fracturing

Each year, millions of gallons of clean water are used for a process called hydraulic fracturing. Also known as fracking, hydraulic fracturing is used by natural gas companies to pump water through a well deep into the earth, breaking up hard layers of rock and releasing trapped gas (AskChesapeake 2010). Afterwards, the water is sucked back up containing toxic chemicals, deeming the water unsafe to drink. The main location for fracking is in Pennsylvania, where gas companies also find thousands of angry citizens outraged by the affects fracking seems to be causing. People who live near these fracking sites seem to be plagued with dirty drinking water and its harmful affects.

Over the summer, in order to try and help these people, the Environmental Protection Agency went on a listening tour to try and better understand what is going on near these fracking sites (NY Times 2010). Many people complain of the water from their wells to be foul-smelling and yellow in color, certainly unsafe to drink (NY Times 2010). Attempts are being made to resolve this issue and have natural gas companies answer for the harmful affects they’ve had on people by using hydraulic fracturing. Many are trying to pass federal legislation that would undo the exemption given to these companies by the Bush administration. This exemption is said to have freed hydraulic fracturing from regulation under the Safe Drinking Water Act (NY Times 2010). These companies need to not only be held accountable for their actions, but also charged at a higher rate for the water they are using. Most of these companies are getting the water they use at a very cheap price and some from important aquifers that are used by people. Legislation must be drafted to charge and monitor the amount of water these gas companies are using for hydraulic fracturing.

Matt O’Donnell
Let’s stop excessive use of water by natural gas companies
I would like to talk about the current issue of natural gas drilling in Pennsylvania. Many know that the Marcellus Shale contains in itself large reserves of natural gas, and many would like for these reserves to be extracted, in an attempt to reduce America’s dependence on foreign resources. However few know about the consequences that natural gas drilling brings with itself. A natural gas drill rig works by using a mixture of water, sand, and a cocktail of chemicals to blast into the ground, fracturing the rock, and releasing the natural gas trapped within. This process is called “fracking”. During its lifetime, a typical rig uses up 4.5 million gallons of water. This water is usually taken from local rivers, lakes, and underground aquifers. The natural gas companies do not pay anything for this water, unless it is taken from a well, in which case royalties are paid to the landowners on whose property the water well is located. Since the companies have no financial incentive to be more conservative with their use of water, they withdraw as much of it as they need, without taking into consideration the possible side effects this might have on the aquifer. When expanding human enterprises withdraw water from underground aquifers many times faster than it is being replaced by nature, permanent damage to or even a complete destruction of these underground stores of water becomes a serious threat. The water-filled cavities in rock formations sometimes collapse after the water is pumped out, or, in coastal areas, aquifers may be infiltrated by salt water. This environmentally unfriendly practice needs to be changed or at the least monitored, before the natural gas companies do lasting damage to our water resources.
I am currently a student at the Rutgers University, and to help combat this system, my fellow students and I have come up with a humble plan to put a price on the water used by natural gas companies, in an attempt to inspire them to use water in a more resourceful manner. In 2007, the average price for a cubic meter of municipal water in the US was $0.66. That is just $0.0025 per gallon. Assuming that the prices have risen since 2007, we can round the price up to $0.005, or even a whole cent (it doesn’t play much of a role). If we then assume that an average natural gas rig uses up 4.5 million gallons, one rig would generate somewhere in the range of $22,500 to $45,000 per its lifetime. In Pennsylvania, 2300 permits had been issued in the first nine months of 2010. Nearly half of those wells have been drilled. If all of these permits eventually actualize into drilling rigs, that would net the state a potential profit of between $52 million to $104 million. This money could be used to help fix up the local communities or to help fix any environmental damage caused by “fracking,” and there are plenty of those. This is just a suggestion, and it is up to the local government to expand on this platform, and help preserve that most precious of our resources for future generations.
Water wasted during the fracking process by natural gas companies

Hydraulic fracking results in many harmful effects on the environment including the waste of millions of gallons of water. This water is most often taken from aquifers that can take thousands of years to “recharge.” By draining aquifers the natural gas companies are depleting the ground water sources for local residents to the well as well as affecting the water table and drying up streams and springs.

The wastewater produced by this process also poses a hazard. Chemicals added during the fracking process make the discharged water thousands of times the limit safe for drinking water. (Scientific American, 2009). This water can be trucked away to water treatment plants, but is currently being produced at a rate faster than the plants can accept. The Pennsylvania Department of Environmental Protection estimated that by 2011 oil and gas wells in their state would produce 19 million gallons of wastewater a day. (Scientific American, 2009). The waterways cannot safely absorb all of this wastewater.

Action needs to be taken on a state level to control this problem before its rapid growth continues out of control. Gas companies should have to pay for the damage they are creating by regulating and charging them for their water use. Water is priced too inexpensive for these large corporations to monitor their own use. When gas companies drill private wells to provide their own water the state DEP should attach a meter that would record their use. The water usage should then be charged, with increasing prices proportional to increasing use. This system would discourage wasteful water use and encourage researching technologies to recycle their water to decrease costs. The profits from this should then go back to the state DEP. The increased costs to the gas companies would be hard to pass on to consumers since they need to stay competitive with other energy companies, therefore they would be forced to be more conscious of their usage.

Natural gas companies are not going to reduce their water use on their own. We need to encourage state representatives to draft legislation that would allow for a plan like this.

Julie Zalaskus