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COUNCIL OF THE CITY OF PHILADELPHIA  
JOINT COMMITTEES ON TRANSPORTATION  
AND PUBLIC UTILITIES AND THE ENVIRONMENT

Room 400, City Hall  
Philadelphia, Pennsylvania  
Tuesday, September 28, 2010  
10:30 p.m.

PRESENT:

- COUNCILMAN CURTIS JONES, JR., CO-CHAIR
- COUNCILMAN JAMES KENNEY, CO-CHAIR
- COUNCILWOMAN JANNIE BLACKWELL
- COUNCILMAN FRANK DiCICCO
- COUNCILMAN WILLIAM K. GREENLEE
- COUNCILMAN BRIAN J. O'NEILL
- COUNCILWOMAN BLONDELL REYNOLDS BROWN

RESOLUTION 100515 - Resolution authorizing  
City Council's Joint Committees on  
Transportation and Public Utilities and the  
Environment to hold hearings on the economic  
and environmental impacts that hydraulic  
drilling of Marcellus Shale will have on  
Philadelphia and the surrounding region.

- - -

1

2

COUNCILMAN JONES: Good

3

morning. Good morning. Good morning,

4

everyone. We apologize for starting a

5

little late. We wanted to give people a

6

chance to get through security that came

7

from far and near to participate in this

8

hearing. We're going to get started.

9

The City Council's Joint

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Committee on Transportation and Public

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Utilities and the Environment is now in a

12

public hearing to listen to testimony on

13

Resolution No. 100515. In attendance, my

14

Co-Chairman, Councilman Jim Kenney, and

15

my colleague, Councilman Brian O'Neill.

16

A special good morning to those who are

17

listening on radio, WHYI, and thank you

18

for being interested in this very

19

important hearing.

20

Will the Clerk please read the

21

title of the resolution.

22

THE CLERK: A resolution

23

authorizing City Council's Joint

24

Committees on Transportation and Public

25

Utilities and the Environment to hold

1 9/28/10 - TRANS./ENVIRONMENT - RES. 100515  
2 hearings on the economic and  
3 environmental impacts that hydraulic  
4 drilling of Marcellus Shale will have on  
5 Philadelphia and the surrounding region.

6 COUNCILMAN JONES: Thank you.

7 I want to give some brief  
8 remarks, because we have an ambitious, to  
9 say the least, group of people that want  
10 to weigh in on this important matter. So  
11 in that regard, I will be brief.

12 I wanted to say that recently I  
13 received an award, and it was the  
14 eco-champion on some matters, but I  
15 wanted to tell folk that any one of the  
16 members of this Committee, on this  
17 Council, could have easily received that  
18 award. My colleague, Councilman Jim  
19 Kenney, has welcomed a freshman to the  
20 fight and has championed many, many  
21 causes that are of concern to our  
22 environment, and I wanted to thank my  
23 colleagues for attending today.

24 What we hope to do today is to  
25 review the facts, dispel the myths and to

1 9/28/10 - TRANS./ENVIRONMENT - RES. 100515  
2 create the best public policy which is in  
3 the interest of all Philadelphia.

4 I am not necessarily a  
5 long-term environmentalist. I have a lot  
6 of titles. One of them is Chairman of  
7 this Committee, but the one that I care  
8 most about is Grandfather, and what we do  
9 today will determine the quality of water  
10 in Philadelphia for my grandchildren.

11 We want to take a look at the  
12 Marcellus Shale gas reserves and to look  
13 at how those important resources are  
14 ferreted from the earth. I want to look  
15 at fracking today.

16 Natural gas is recognized as a  
17 cleaner burning substitute to petroleum  
18 fields, if it is safely extracted. It  
19 could lessen our dependency on foreign  
20 oil. All of Philadelphia's drinking  
21 water, however, and 50 percent of it  
22 coming from the Schuylkill River, comes  
23 up under the Marcellus Shale interest.  
24 If something happens and it is determined  
25 that an explosion or some mishap happens

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2 and it drills through rock, our drinking  
3 water is in peril, not just Philadelphia  
4 but all of the surrounding communities  
5 that come from and contribute to the  
6 Delaware River Basin.

7 We want to take a look at this.

8 We understand that on the other side of  
9 the issue this cheaper form of energy  
10 could create jobs and revenues to the  
11 Commonwealth of Pennsylvania, and many  
12 people wanted to know, Well, why is  
13 Philadelphia interested? Because we have  
14 to remind people sometimes that  
15 Philadelphia is a part of the  
16 Commonwealth of Pennsylvania and that  
17 this Committee is very concerned about  
18 what goes on on the western end of the  
19 state because of its impact to our  
20 drinking water.

21 So we want to raise the issue,  
22 is it more important to do public policy  
23 before you do public study, and that's  
24 what this hearing is to determine.

25 We know that the Marcellus

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2 Shale has been around for close to 400  
3 million years and that an ounce of  
4 prevention is worth a pound of cure, and  
5 that if we --

6 (Applause.)

7 COUNCILMAN JONES: Thank you.

8 And that if we take a moment to preserve  
9 one of our most important resources, our  
10 water, we can avoid what happened in the  
11 Gulf. I know that if they could turn the  
12 clock back, they would have had this  
13 hearing, a similar hearing, and been a  
14 little more judicious in their study.

15 So with that, will the Clerk  
16 read the first panel that will testify.

17 COUNCILMAN O'NEILL:

18 Mr. Chairman?

19 COUNCILMAN JONES: Would you  
20 like to speak? I'm sorry.

21 COUNCILMAN O'NEILL: Just  
22 briefly. I would like to thank both  
23 Chairmen, you and Councilman Kenney, for  
24 bringing this issue to the forefront and  
25 not as a taxation issue, which is all I

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2 and most people have read about, is  
3 whether the tax and how much, not whether  
4 to do or what to do about it if you're  
5 going to do it.

6 I think this record that will  
7 be developed here today will be  
8 groundbreaking, to use a play on words,  
9 with people looking for more information  
10 of a scientific and environmental nature  
11 when dealing with this issue rather than  
12 just is this the golden goose.

13 Thank you.

14 (Applause.)

15 COUNCILMAN JONES: Thank you  
16 very much.

17 I will remind people that we  
18 will accept written testimony, so feel  
19 free to abbreviate if you want or  
20 elaborate if you must, but you still have  
21 five minutes to do all of that. All  
22 right?

23 Thank you. Would you read the  
24 first group of people ready to testify.

25 THE CLERK: Dr. David Velinsky,

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2 Dr. Joseph P. Martin, Dr. Michel C.

3 Boufadel.

4 (Witnesses approached witness  
5 table.)

6 COUNCILMAN JONES: Please read  
7 your name into the record and begin.

8 DR. VELINSKY: Thank you. Good  
9 morning. I appreciate the opportunity to  
10 speak on this crucial issue. I am  
11 Dr. David Velinsky and I am the  
12 Vice-President for Environmental Research  
13 at the Academy of Natural Sciences. The  
14 Academy is Philadelphia's natural history  
15 museum and has done pioneering research  
16 for over 60 years on human impacts on the  
17 environment. I direct an  
18 interdisciplinary team of scientists and  
19 technical staff that focuses on  
20 ecological processes and environmental  
21 health of natural systems, particularly  
22 waterways, watersheds and estuaries.

23 My colleagues, Dr. Boufadel and  
24 Dr. Martin, and I were invited to provide  
25 scientific background on the issue of gas

1 9/28/10 - TRANS./ENVIRONMENT - RES. 100515  
2 drilling on the Marcellus Shale to  
3 discuss its potential impacts on the  
4 environment. I commend the Council for  
5 asking Temple University, Drexel  
6 University and the Academy to speak at  
7 this hearing. Our institutions are one  
8 of Philadelphia's important scientific  
9 resources, and we are pleased to apply  
10 our scientific capabilities to a topic of  
11 critical interest to our city and the  
12 Commonwealth of Pennsylvania. As our  
13 institutions propose to collaborate,  
14 Temple University and myself, on further  
15 studying the Marcellus Shale, it is  
16 appropriate that we are co-presenters,  
17 Dr. Boufadel and myself, today.

18 Today I'm going to start with  
19 some of the basic science of the  
20 Marcellus Shale and the natural gas  
21 deposited within it, touch on the  
22 drilling method known as hydraulic  
23 fracturing, and then look at some  
24 potential impacts of drilling practice on  
25 the aquatic and terrestrial ecosystems.

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2 Finally, I will discuss some preliminary  
3 research that has been conducted on these  
4 impacts and briefly indicate that further  
5 research we feel is necessary to resolve  
6 a variety of uncertainties that remain.

7 Dr. Boufadel's testimony will focus on  
8 the hydro-geology of drilling and  
9 potential below-ground impacts.

10 I would also note that the  
11 Academy of Natural Sciences does not take  
12 a position on the overall advantages or  
13 disadvantages of obtaining gas from the  
14 Marcellus Shale. We recognize the  
15 enormous potential of this resource for  
16 both possible economic benefit to the  
17 Commonwealth and as an energy source with  
18 reduced greenhouse emissions. As  
19 environmental scientists, our role is to  
20 outline the potential changes to our  
21 ecosystem from this process and to point  
22 out the relative levels of uncertainty  
23 and risk.

24 The Marcellus Shale, as this  
25 slide indicates, runs roughly from New

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2 York to West Virginia and lies about a  
3 mile or more underground at various  
4 places. That's about the distance from  
5 City Hall to the Art Museum.

6 As you can see from this map, a  
7 significant portion of the Marcellus is  
8 located under Pennsylvania, particularly  
9 along the Susquehanna Basin and to a  
10 lesser extent the Delaware.

11 What is actually the Marcellus  
12 Shale? Technically a shale is a  
13 fine-grained sedimentary rock formed from  
14 various types of mud deposited into  
15 ancient river bottoms, lagoons or even on  
16 the continental shelf. The Marcellus  
17 Shale was formed about, as you noted, 300  
18 to 400 million years ago in an enclosed  
19 sea that once covered part of  
20 Pennsylvania. Microscopic algae produced  
21 from the surface waters were deposited in  
22 the bottom of the ancient sea that had  
23 low oxygen, and then they were eventually  
24 covered over with other types of  
25 sediments. The methane gas was formed as

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2 the organic-rich sediment degraded over  
3 time, forming the organic-rich shale.

4 This process needed the right  
5 temperature, pressure and time for  
6 methane to form and to remain. The gas  
7 is now imbedded in tiny pore spaces  
8 within the shale.

9 I would like to point out just  
10 from the panel next to that that the  
11 Marcellus is only one of many classes of  
12 shale that were formed by these ancient  
13 geological processes. As you can see  
14 from the diagram, in this region there  
15 are shales that lie above it and below  
16 the Marcellus, and some of them also  
17 contain gas.

18 However, until recently, it was  
19 not believed that most of the shale gas  
20 could be effectively utilized. Many  
21 shale gas deposits have low permeability;  
22 that is to say, it is trapped between the  
23 grains of the rock and doesn't have  
24 enough pressure to be withdrawn by simply  
25 boring a well into it. Technical

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2 advances in drilling, specifically  
3 horizontal drilling, combined with the  
4 older technique of hydraulic fracking  
5 have now provided a means for  
6 economically accessing this gas.

7           The method is quite simple.  
8 Wells are drilled down to the level of  
9 the Marcellus, roughly a couple miles or  
10 a mile or so, and the drilling tool is  
11 turned horizontally into the shale and  
12 then proceeds about a couple miles into  
13 the shale. The well is then secured and  
14 explosives are introduced into the bottom  
15 portion of the horizontal well, and these  
16 explosives fracture part of the Marcellus  
17 Shale or other types of shale. At this  
18 point, water, a few million gallons, is  
19 pumped down with chemical and physical  
20 additives to open up much more of the  
21 shale to allow the gas to escape into the  
22 open spaces. The gas then flows through  
23 the fractures and is withdrawn through  
24 the vertical shaft.

25           I will leave it to the

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2 representatives of the gas and drilling  
3 companies to explain any further details  
4 or to clarify anything I've missed on the  
5 process. The questions we are  
6 considering are the potential  
7 environmental impacts of the gas  
8 drilling.

9 In terms of the overall  
10 impacts, as these photos show, gas  
11 drilling is an industrial process. There  
12 is a footprint of the well pad itself,  
13 the extraction and transportation of  
14 water to be used for fracturing, the  
15 disposal of fracturing water once it has  
16 been used, potential impacts on surface  
17 and groundwater, and the attendant issues  
18 that come from land use changes and  
19 fragmentation.

20 Not only is the -- as these  
21 pictures show, not only is the drilling  
22 intrusive on the landscape, but also the  
23 pipeline that needs to be drilled that  
24 connects all the wells has to go through  
25 many areas of Pennsylvania to connect it

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2 to the larger gas network.

3 I would like to point out that  
4 while hydraulic fracturing and its  
5 relationship to water quality has gotten  
6 a lot of attention, we need to think  
7 about whether there are specific impacts  
8 on water quality and quantity, but we  
9 also have to look at the larger impacts  
10 on the natural resources and natural  
11 services, such as water filtration, that  
12 are provided by existing ecological  
13 systems. I will discuss this latter  
14 concept known as ecosystem services in a  
15 few moments.

16 On average, about three million  
17 gallons of water -- and just to put it  
18 into a conceptual nature, that's about  
19 four to five Olympic-sized swimming  
20 pools -- three million gallons of water  
21 used for each well. The effect of this  
22 practice on water quantity quite simply  
23 depends on where the water is coming  
24 from. Three million gallons withdrawn  
25 from the Delaware at Penn's Landing would

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2 not have a measurable impact on the flow  
3 of the river, but three million gallons  
4 of water withdrawn from a small upland  
5 waterway or maybe a private or public  
6 well would have an impact on the local  
7 water and its biological diversity of the  
8 streams.

9           Also, a number of substances  
10 are added to the fracking water to  
11 increase its effectiveness in obtaining  
12 the gas. These substances include  
13 lubricants to reduce friction, biocides  
14 and scale inhibitors to prevent bacterial  
15 growth, and coarse substances like sand  
16 to assist in the fracturing. None of  
17 these, for the most part, are found  
18 naturally in waterways. While best  
19 practices are that none of the fracking  
20 water will ever be released to the  
21 environment, the level of risk in using  
22 these substances must be assessed.

23           In addition to the chemicals  
24 added to the water prior to use, the  
25 fracturing process, through dissolution

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2 of salts and leaching of the shale, add a  
3 number of substances from the underground  
4 environment to the water that is  
5 withdrawn. As a result, the withdrawn  
6 fracking water has very high levels of  
7 total dissolved solids, higher in some  
8 cases than seawater.

9 High total dissolved solids can  
10 be a serious impairment to water quality  
11 and fresh water systems. As this slide  
12 shows, the amount of various dissolved  
13 materials in the fracking water exceeds  
14 by many orders of magnitude that found in  
15 typical river water. Do each of these  
16 elements result in a biological impact is  
17 the question. A recent EPA report  
18 suggests that the amount of dissolved  
19 solids that results in the biological  
20 impact is much lower than what is found  
21 in the frack water itself.

22 Is this a potential impact to  
23 the environment? Again, it depends on  
24 how the water is handled and where it is  
25 disposed of. The introduction of three

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2 million gallons of fracturing water to  
3 the Delaware at Penn's Landing or below  
4 would probably have a small effect on the  
5 river as a whole. Three million gallons  
6 of water spilled into a first- or  
7 second-order stream would have a profound  
8 impact on the local aquatic system.

9           It should be noted that there  
10 is no economic treatment for high TDS  
11 other than dilution or an  
12 energy-intensive process like reverse  
13 osmosis. In other words, at some point,  
14 the water will have to be introduced into  
15 a larger waterway or injected into deep  
16 wells.

17           So to summarize, there are  
18 several potential sources of  
19 environmental impacts from the gas  
20 drilling in the Marcellus Shale. First,  
21 water withdrawn could have an impact  
22 locally on the quantity of water  
23 available. Second, there could be  
24 impacts on water quality. This could  
25 happen from accidental spills, treatment

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2 of withdrawn water or other as yet poorly  
3 understood processes, and I think  
4 Dr. Boufadel will address some of these  
5 potential impacts to the groundwater  
6 movement and quality.

7           The third area of potential  
8 impact is habitat and land fragmentation.  
9 This issue is not directly related to the  
10 fracturing, but may be the most  
11 significant and least considered of the  
12 potential problems. Fragmentation of the  
13 land surface is simply the reduction in  
14 the amount of forest cover and natural  
15 open spaces, breaking it up into smaller  
16 fragments, and a loss of connectivity  
17 between these fragments. In other words,  
18 reducing the amount of space available  
19 for organisms and interrupting or  
20 blocking important ecological processes  
21 within the area.

22           The effects of habitat  
23 fragmentation due to human alterations of  
24 the landscape have been studied for many  
25 years and are well understood. We know

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2 that there are critical sizes of  
3 contiguous natural systems that must be  
4 present for diverse populations of  
5 organisms to function, and we know that  
6 these sizes and diversities of organisms  
7 are necessary for ecological processes to  
8 occur.

9 The latter function, ecological  
10 processes, is something called ecological  
11 services, because they represent a  
12 variety of potentially costly services  
13 that human societies get for free from  
14 the natural ecosystem. We preserve  
15 natural ecosystems because human  
16 societies depends on them directly,  
17 whether it is for water filtration, air  
18 quality or fertile soil.

19 (Applause.)

20 DR. VELINSKY: The combined  
21 effect of habitat fragmentation and  
22 potential release of fracturing water  
23 into natural systems could have  
24 significant impacts on aquatic ecosystem  
25 services. For example, studies by the

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2 Academy scientists, in collaboration with  
3 other local institutions, has shown that  
4 headwater forested streams provide the  
5 greatest filtration capacity for nutrient  
6 removal. Changes in TDS, total dissolved  
7 solids, can be toxic both on a chronic  
8 and acute scale to aquatic organisms,  
9 reducing the size of the biological  
10 community and ultimately impacting human  
11 needs such as fishery and water quality.

12 In summary, both loss of forest  
13 area and introduction of dissolved solids  
14 can reduce or impair ecosystem services  
15 in small watersheds such as those in the  
16 Upper Delaware. In particular, removal  
17 of nutrients, a major environmental  
18 stressor in agricultural landscapes, can  
19 be impaired for fragmentation by changes  
20 of biological structure within the  
21 watershed.

22 At this time, there is very  
23 little information available as to the  
24 impacts of long-term exposure of a  
25 watershed to Marcellus Shale drilling

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2 activities, nor do we know if there is a  
3 cumulative impact of drilling activities  
4 and, in particular, possible exposure to  
5 water with elevated dissolved solids on  
6 the ecosystem services of a small  
7 watershed.

8 One of the ways we measure  
9 ecological functions is to look at  
10 certain key chemical indicators and the  
11 abundance of certain types of organisms.  
12 Testing the electrical conductivity of a  
13 waterway is a good way of assessing total  
14 dissolved solids and is a good view proxy  
15 for human-caused disturbances.

16 There are also certain  
17 organisms, notably amphibians,  
18 salamanders, and particular orders of  
19 insects that are highly sensitive to  
20 degraded waters and contaminated  
21 environments. By sampling watersheds for  
22 these measures, we are able to get an  
23 approximation -- to approximate the  
24 relative health of the watershed and the  
25 ecosystem services which are capable.

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2 To at least get preliminary  
3 assessment of the cumulative impact of  
4 drilling, Academy scientists have been  
5 working with a University of Pennsylvania  
6 graduate student to collect data on water  
7 chemistry and indicator organisms. Let  
8 me emphasize that this data is very  
9 tentative and would require further  
10 review and replication, but it does  
11 suggest that the impact of drilling may  
12 directly be connected to the density of  
13 drilling within a watershed. As you can  
14 you see from this figure, the  
15 conductivity in a high-density watershed  
16 with a lot of drilling activity is much  
17 higher, as well as the insects, what they  
18 call the EPT, indicators of healthy  
19 macro-verter (ph), which is lower, as  
20 well as the number of salamanders in this  
21 watershed are lower, showing the impact  
22 proposally of the drilling within the  
23 watershed.

24 These indicators -- the  
25 research of -- the results of this

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2 research can be seen in the graphs. For  
3 each of the measures, there was  
4 significant differences between the  
5 high-density drilling locations and the  
6 locations with no or low-density  
7 drilling. This suggests that there is  
8 indeed a threshold at which drilling,  
9 regardless of how it's practiced, will  
10 have a significant impact on the  
11 ecosystem. Conversely, it also suggests  
12 that there may be lower density of  
13 drilling at which ecological impact  
14 cannot be detected.

15 With this initial data, while I  
16 emphasize remains tentative -- and I  
17 emphasize remains tentative, we are  
18 proposing a comprehensive research plan  
19 to the state DEP in the Growing Greener  
20 program, which would develop guidelines  
21 and assessment tools for regulators and  
22 managers to minimize the ecological  
23 impact of drilling. Our goals are to  
24 determine if there is an apparent  
25 threshold over a larger sample size and

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2 to better understand the interaction  
3 between well density, size of the  
4 impacted stream and watershed, and the  
5 resulting ecological indicators. We  
6 propose to look at multiple streams with  
7 varying amounts of drilling and to use a  
8 computer-based model to analyze the  
9 impact of drilling on deforestation and  
10 fragmentation.

11 In conclusion, I would like to  
12 thank the Council for the opportunity to  
13 discuss these issues. We believe that  
14 gas in the Marcellus Shale may have  
15 positive effects on the Pennsylvania  
16 economy and there may be possible ways to  
17 extract it safely. At this time,  
18 however, there remains significant  
19 uncertainties, and we urge a cumulative  
20 impact assessment on the scale described  
21 above before large-scale drilling is  
22 undertaken.

23 Thank you very much.

24 (Applause.)

25 COUNCILMAN JONES: For interest

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2 of time, we're going to allow each of the  
3 folk to testify on the panel before we  
4 ask questions.

5 I do need to recognize for the  
6 record that Councilman Frank DiCicco and  
7 Councilwoman Blondell Reynolds Brown have  
8 joined the panel.

9 Would you like to say anything?

10 COUNCILWOMAN BROWN: Not yet.

11 COUNCILMAN JONES: Okay.

12 (Applause.)

13 COUNCILMAN JONES: Will our  
14 next panelist begin and read your name  
15 into the record and begin your testimony,  
16 please.

17 DR. MARTIN: My name is Joseph  
18 Martin. I'm --

19 COUNCILMAN JONES: Pull the  
20 mike to you, please.

21 DR. MARTIN: Excuse me?

22 COUNCILMAN JONES: Pull the  
23 mike closer a little bit.

24 DR. MARTIN: Sure.

25 Dr. Joseph Martin, professional

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2 engineer, professor at Drexel University,  
3 speaking pretty much on my own interest  
4 of my evaluation of the situation, not  
5 representing any particular entity.

6 What I'll do is, I'll work the  
7 opposite side. I'll kind of tell you  
8 what will happen if things go right. In  
9 the world of engineering, we decide what  
10 is going to go right and where we figure  
11 out inspection procedures to assure that.

12 I'm originally in the  
13 construction business, and we all know  
14 about that, is you expect what you  
15 inspect. And so this is what could  
16 happen.

17 I want to make a story. We're  
18 here at the City Council. So the City  
19 Council deals in the big picture. I want  
20 to be looking at the big picture to say  
21 this is an opportunity that we should not  
22 pass up.

23 I will make the point that it  
24 is in nobody's interest at all for the  
25 wells to leak or the things to spill.

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2 Nobody at all. And I'll finish up a  
3 little bit of discussion on how the wells  
4 are sealed to assure the people.

5 As a background, hydro-fracking  
6 has been around about 50, 60 years. It's  
7 in thousands and thousands of wells. The  
8 point of the practice is to increase the  
9 permeability of vertical wells.

10 Fairly recently, down in Texas,  
11 they developed a way to marry that  
12 practice, hydro-fracking, with  
13 directional drilling. What this made, it  
14 made possible, to expound my earlier  
15 speaker, to exploit the gas in the actual  
16 source material. To date, we have  
17 extracted gas from sandstone reservoirs  
18 to which the gas migrated. Now we're  
19 going to the source. With this  
20 technology available, it changes  
21 everything and you start to see  
22 possibility of years.

23 Now, what happens is that in  
24 the State of Pennsylvania for the  
25 Allegheny Plateau, which covers about

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2 two-thirds of the state, there are up to  
3 three or four such layers. So once we  
4 put in an infrastructure for the  
5 Marcellus Shale, it can be reused for  
6 these other layers as they go along. So  
7 we're looking at the usual world of  
8 geological exploration for fuels that the  
9 estimates keep going longer and longer,  
10 but we have ourselves a sea change and  
11 how to acquire it.

12 Now, the big picture here is  
13 that the gas is used -- is as versatile  
14 as you can get. It's used for heat, PGW,  
15 for power, for generating electricity and  
16 for transportation. I want to tell you a  
17 little thing about the transportation by  
18 itself.

19 The transportation effect of  
20 using natural gas as a fuel is that, A,  
21 it is cleaner burning, which has been  
22 discussed, but also generates less  
23 greenhouse gases per kilowatt of BTU than  
24 you want. Now, I'll tell you people  
25 about this in that you've all seen

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2 warehouses where there are natural  
3 gas-powered forklifts. Can you imagine a  
4 warehouse where you had the forklifts  
5 powered by gasoline engines? So my point  
6 is made, that the impact of burning  
7 natural gas on the air or environment,  
8 which is always an issue in Philadelphia  
9 as well, is positive, have that being  
10 said.

11 Now, to continue this, it turns  
12 out that we are running out of gas in the  
13 USA. So the sole alternative to provide  
14 gas, natural gas, to the citizens of the  
15 United States is liquefied natural gas  
16 imported. The proper word for this is  
17 OPEC No. 2. Many of the nations which  
18 have liquefied natural gas sales,  
19 including Siberia and Algeria, are not  
20 necessarily friendly to us. Trinidad  
21 certainly is. But the bottom line is, if  
22 we continue to exploit gas resources in  
23 Pennsylvania, the money stays in  
24 Pennsylvania.

25 Now, I hear a lot of discussion

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2 about local food. Well, this is local  
3 fuel. It comes from just to the west of  
4 us, parts of the state which are in  
5 trouble, and if some parts of the state  
6 are in trouble, the City is in trouble.  
7 This City is a center of the State of  
8 Pennsylvania.

9 Councilman Jones, I appreciate  
10 your note there, but I tell that to  
11 people now and again, Philadelphia is the  
12 fifth largest city in the country and  
13 unquestionably the center of  
14 Pennsylvania.

15 COUNCILMAN JONES: Thank you.

16 DR. MARTIN: There are places  
17 like Lock Haven which have not had an  
18 industry since Piper Cub moved to Florida  
19 20 years ago. I was out there a couple  
20 of weeks ago and there's activity. So  
21 let's not forget that there.

22 Now, this comes directly to  
23 Philadelphia. It's a reliable source.  
24 Philadelphia made the decision long ago  
25 to make its basic heat for its homes is

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2 PGW. So either we bring in the gas from  
3 Algeria or we bring it in from Centre  
4 County. That's what you got.

5 The other thing it's going to  
6 be is clean burning. So what I mean out  
7 of that, besides being a shale, is to  
8 say, I'm an engineer. We have to make it  
9 work. That's the idea.

10 There's one other element, that  
11 I understand that this is done in some  
12 manner at the behest of the PGW to  
13 preserve our watersheds. Well, this  
14 place we live in is called Penn's Woods.  
15 There is no better watershed protection  
16 you can imagine than forest. And when we  
17 get to the point about the natural gas  
18 extraction by the hydro-fracturing and --  
19 not the hydro-fracturing per se, but the  
20 directional drilling, we are  
21 disturbing -- those pictures look like  
22 K-Mart. They are about the size of  
23 Daniel Boone's homestead.

24 You use about five to six acres  
25 of clearing per square mile of

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2 extraction. That is as low a disturbance  
3 as you can possibly get.

4 I want you to compare this to  
5 coal and I want you to compare this to  
6 solar. So basically Marcellus Shale  
7 extraction by the directional drilling is  
8 probably the best forest preservation you  
9 can think of and that it's all good.

10 (Audience yelling and booing.)

11 DR. MARTIN: So the other  
12 element, before I get into a little bit  
13 of the detail here, is that the water --  
14 first of all, I'm trying to tell you what  
15 happens if everything goes right. Okay?

16 The water that is generated,  
17 the flow-back water, is very highly  
18 sealed, it's fossil water, as was pointed  
19 out. Much of it is used for recycling,  
20 and there is no easy way to get rid of  
21 it. One of the ways to get rid of the  
22 salt is to boil it. Well, we're talking  
23 about a gas well, so it might entirely be  
24 possible, necessary for the gas companies  
25 to divert some of their precious gas to

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2 boil it down, evaporation. But the  
3 bottom line is, they cannot discharge it  
4 until it's right. So I don't mean to be  
5 arrogant in this regard, but the quality  
6 of the frack water is not the public's  
7 problem. It's the problem of the  
8 producer. They cannot discharge it --  
9 (Audience booing.)

10 DR. MARTIN: Either we have a  
11 DEP -- excuse me.

12 COUNCILMAN JONES: Wait a  
13 minute. One of the rules in this Chamber  
14 is, with my colleagues and sometimes with  
15 testimony, we can disagree agreeably, and  
16 what we will do is be respectful of  
17 people's opinions. We will refute them.  
18 We have a balance of testimony, and we're  
19 going to hear that. So I know this is an  
20 emotional issue for us all, but we're  
21 going to listen and be courteous.

22 DR. MARTIN: We have a DEP. We  
23 have an EPA. We have a PWD. Either  
24 they're working or they're not. And so I  
25 would make a comparison that I had an

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2 opportunity to visit the Yuengling  
3 brewery recently, and in between one vat  
4 and another is the water. They can't  
5 discharge that water until they cleaned  
6 it to the satisfaction of the City of  
7 Pottsville and the DEP, and that's all  
8 there is to it. Either we have laws or  
9 don't.

10 So I'd just like to say that  
11 that's a serious issue, the frack water,  
12 but it is the issue that has to be solved  
13 by the industry. Either that or they're  
14 in violation.

15 Now, the other element I want  
16 to be sitting here and saying, there's a  
17 lot of issues about not doing it right,  
18 and it's definitely true. This is an  
19 industrial operation, with thousands of  
20 wells. If it's not done carefully,  
21 things can happen wrong. I just want to  
22 close by showing a little technology.

23 In order to get this gas from  
24 7,000 feet down without any leaks, which  
25 is to the advantage of two people, the

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2 gas company, which wants the gas that  
3 they generated to come up through that  
4 stem 7,000 feet and into their pipelines  
5 to sell, A, and, B, the landowners who  
6 get a royalty per cubic foot of gas  
7 coming through. They want all the gas  
8 that's freed down the Marcellus Shale to  
9 go up through that pipe, none of it leak  
10 into aquifers and so forth. The system  
11 that exists that is set up, there's  
12 public record on every well drilled in  
13 the state, to say is the first thing that  
14 they do is they drive a casing 30-inch  
15 diameter down through the soil. That's  
16 step one. Inside that casing they drill  
17 that out. Then they drive a 12-inch  
18 diameter casing down through all of the  
19 potential aquifers, typically 1,200 feet  
20 or something like that, in that order.  
21 It depends upon the local geology. Then  
22 in between the two casings, they pump  
23 concrete. So at that point, we have  
24 protection of two layers of steel.  
25 Now, either they have welded

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2 those steel pieces together properly or  
3 not. Either they've threaded them or  
4 not. But at that point, we have two  
5 layers of steel, one layer of cement  
6 protecting the aquifer. Then inside of  
7 that is a third one, nine inches, which  
8 is driven down to the 7,000 feet  
9 production level, and so that's going to  
10 be sealed with cement in between. The  
11 purpose of that cement sealing and that  
12 pipe is to prevent leakage of brine and  
13 other things.

14 This is sedimentary rock.

15 There's usually 20 layers between the  
16 surface and the Marcellus Shale. Many  
17 even include fossil water and so forth.  
18 The drillers do not want to bother with  
19 that.

20 So down to the level, mile and  
21 a half below ground surface, there are up  
22 to five layers of steel and cement  
23 sealing that inside from the outside. I  
24 submit to you that is a higher level of  
25 standard of sealing than we have

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2 underneath hazardous waste sites and  
3 landfills, including the huge landfills  
4 in Falls Township that take  
5 Philadelphia's trash, and liners into  
6 those landfills protect our largest water  
7 intake at Torresdale. So it's a higher  
8 standard of protection.

9           So I'm going to close by  
10 thanking the City Council for bringing  
11 this issue and by saying that this is a  
12 phenomenal opportunity. It's going to be  
13 a tremendous benefit to the citizens of  
14 the city and the state, and it has to  
15 actually be enforced. It's an industrial  
16 process. There's going to be thousands  
17 of feet to be drilled. Lots of things  
18 can go wrong, but it's not inherently a  
19 bad idea.

20           Thank you very much.

21           COUNCILMAN JONES: Thank you.

22           We're going to continue on. I  
23 need to recognize that my colleague  
24 Councilman Greenlee, Bill Greenlee, is  
25 here and has joined this panel.

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2 Would you like to make any  
3 comments?

4 COUNCILMAN GREENLEE: No.

5 COUNCILMAN JONES: We have one  
6 more panelist and then we'll open to  
7 questions and answers for this panel.

8 DR. BOUFADEL: My name is  
9 Michel Boufadel. I'm the Professor of  
10 Environmental Engineering. I'm also the  
11 Chair of the Department of Civil and  
12 Environmental Engineering at Temple  
13 University. I'm also Director of Center  
14 for Natural Resources Development and  
15 Protection, and our work focuses on  
16 large-scale contamination. We try to  
17 deal with contaminants on site, because  
18 it's in many cases very difficult to  
19 bring them to a particular facility to  
20 treatment.

21 An example is the Exxon Valdez  
22 oil spill. We've been investigating it  
23 since 2007, and we have found out and we  
24 published the results why the oil still  
25 persists 20 years after the spill that

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2 occurred 1989. Our staff also are  
3 involved in the Gulf spill.

4           Regarding this issue, the  
5 Marcellus Shale, this is something that  
6 we getting involved in in terms of  
7 scientists recently. Last year there was  
8 talk by Carol Collier, the Executive  
9 Director of the DRBC, and I would like to  
10 thank her actually to kind of opening my  
11 eyes on this issue. And we start looking  
12 of what are the challenges dealing with  
13 the Marcellus Shale extraction. And as  
14 you see from my talk, you notice that one  
15 of the main issues was that there's a  
16 lack of data. So let's go ahead and  
17 start.

18           I would like to  
19 acknowledge faculty at Temple University  
20 that helped me obtain some of the  
21 information, Dr. van Aken, Dr. Judy  
22 Zhang, and we have also fine graduate  
23 students that helped, and I'm also  
24 collaborating with Dr. Tom Graff from  
25 University of Hanover, Germany.

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2 We start with what's called the  
3 Precautionary Principle. The  
4 Precautionary Principle states that when  
5 human activities may lead to morally  
6 unacceptable harm that is scientifically  
7 plausible but uncertain, actions shall be  
8 taken to avoid or diminish that harm.

9 That was agreed upon by the  
10 UNESCO, United Nation, and by various  
11 world organizations.

12 The Precautionary Principle,  
13 the ground for it is not really a zero  
14 risk, because we do live in a world that  
15 has risk, but it should be based on some  
16 kind of acceptable level of risk. So  
17 with that in mind, we ask the question,  
18 Should the Precautionary Principle apply  
19 in the context of natural gas extraction?  
20 Is there any potential harm? Is there  
21 any potential harm at large? And my  
22 answer to that is yes, and --

23 (Applause.)

24 DR. BOUFADEL: And for this  
25 reason, I think we need to conduct some

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2 studies, risk impact studies.

3 So as I said early on, when we  
4 start checking this issue, we found out  
5 that there's really a lacuna, a major  
6 lack of information, of objective studies  
7 conducted on the topic. There were  
8 anecdotal findings here and there. Lots  
9 of things were in the media, but really  
10 nothing that is published in scientific  
11 journals.

12 And our goal for presentation  
13 today is to highlight the role of  
14 hydro-geology. We think actually the  
15 whole issue should be approached using a  
16 multi-pronged approach. For example,  
17 working with the Academy on the  
18 ecological assessment due to their  
19 superior expertise in that area, and  
20 there could be also air pollution  
21 investigation, but I think for the City  
22 of Philadelphia, we focus on what happens  
23 in the ground and the potential pollution  
24 there.

25 So this is essentially a

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2 schematic of how the drilling operation  
3 takes place. The well is turned  
4 horizontally when it hits the Marcellus  
5 Shale layer at 8,000 feet below the  
6 surface, and then there's hydro-fracking.  
7 So you have that horizontal leg could be  
8 maybe 2,000 feet. So every 500 feet they  
9 are kind of bound together and then the  
10 hydro-fracking occurs.

11 Water is pumped down at the  
12 pressure of 15,000 psi. The duration  
13 should be, depends, three, four hours,  
14 sometimes more. And during the  
15 operation, there is, from what we  
16 understood talking with the industry,  
17 that there is a major focus on ensuring  
18 that the fractures do not propagate  
19 outside the Marcellus Shale layer.

20 That said, however, our  
21 question is, What if the gas escape?  
22 What if the fluid escape? And he will --  
23 we consider one scenario.

24 The first thing to consider is  
25 the injected water contains hazardous

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2 compounds. It contains compounds that  
3 affect the immune system. This is what's  
4 being injected in the ground. Some  
5 compounds are carcinogenic, others are  
6 mutagenic, and you have endocrine  
7 disruptors that affects actually the  
8 growth, especially of children.

9           So -- and in addition, when the  
10 water goes down, it picks up with it  
11 additional hazardous chemicals such as  
12 arsenic and what's called non-naturally  
13 occurring radioactive matter. So there's  
14 a concern that if that water in any way  
15 reaches the surface or reaches the  
16 aquifers, which are maybe the top  
17 thousand feet of the ground.

18           This is top view of the terrain  
19 in New York. You can see Lake Ontario  
20 there. The study was conducted for the  
21 State of New York, and we are just below  
22 it. It is just showing what they call  
23 the linemen. These are kind of -- from  
24 the shape of the earth, you could detect  
25 that there are fractures and cracks in

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2 the ground. So you could see from that

3 that it's not really a smooth surface.

4 It's not like putting that everything is

5 smooth. So there are cracks and

6 fractures and joints and faults in any

7 geology.

8                   These are some of the pictures.

9 Again, you have the citations published

10 in Tectonophysics, 2002. You can see on

11 the left, for example, there is a hammer

12 put there for scale. So these are --

13 there are some fractures in the rock, and

14 we think that these fractures could

15 actually conduct fluids up to the

16 surface, depending on the operation

17 itself. You have the same pictures also

18 on the right for a larger area.

19                   So these rocks, it's not like

20 that happens only at the surface. These

21 rocks extend -- the formation extends

22 down to thousands of feet. So there is

23 nothing to say that what's found at a

24 thousand feet below the surface is

25 different from what you see here.

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2 So, again, this is what the  
3 ideal situation, the fractures remain in  
4 the Marcellus Shale layer, which is maybe  
5 200 feet thick, but let us consider a  
6 scenario. This is here where -- this is  
7 a simulation. This is not -- we didn't  
8 get these data from the field. We just  
9 assuming that there are fractures in the  
10 ground.

11 You can see there's this  
12 horizontal bar at the bottom. This is  
13 about 7,500 feet below the surface. The  
14 dimensions are given in meter, so every  
15 thousand meter is 3,000 feet. So what we  
16 going to do now is, we're going to show a  
17 simulation where there's an injection and  
18 there is the cracks in the ground.

19 Essentially what could happen  
20 is that you will have an upward link or  
21 shooting of the injected fluid maybe  
22 2,000 feet up or they could be to a  
23 distance of maybe 3,000 feet from the  
24 surface. And that's an explanation of  
25 where the three million gallon that were

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2 injected, where they stay. I mean, we do  
3 know that they don't disappear. They are  
4 somewhere there in the ground. And based  
5 on the injection and the presence of  
6 fractures, there's tendency for them to  
7 go up and not down, and we think that  
8 could be one possible scenario. The  
9 problem is that we don't have these data.  
10 We don't have anything to tell us exactly  
11 how are the fractures in the ground.

12 Now, what would make this  
13 situation more dire is that if you have  
14 refracking of the well. If someone comes  
15 and refrack the well again, that could  
16 bring these hazardous chemicals closer to  
17 the surface.

18 And, finally, we need to know  
19 that water in the ground is not really  
20 stagnant. I mean, it moves slowly, but  
21 there's always an interest in  
22 understanding how long will it take to  
23 get from point A to point B.

24 Studies dealing with  
25 underground injection wells, these are

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2 wells for deep-well injections for  
3 hazardous chemicals, they are required to  
4 explain or to predict the locations of  
5 any chemicals they put within 10,000  
6 years. So any chemicals, when you're  
7 dealing with deep-well injections, any  
8 chemical that is injected in the ground,  
9 the company that is injecting it needs to  
10 explain what will happen to that chemical  
11 in 10,000 years. And these are very firm  
12 guidelines established by the EPA.

13 So the long-term effects when  
14 dealing in groundwater, especially deep  
15 groundwater, has always been there.

16 Here is another situation where  
17 you have -- as you remember, four million  
18 gallons are injected. One million gallon  
19 comes up.

20 COUNCILMAN JONES: Excuse me,  
21 Doctor. Can you tell us where this is?

22 DR. BOUFADEL: This one -- no.  
23 I don't remember. The source actually,  
24 it was conducted from New York, but I'm  
25 not sure of the actual --

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2 COUNCILMAN JONES: Okay. Thank  
3 you.

4 UNIDENTIFIED SPEAKER: It's  
5 from the Columbia University "Urban  
6 Design" study, and this is a picture of  
7 Northern Pennsylvania.

8 COUNCILMAN JONES: Northern  
9 Pennsylvania?

10 UNIDENTIFIED SPEAKER: Where  
11 they store the flow-back.

12 COUNCILMAN JONES: Thank you.

13 Could you repeat that so people  
14 listening on the radio can hear what she  
15 said?

16 DR. BOUFADEL: What she said?

17 COUNCILMAN JONES: Yes.

18 DR. BOUFADEL: Well, she's  
19 saying this is in Northern Pennsylvania  
20 that this fit.

21 Okay. So this is a situation  
22 where you get -- after you inject the  
23 water to frack the formation, you get  
24 one-quarter of it back, and they are put  
25 in some situations in these open pits

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2 that they are lined and they go to keep  
3 them until the trucks, they get hauled  
4 off site.

5 So I'm going to just focus your  
6 eyes on the bottom right.

7 And then next slide.

8 So this is the size of football  
9 field, and it's one or two feet deep.

10 So the question here is, What  
11 happens if you have leakage from these  
12 pits?

13 We need to know first that the  
14 brine in that pit is six times more  
15 concentrated than seawater. So it has  
16 lots of salts. And because of that, it's  
17 much heavier than fresh water. So it's  
18 not going to move with the fresh water.  
19 It's going to have a mind of its own. So  
20 you're going to have something like a  
21 lava lamp effect, and you will see it  
22 next.

23 So this is an illustration of  
24 cross-section in an aquifer. In both  
25 cases, the top and the bottom, you are

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2 assuming that you have leakage from the  
3 pit. There are these sticks sticking in  
4 the blue area on the top and the bottom  
5 panel. These are monitoring wells.  
6 Let's say they went down 30 feet or 50  
7 feet. And the edge of the rectangle  
8 represent the bedrock so water doesn't go  
9 through it. And in this scenario, we  
10 assume the water moves from the left to  
11 the right. So once you have leakage, the  
12 idea that you put the monitoring wells  
13 downstream and you'll be able to capture  
14 that plume, but in this case, the top  
15 situation doesn't account for the density  
16 of the plume. The lower panel does, and  
17 that's what we think, you know, once  
18 you -- as the latest technology or latest  
19 science or latest models, to predict the  
20 behavior when you have spillage.

21 So next slide.

22 COUNCILMAN JONES: Before you  
23 move, do I understand those that look  
24 like nails, those are sensors?

25 DR. BOUFADEL: These are

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2 sensors, yes.

3 COUNCILMAN JONES: And do I  
4 understand that because of the depth of  
5 the potential brine, it's right under it  
6 and it couldn't be detected?

7 DR. BOUFADEL: Correct.

8 COUNCILMAN JONES: Is that what  
9 we are seeing?

10 DR. BOUFADEL: Correct.

11 Correct.

12 COUNCILMAN JONES: Thank you.

13 DR. BOUFADEL: So this is after  
14 ten years. After ten years, your sensor  
15 is telling you that there's a problem in  
16 the lower panel. After ten years, now  
17 there's a problem. By that time, your  
18 aquifer is completely contaminated.

19 And then you continue, 12  
20 years. Next one, 13 years here you can  
21 see on the right-hand side, the bottom  
22 panel. You have the water starts  
23 up-welling, and this is very natural.  
24 Water does move uphill. That's why we  
25 have springs. So it depends on the

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2 pressure behind it. So then the water  
3 start then up-welling and then -- keep  
4 going, please.

5 Next one we have situation now  
6 where we have the most -- the closest  
7 well or the monitoring sensor to the pit  
8 is contaminated, and the farthest one is  
9 contaminated, but the middle one is not.  
10 And now we start thinking that the  
11 neighbor to the right has some pollution  
12 problem and then it is spilling back to  
13 our yard.

14 So the idea here is, we just  
15 need more science than we are usually  
16 dealing with when addressing Marcellus  
17 Shale issues.

18 And then there's a tendency for  
19 the brines to stay much longer in the  
20 ground compared to other chemicals.

21 This is just a movie of what I  
22 explained. So it does up-well. And  
23 imagine that you have the Delaware River  
24 or the Schuylkill River on the right, the  
25 bottom right. It will start seeping into

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2 it over a very long duration. Here we  
3 predict it to be 200 years.

4 UNIDENTIFIED SPEAKER: It's not  
5 brine. It's sulfuric acid.

6 COUNCILMAN JONES: People will  
7 be given an opportunity to speak. I see  
8 enthusiasm, excitement in the audience,  
9 but we're going to follow our process and  
10 you'll get an opportunity.

11 DR. BOUFADEL: Which leads us  
12 to the conclusions. So the groundwater  
13 containing hazardous chemicals could seep  
14 into the Delaware and Schuylkill Rivers  
15 for a long duration.

16 Dilution is going to be a big  
17 help, and those are the fact that  
18 Philadelphia is relatively at the large  
19 distance from where the main drilling  
20 activity taking place. There's about 100  
21 mile, 150 miles, depending of how you  
22 measure it.

23 One of the concerns, though,  
24 remains endocrine disruptors, because  
25 they are very potent even at low

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2 concentration. Endocrine disruptors,  
3 they are like hormones. They have the  
4 ability to, for example, feminize male  
5 fish. So they could affect the  
6 environment in a drastic way. And  
7 although for maybe water treatment or  
8 drinking water treatment, I leave it up  
9 to the PWD to discuss how will they deal  
10 with that.

11 And, again, the situation would  
12 be worse during low flows. I get a lot  
13 of data from the PWD, the Philadelphia  
14 Water Department, and we know that there  
15 are periods where the flow is maybe ten  
16 percent of the average. So those  
17 durations then, whatever is spilled  
18 there, it might not dilute as much to  
19 make it below the threshold.

20 Our recommendations, I think we  
21 need to start thinking long term. The  
22 monitoring is good, but monitoring  
23 without deep understanding is going to  
24 tell us that in two years, three years,  
25 there will be no problems. As we fully

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2 know dealing with Superfund sites,  
3 dealing with oil spills, once things go  
4 into the ground, the time scale has to go  
5 up from months to years to tens of years  
6 to maybe hundred years. So as I  
7 mentioned early on, for deep-well  
8 injection, if one want to inject  
9 hazardous chemicals at 10,000 feet below  
10 the surface, they need to prove that  
11 these chemicals do not get anywhere in  
12 harm within the 10,000 years. So they  
13 need to know what happen for the next  
14 10,000 years.

15 (Applause.)

16 DR. BOUFADEL: And the petition  
17 for a deep-well injection that was in  
18 1991 study, the petition, the cost by the  
19 industry, the science needed or the  
20 engineering studies needed, it used to  
21 cost about 300,000. I think the permit  
22 for a well in Pennsylvania is maybe  
23 2,500. So it used to take the EPA --

24 COUNCILMAN JONES: Could you  
25 repeat that, the fees.

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2 DR. BOUFADEL: The fees, about  
3 300,000 for a deep-well injection. This  
4 is the study needed to submit a petition.  
5 But here if we want to get a license for  
6 a well, my understanding is about 2,500.

7 And then -- the EPA, it used to  
8 take them one, full staff, one year to  
9 evaluate the permit or the petition, and  
10 I'm sure the DEP -- I don't think they  
11 have the staff to spend a year on each  
12 application, or person year.

13 So I think that's why I say the  
14 deep-well injection should be relied  
15 upon. I'm not saying they should be  
16 enforced hundred percent, but they should  
17 be relied upon, because really the  
18 geologic information is key, and the  
19 assumption that whatever we inject there  
20 would never reach the surface is not  
21 sure. I mean, it behooves people who  
22 want to inject things in the ground to  
23 tell us or to assure us that they will  
24 never reach the surface.

25 Thank you.

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2 (Applause.)

3 COUNCILMAN JONES: Well, I want  
4 to recognize that we've been joined by  
5 Councilwoman Jannie Blackwell and wanted  
6 to know if any of our new Councilpersons  
7 wanted to make a statement at this point  
8 before we enter into questions.

9 (No response.)

10 COUNCILMAN JONES: My first  
11 question is, let's talk about for a  
12 minute what we all agree on and what I  
13 heard out of the testimony so that folks  
14 out there can put their arms around the  
15 enormous size of this.

16 Is this one of the largest  
17 finds in our nation?

18 DR. MARTIN: Absolutely.

19 COUNCILMAN JONES: You can  
20 speak into the record.

21 DR. MARTIN: Yes, absolutely it  
22 is.

23 COUNCILMAN JONES: Someone gave  
24 the analogy of OPEC. Is that correct?  
25 Like this find is like finding oil in

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2 Saudi Arabia?

3 DR. MARTIN: More like Prudhoe  
4 Bay, Alaska, 20, 40-year projection,  
5 not -- Saudi Arabia has got oil forever.

6 COUNCILMAN JONES: And can you  
7 speak into the mike, because people  
8 cannot --

9 DR. MARTIN: The amount of oil  
10 that's in and around the Persian Gulf is  
11 orders of magnitude beyond anything  
12 anywhere else in the world. What we're  
13 talking about with the three or four  
14 layers of organic shale under the  
15 Allegheny Plateau is kind of on the order  
16 of the oil that was discovered in North  
17 Slope, Alaska. They got about 20, 25  
18 years. It's starting to wind down and  
19 going to the next place.

20 So it's a second tier, second  
21 tier of -- the question was magnitude.  
22 The magnitude is the second tier from  
23 Saudi Arabia, but similar to Alaska,  
24 similar to Beaumont, to Spindletop in  
25 Texas.

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2 COUNCILMAN JONES: Is that  
3 agreed upon by all of the panelists?

4 DR. BOUFADEL: Well, in terms  
5 of -- I know that what we read, it says  
6 that it could support the U.S. for two  
7 years.

8 COUNCILMAN JONES: So it's big.

9 DR. BOUFADEL: It's big.

10 COUNCILMAN JONES: We're  
11 talking real money here, right?

12 DR. VELINSKY: What I said, the  
13 amount is 500 trillion cubic feet of gas,  
14 and it is about 20 years of supply.  
15 Maybe I'm off on that one, but I think  
16 it's -- there's 500 trillion cubic feet  
17 of gas in the Marcellus that they think  
18 is obtainable. They haven't actually  
19 obtained it, so they don't really know.

20 COUNCILMAN JONES: And I know  
21 later on we're going to hear from the  
22 drillers, but we're going to make a lot  
23 of millionaires; is that correct? Is  
24 that right?

25 DR. VELINSKY: I didn't hear.

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2 COUNCILMAN JONES: We are going  
3 to make a lot of people rich; is that  
4 correct?

5 DR. BOUFADEL: Yes.

6 DR. VELINSKY: That's a fair  
7 assumption.

8 COUNCILMAN JONES: People on  
9 the radio can't see a head nod.

10 DR. VELINSKY: Yeah. I'd say  
11 it sounds reasonable.

12 COUNCILMAN JONES: So my --

13 DR. MARTIN: We will not only  
14 make -- excuse me -- a lot of people  
15 rich, but we will restore the economy of  
16 ordinary people in the central PA.

17 COUNCILMAN JONES: And some  
18 people are going to get some jobs.

19 DR. MARTIN: Everybody is paid  
20 in this. Everybody.

21 COUNCILMAN JONES: Everybody  
22 gets paid, but the question becomes, are  
23 we taking the steps -- because it's not  
24 like the resources aren't there -- to do  
25 the proper planning and proper studying?

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2 If we're talking about major reward, can  
3 we be a little cautious and deliberate in  
4 our planning of taking this resource from  
5 the earth and making sure that  
6 everybody -- it's a win-win scenario?

7 Does everybody agree --

8 (Applause.)

9 DR. VELINSKY: Yes.

10 COUNCILMAN JONES: Wait a  
11 minute. So everybody agrees that we  
12 should be taking all appropriate steps to  
13 make sure that we are safeguarded? So we  
14 do agree on those two principles?

15 DR. MARTIN: Yes.

16 COUNCILWOMAN BROWN: All three  
17 didn't say yes, though.

18 COUNCILMAN JONES: All three  
19 said yes?

20 DR. MARTIN: Yes.

21 DR. VELINSKY: Yes.

22 DR. BOUFADEL: Yes.

23 COUNCILWOMAN BROWN: Okay.

24 COUNCILMAN JONES: Now, with  
25 that, there were some interesting charts

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2 and graphs, and you had some conclusions,  
3 but I did not see them in your -- and  
4 recommendations in your testimony. Was  
5 it in there?

6 DR. BOUFADEL: In the printout?

7 COUNCILMAN JONES: Your  
8 recommendations.

9 DR. BOUFADEL: They should have  
10 been, yes.

11 COUNCILMAN JONES: All right.

12 In your presentation from the  
13 Academy, Doctor, you mentioned what was  
14 in the actual solution that goes into the  
15 ground.

16 DR. VELINSKY: Yes.

17 COUNCILMAN JONES: And it was  
18 some fairly scary stuff.

19 DR. VELINSKY: Yes.

20 COUNCILMAN JONES: Of which,  
21 which ones of those chemicals concerns  
22 you most? Is it the salt? Is it --

23 DR. VELINSKY: I think it's the  
24 sum -- for me right now, just without  
25 going and knowing the biological impact

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2 of every individual chemical, it's the  
3 sum total, the total dissolved solids.  
4 It's 80,000 milligrams per liter of  
5 dissolved salts in the water compared to  
6 a background of maybe 100 to 200  
7 milligrams per liter. So that if you  
8 were to take, for instance, even road  
9 salt, that kind of thing, and put it into  
10 a small stream, the various organisms  
11 would just go belly up.

12 COUNCILMAN JONES: So do we all  
13 agree -- and I'm trying to get on the  
14 things we do agree -- that those  
15 chemicals that were listed by you are in  
16 the solution that all of these 50 or so  
17 drillers use? Because I understand some  
18 people don't even list what the chemicals  
19 are because there's some patent  
20 protection.

21 DR. VELINSKY: The chemicals  
22 that I listed in my second chart were  
23 ones that came out of the frack water of  
24 sort of after dissolution or leaching of  
25 the shale. Those aren't in the solution

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2 that went down.

3 COUNCILMAN JONES: So that's

4 what came back.

5 DR. VELINSKY: That's what came

6 back. And the level of dissolved solids

7 varies from one well to another. What I

8 showed is maybe one well. It's not

9 indicative of every single well.

10 COUNCILMAN JONES: So is there

11 a uniform solution that all people that

12 are drilling use?

13 DR. MARTIN: They all put --

14 this is going for 50-year development of

15 the practice. Given that, there are

16 certain functions that the chemicals that

17 they add provide, that they don't do it

18 just to do it. They have a reason for

19 doing it and they solve a problem.

20 They have to put in some sort

21 of biocide to keep -- we've injected air

22 into there -- to keep bacteria from

23 blocking the pores. They have to put in

24 the sand to hold up the things.

25 So probably I would imagine

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2 that most of the drillers put in the same  
3 mix, but they all have the same set of  
4 things they want to accomplish with the  
5 mix. So a possible scenario that I'm  
6 pretty sure all my colleagues would agree  
7 with me is do like surface industries  
8 have done, find ways to accomplish  
9 something with less toxic material. That  
10 would be a direction to go in.

11 COUNCILMAN JONES: I appreciate  
12 your comment, but my question is, is  
13 there a standard knowledge of what we are  
14 putting in the ground by driller to  
15 driller?

16 DR. VELINSKY: I think the gas  
17 company representative could answer that  
18 better, but from what I understand, each  
19 driller uses their own proprietary  
20 solution. They're all slightly  
21 different. Some contain the same  
22 chemical, the biocide, but they're all  
23 slightly different. I do not know  
24 exactly what all the little chemicals are  
25 that are put in.

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2 DR. MARTIN: I would agree with  
3 that totally.

4 DR. BOUFADEL: And it depends  
5 on the drillers themselves. So you could  
6 have -- it's not on the company that is  
7 actually hiring the driller.

8 But in terms of contaminants,  
9 there are endocrine disruptors. I think  
10 these are -- those should be major  
11 concern, because there are a small  
12 concentration. They are very important.  
13 I mean, they could enter into a stream  
14 and them feminize the male fish. And  
15 it's not like at one part per million or  
16 one part per billion. You could have one  
17 kind of drop in trillion and then they  
18 could be potent in the environment.

19 So I think these are the things  
20 that for Philadelphia we should be maybe  
21 concerned about the most. There's no  
22 doubt for quality of our water, I agree  
23 with Dr. Velinsky that these are solid.  
24 They're going to be affecting the streams  
25 far from here, and then eventually there

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2 would be deterioration. But I think  
3 these particular compounds that are  
4 still -- that could be potent at very low  
5 concentrations should be top of our  
6 priority.

7 COUNCILMAN JONES: Even though  
8 they don't tell the public, do they tell  
9 someone, some regulatory agency, that  
10 this is what I'm putting in the ground so  
11 that you know?

12 DR. MARTIN: Yes. It's on the  
13 well record that's filed at the DEP, that  
14 they have to list the materials they put  
15 in. They don't necessarily have to put  
16 in the concentrations. But that's in the  
17 public record for every well that's  
18 drilled.

19 COUNCILWOMAN BROWN: Point of  
20 information, Mr. Chairman.

21 DR. MARTIN: We injected this,  
22 we injected that, we injected so many  
23 barrels of water, such-and-such a  
24 chemical mix and so forth. What is not  
25 fully disclosed -- some of them are

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2 disclosing -- are the concentrations, but  
3 the contents are there.

4 COUNCILMAN JONES: Councilwoman  
5 Reynolds Brown.

6 COUNCILWOMAN BROWN: Point of  
7 information, Mr. Chairman. For  
8 further -- in an attempt to further  
9 clarify your question, so are we hearing  
10 that there are no standard protocols, if  
11 you will, that the public is uniformly  
12 made aware of?

13 DR. MARTIN: Absolutely.

14 (Applause.)

15 DR. VELINSKY: I don't think  
16 so. And to go a little bit farther --

17 COUNCILWOMAN BROWN: The answer  
18 is no to that question?

19 DR. MARTIN: No.

20 COUNCILWOMAN BROWN: There are  
21 no protocols, one. And, two, the public  
22 is not uniformly made aware of whatever  
23 the substance they're getting at the end  
24 of the drill? Because I'm trying to  
25 climb this mountain in learning.

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2 DR. VELINSKY: That's correct.

3 And one of the things is that the  
4 drillers may say we're putting a chemical  
5 in and they give you the trade name, but  
6 they don't tell you the specific  
7 chemical. Is it ethylene glycol at five  
8 percent. Is it whatever chemical to -- a  
9 specific chemical. They tell you a  
10 generic name that they came up with.

11 DR. MARTIN: I'll amend my  
12 statement to confirm with that. They are  
13 putting in what they're doing. It is not  
14 the specific chemical formula, and that  
15 may be behind a trade name. I correct my  
16 statement.

17 COUNCILWOMAN BROWN: Very  
18 helpful.

19 COUNCILMAN JONES: I agree.  
20 That is, to say the least, one of the  
21 things that we're going to pay particular  
22 attention to, some type of right to know  
23 and some type of uniformity among  
24 drillers.

25 If you're talking about 50

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2 different companies and 50 different  
3 soups, we need -- this Councilwoman right  
4 here did menu labeling on food. I think  
5 at least that on chemicals going into the  
6 earth might be something that we look at.

7 I want to change gears a little  
8 bit and talk about the microorganisms,  
9 and I want to thank all of you for  
10 helping to make laypersons understand  
11 this process, because I want to make sure  
12 that -- there are three doctors there. I  
13 don't think there's an engineer or doctor  
14 here. So thank you for helping us to  
15 understand, but in my limited  
16 understanding, you're putting pressure  
17 into the ground to create and ferret the  
18 gases to rise to the top, and in that  
19 fracturing, you have what look like on  
20 some of your illustrations hundreds of  
21 cracks and crevices that this gas is  
22 lodged in between.

23 What percentage of the  
24 extracted chemical actually comes back  
25 once you put it down?

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2 DR. MARTIN: Almost none. The  
3 chemicals that are added are organic.  
4 I'm not --

5 COUNCILMAN JONES: Speak into  
6 the mike, please.

7 DR. MARTIN: Sure. The  
8 chemicals that are added are mostly  
9 organic materials, and so they're  
10 absorbed by the organic material. The  
11 return water issue is, as my colleagues  
12 have said, the natural fossil brine  
13 that's coming up. But the material  
14 that's injected in controlled amounts --  
15 and I'm not trying to say I understand  
16 exactly what it is -- is all, from a  
17 scientific point of view, organic  
18 compounds, which are sorbed onto the  
19 organic shale.

20 COUNCILMAN JONES: Will the  
21 other panelists -- do you agree with that  
22 or is there a contrary point of view?

23 DR. BOUFADEL: I mean, we don't  
24 have any data to indicate that they get  
25 absorbed to the shale layer. I think

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2 usually when -- it's like passing water  
3 through your filter. If you pass it very  
4 slowly, yes, you could clean the water,  
5 but then if you pass it very fast,  
6 there's a chance that maybe half of the  
7 water will be cleaned, the other half is  
8 not.

9 So we don't know really. I  
10 mean, we don't know how long the contact  
11 time between the injected water and the  
12 shale, and based on that, I doubt that  
13 most of it will be absorbed to the shale.

14 (Applause.)

15 DR. VELINSKY: I think part of  
16 your question was how much water comes  
17 back. I think it's variable. I don't  
18 think all -- three million gallons go  
19 down. I don't think three million  
20 gallons come out right away. I think  
21 some of it stays down there. Some of it  
22 comes back slowly. Some of it comes back  
23 right away.

24 As to the point of the organic  
25 chemicals, most of the ones that I do

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2 know of have what they call low  
3 partitioning to organics, to other  
4 organics. So they'll stay within the  
5 water. They will not partition to an  
6 organic matrix. They'll stay dissolved  
7 in the water. Like ethylene glycol, that  
8 will stay in dissolved.

9 COUNCILMAN JONES: I want to  
10 hit another topic of the microorganisms  
11 that are impacted by the solution, and  
12 from my daughter's point of view, who is  
13 an ergonomist, that these interactions  
14 between microorganisms are very important  
15 to the ecosystem. What does this do to  
16 that?

17 DR. VELINSKY: In the surface  
18 water, in the streams adjacent?

19 COUNCILMAN JONES: Well, in the  
20 fracking.

21 DR. VELINSKY: Well, I mean,  
22 basically -- I think getting to the point  
23 of some of the -- well, first off, the  
24 microorganisms are what produce the gas  
25 to begin with way back when. I don't

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2 know if that's what your question was.

3 COUNCILMAN JONES: That's one  
4 of the things.

5 DR. VELINSKY: And the second  
6 point is that if these -- now we're going  
7 up to the surface water. If some of  
8 these streams are impacted to where the  
9 total dissolved solids or specific  
10 chemicals hinder their growth, these  
11 microorganisms, you'll get less removal  
12 of nutrients from that stream system.  
13 Certain processes that -- these  
14 microorganisms need to have a nice good  
15 environment for them to process, let's  
16 say, nitrogen to remove it. Otherwise,  
17 you'll get this protection of that -- of  
18 the source water or the Upper Delaware  
19 will be reduced and you'll have to start  
20 treating the water down here more.

21 COUNCILMAN JONES: Thank you.

22 Are there any other questions?

23 COUNCILWOMAN BROWN: Yes.

24 COUNCILMAN JONES: Yes.

25 Councilwoman Brown.

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2 COUNCILWOMAN BROWN: Let me  
3 thank you all for your extraordinary  
4 expertise and teaching us as we go down  
5 this road on what's going to be  
6 appropriate and correct at the end of the  
7 day.

8 In the interest of full  
9 disclosure, I should state for the record  
10 that on March 25th of this year, I  
11 introduced a resolution calling on the  
12 Delaware River Basin Commission to halt  
13 the fracturing until we have a full  
14 environmental impact assessment.

15 (Applause.)

16 COUNCILWOMAN BROWN: What I am  
17 excited about is that Councilman Jones  
18 has actually taken this to the next level  
19 where we now dissect why we need to do  
20 this.

21 (Applause.)

22 COUNCILWOMAN BROWN: So with  
23 that said, I always want to look at  
24 lessons learned.

25 When we look at the debacle,

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2 travesty that we saw in the Gulf, what  
3 are the lessons learned as we look to  
4 plan and look forward with the proposals  
5 around Councilman Jones' resolution?  
6 What is the number one or two lessons  
7 learned? I'd like to hear from each of  
8 you.

9 DR. VELINSKY: I mean, to me I  
10 think what Dr. Boufadel had as his third  
11 slide on that Precautionary Principle,  
12 that's the lesson learned. I mean, we  
13 need to think -- there is this potential.  
14 We need to understand it, to get the  
15 scientific information and put the  
16 regulations and the programs in place  
17 that will limit any impact. We don't  
18 know all the impacts. We won't know for  
19 a while, but we need to plan as if  
20 there's going to be impacts so we can  
21 minimize those as best as possible.

22 COUNCILWOMAN BROWN: Thank you.

23 Sir?

24 DR. BOUFADEL: I think -- I  
25 mean, surely I agree with what

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2 Dr. Velinsky said, but I also think in  
3 terms of studies, sometime we hear like  
4 there's the EPA study. So let's wait  
5 until that is done. There's also studies  
6 that is earmarked.

7 I think we need to start  
8 studies now, and they don't have to be  
9 really grand. They don't have to be \$5  
10 million studies. The criminalist thing  
11 is the way we learn about things, we  
12 learn little by little. I mean, we don't  
13 take a kid until they are tenth grade and  
14 then we give them ten books and say,  
15 Okay, now go ahead and learn. We teach  
16 them little by little, and that's what we  
17 need to do. We need to learn as much as  
18 we can from anywhere.

19 Some of the questions  
20 mentioned, for example, now, that could  
21 be dealt with within a month, and then we  
22 would know how much of the organics stay  
23 or don't stay and et cetera for other  
24 issues.

25 So I feel like we need to

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2 initiate studies immediately, and they

3 don't have --

4 (Applause.)

5 COUNCILWOMAN BROWN: And let me

6 attempt to get clarity from your answer.

7 When you say "we," who is "we"?

8 DR. BOUFADEL: I mean, the

9 community, anyone that is interested,

10 anyone who is trying to understand what's

11 happening, maybe the City of

12 Philadelphia.

13 COUNCILWOMAN BROWN: Including

14 the industry potentially?

15 DR. BOUFADEL: Including the

16 industry. Actually, I mean -- because I

17 deal with oil spills, I meet with many --

18 there are -- it's interesting, because

19 the oil industry is always viewed in a

20 certain way. However, the oil industry

21 has put a lot of effort into preventing

22 oil spills, and there are conferences

23 organized by oil industries to deal with

24 oil spills.

25 I think we should have

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2 something similar maybe by the gas  
3 industry where the scientists, not the  
4 policymakers, but the scientists share  
5 ideas and which is the better -- for the  
6 better of everyone.

7 COUNCILWOMAN BROWN: What value  
8 might there be in a study where there's a  
9 collective set of stakeholders?  
10 Councilman Jones is suggesting university  
11 community, the industry, the  
12 environmentalists, citizens who have to  
13 cope with this at the end of this road  
14 versus one particular world. Because so  
15 typically, if it's one world, then the  
16 opposition world, those are hands down on  
17 it.

18 What's your view or take on  
19 that?

20 DR. BOUFADEL: Well, I think  
21 that's definitely the best way to go  
22 about it, to have studies that we have  
23 many stakeholders. There are sometimes  
24 advantages for having entities such as  
25 universities and Academy involved in

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2 these studies, because the goal is,  
3 there's no liability. The EPA study most  
4 likely will -- we will hear nothing until  
5 it is done three years from now, whereas  
6 for studies conducted by any of us, you  
7 know, as far as we get data, we would  
8 just share them, because that's what we  
9 do.

10 COUNCILWOMAN BROWN: Thank you.  
11 Sir, please.

12 DR. MARTIN: Well, I think the  
13 university research is a wonderful thing,  
14 but the question you asked was BP versus  
15 Marcellus Shale. Let's go back over the  
16 BP thing. What went wrong? First, a  
17 horrible amount of arrogance to say that  
18 you could predict, project what you did  
19 at shallow levels to a mile and do no  
20 tests of any form. Things failed under a  
21 mile deep that had never been tested  
22 anywhere close to that. So they  
23 basically dismissed the engineering  
24 community. This is what we do.

25 COUNCILWOMAN BROWN: Who is

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2 "they"?

3 DR. MARTIN: BP.

4 Second, the BP spill issue came  
5 about through contractual after UL fawns  
6 (ph) kind of stuff. BP said it owned it,  
7 these guys owned it. Nobody had  
8 responsibility. It was button, button,  
9 who got the button? The whole  
10 contractual responsibility, it took the  
11 Coast Guard a week to figure out who  
12 actually owned it. So that's a  
13 contractual thing, how you do things.  
14 Those two things made it all a disaster.  
15 Arrogance and doing something far beyond  
16 putting a man on the moon without ever  
17 sending up John Glenn for suborbital.  
18 That's essentially what they did.

19 So these are not scientific.  
20 These are ordinary practice things, how  
21 you do. PWD scales up carefully from one  
22 system to another.

23 Now, the problems that we've  
24 had in the Marcellus, including one was  
25 an explosion in Clearfield County, was

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2 exactly the same, that nobody knew who  
3 was responsible. A bunch of amateurs  
4 came in and did this. It had nothing to  
5 do with science. It had something to do  
6 with contractual law and inspections into  
7 ordinary care stuff.

8           So if you're going to connect  
9 BP and Marcellus, the situation, the  
10 reform -- much as I love scientific  
11 research, we're all brothers in this, the  
12 reform of how you're disclosing who is  
13 responsible for what, how you prove that  
14 what you've done, I will go back to my  
15 story that Marcellus Shale -- not  
16 Marcellus Shale; the hydro-fracking is 50  
17 years old. In Texas, they developed the  
18 idea of the hydro-fracturing compared  
19 with the directional drilling. Lots of  
20 problems happened there. They figured  
21 them out.

22           So what I'm trying to say is,  
23 the engineering capability to do this is  
24 there, but it's pretty obvious that  
25 nobody knows how the work is contracted

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2 through subcontractors or something and  
3 we've already had one problem. But it's  
4 a smaller scale -- I don't mean to  
5 denigrate the people in Clearfield  
6 County -- of exactly what happened at BP.  
7 Keep in mind, remember when the spill  
8 happened, nobody knew who owned it.  
9 Nobody knew who was responsible.

10 COUNCILWOMAN BROWN: No one  
11 knew who was in charge, would you agree?

12 DR. MARTIN: Yes. So it was  
13 contractual, legal, not scientific.

14 DR. BOUFADEL: If I may --

15 COUNCILWOMAN BROWN: Could I do  
16 a follow-up, please, sir, before you --  
17 I'd be happy to hear from you.

18 In your opening statement --  
19 I'm trying to find the quote so I cannot  
20 misrepresent here -- you said -- your  
21 very opening statement. Do you remember  
22 what you said in your very opening  
23 statement?

24 DR. MARTIN: I don't have a  
25 written one. I said if everything goes

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2 right, this is what will happen.

3 COUNCILWOMAN BROWN: You used  
4 the word "if," which -- I cannot find it.

5 COUNCILMAN JONES: Let me help.

6 COUNCILWOMAN BROWN: Please.

7 COUNCILMAN JONES: If  
8 everything went right, this is the  
9 benefit. Real quick, if things go wrong,  
10 what would be your nightmare?

11 DR. MARTIN: My nightmare would  
12 be the spill of frack liquid when it's  
13 being carried from a site to some sort of  
14 a treatment. People do get in accidents,  
15 trains do derail, things like that. The  
16 nightmare is nightmares. Everything is  
17 fairly controlled at the site if we fix  
18 these contractual issues. The state has  
19 monitors. Maybe they don't have enough,  
20 but the nightmare that I have is carrying  
21 a million gallons of frack water. When  
22 they finish an area to recycle it and  
23 it's too salty to deal with, it's being  
24 carried. Then we are dealing with a  
25 low-level variation of how do we move

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2 nuclear waste casts in Nevada. That's my  
3 nightmare of a spill of salt water on the  
4 road.

5 COUNCILMAN JONES: All right.  
6 We're going to move along. I want to  
7 thank you all for your insights, and we  
8 will use them, as my colleague says, as  
9 lessons learned and recommendations  
10 taken.

11 Would you, Clerk, introduce the  
12 next panel.

13 THE CLERK: Kathryn Klaber,  
14 Marcellus Shale Coalition; Bernard  
15 Brunwasser, the Philadelphia Water  
16 Department; and Craig White, Philadelphia  
17 Gas Works.

18 (Witnesses approached witness  
19 table.)

20 COUNCILMAN JONES: Thank you.  
21 We have two mikes for three people, so  
22 you can begin your testimony. Please  
23 read your name into the record.

24 COMMISSIONER BRUNWASSER: Good  
25 morning, Chairman Jones and members of

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2 the Joint Committees of Transportation  
3 and Public Utilities and the Environment.  
4 I am Bernard Brunwasser, Philadelphia  
5 Water Commissioner, and I'm here to  
6 testify on Resolution 100515.

7 I have some of my experts in  
8 the back, including Deputy Commissioner  
9 for Environmental Services, Howard  
10 Neukrug, and the Department's Director of  
11 Planning and Research, Dr. Christopher  
12 Crockett, and also Ms. Kelly Anderson,  
13 who is our Manager of Source Water  
14 Protection. They're all recognized  
15 experts in their field.

16 I'm going to vary a bit from my  
17 written statements, which I believe you  
18 already have.

19 Philadelphia Water Department's  
20 core mission is the provision of safe,  
21 high-quality drinking water to its nearly  
22 two million customers in the Philadelphia  
23 region. Philadelphia's drinking water  
24 sources are the Delaware and Schuylkill  
25 Rivers, and our pledge to our customers

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2 extends to the stewardship of our  
3 region's water resources.

4 To this end, our department has  
5 closely followed the discussions  
6 surrounding natural gas drilling to  
7 better develop our understanding of the  
8 full range of land and water resource  
9 impacts drilling might have.

10 We have been active, full  
11 partners in the Marcellus Shale  
12 discussion. Please do not mistake our  
13 rigorous scientific approach for  
14 nonchalance. We are pragmatic in our  
15 understanding that gas drilling, when  
16 done properly, can offer many economic  
17 and clean energy benefits. But we are  
18 also vigilant in our insistence that  
19 drilling is managed with all of the  
20 necessary regulations and oversight in  
21 place to protect our watershed  
22 environment.

23 We would like to acknowledge  
24 the extraordinary efforts that the  
25 Pennsylvania Department of Environmental

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2 Protection and the Delaware River Basin  
3 Commission have already put towards  
4 ensuring that natural gas extraction is  
5 both economically beneficial and  
6 environmentally responsible. The Water  
7 Department also greatly appreciates our  
8 environmental partners, including  
9 American Rivers, the Delaware  
10 Riverkeepers and a variety of public and  
11 educational institutions, that raise  
12 public awareness around drinking water  
13 issues. We embrace public engagement as  
14 an incredible opportunity and a teaching  
15 moment, particularly today, for all  
16 environmental challenges.

17 As many of you are aware, the  
18 Water Department will be investing nearly  
19 \$2 billion over the next 25 years to  
20 manage storm water as a natural resource  
21 and to revitalize our precious rivers and  
22 streams. For this investment to be  
23 sustained and treasured, we need all  
24 citizens to demand and understand the  
25 challenges and costs involved with

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2 providing access to safe drinking water  
3 for all.

4 The Water Department has been a  
5 leader in watershed protection since the  
6 1860s when the Fairmount Park System was  
7 formed to protect the Schuylkill River  
8 from pollution. Today, watershed  
9 protection is a core function of the  
10 Department, as we have championed  
11 regional watershed planning with our  
12 upstream municipalities and counties to  
13 develop a holistic plan that addresses  
14 water quality and quality of life for  
15 everyone in the Delaware and Schuylkill  
16 watersheds. We have completed drinking  
17 water protection plans that look at the  
18 chronic and acute impacts of such things  
19 as new development and redevelopment and  
20 the impact of clearing natural lands,  
21 acid mine drainage, aging sewer  
22 infrastructure, agricultural practices on  
23 water quality, volume demand in growing  
24 communities and utilities, accidents and  
25 spills involving hazardous material. We

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2 do this every day. Natural gas drilling  
3 is just one more potential water quality  
4 challenge, albeit a very important one,  
5 that has been added to our watershed  
6 management strategy.

7 I'd like to share just a few  
8 examples of the actions that the Water  
9 Department has taken or is currently  
10 engaged in to gain a better understanding  
11 of the potential impact of Marcellus  
12 Shale and to ensure that the appropriate  
13 protection measures are in place.

14 First, the Water Department has  
15 communicated and is in continual  
16 discussion with the EPA and the  
17 Pennsylvania Department of Environmental  
18 Protection, or PADEP, concerning its  
19 water supply issues relating to Marcellus  
20 Shale drilling, particularly the disposal  
21 of wastewater and degradation of water  
22 quality due to land clearing and  
23 compaction of land. We are a member of  
24 the DRBC's monitoring -- Delaware River  
25 Basin Commission's Monitoring Advisory

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2 Committee, which is discussing monitoring  
3 strategies to capture any effects of  
4 drilling, and we chair the DRBC's Toxics  
5 Advisory Committee.

6 PWD, the Water Department, is  
7 currently maintaining and planning for  
8 the expansion of the Delaware Valley  
9 Early Warning System, a one-of-a-kind  
10 communication tool and spill response  
11 information and monitoring system  
12 developed by the Water Department for the  
13 Delaware River Basin. That's been in  
14 place since the middle of this decade.

15 The Water Department is  
16 encouraging DRBC to require drill pad  
17 operators and all parties with permits  
18 relating to natural gas extraction and  
19 disposal to join and participate in the  
20 Delaware Valley Emergency Warning System.  
21 The PWD is developing partnerships with  
22 academic institutions to perform research  
23 surrounding Marcellus Shale drilling  
24 activities and water quality impacts.  
25 Also, the Department is installing

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2 monitoring equipment at its Baxter Water  
3 Treatment Plant on the Delaware to track  
4 sodium chloride levels in the river,  
5 which may help indicate the impact of  
6 drilling wastewater. We are also  
7 evaluating how to monitor other  
8 shale-related parameters at the plant.

9 Finally, we are participating  
10 in a Water Research Foundation workshop  
11 in October focusing on bringing together  
12 regional and national water suppliers,  
13 regulators and the scientific community  
14 to identify potential risk assessment  
15 projects associated with natural gas  
16 drilling. The workshop is intended to  
17 improve the understanding of, A, the  
18 potential risks of hydraulic fracturing  
19 and associated natural gas development  
20 activities to drinking water supplies,  
21 and, B, strategies for reducing or  
22 eliminating any such identified risks.

23 You can rest assured that we  
24 will continue to be a leader in watershed  
25 protection and to uphold our pledge to

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2 our citizens to provide them with safe,  
3 top-quality drinking water and to protect  
4 and preserve the water resources of our  
5 region.

6 That ends my informal  
7 testimony.

8 COUNCILMAN JONES: I'm sorry.  
9 Did you use "workshop"? Could you  
10 restate that for people who may have  
11 missed that, and when they can have  
12 audience participate in that.

13 COMMISSIONER BRUNWASSER: We  
14 are participating in a Water Research  
15 Foundation workshop in October focusing  
16 on bringing together regional and  
17 national water suppliers, regulators and  
18 the scientific community to identify  
19 potential risk assessment projects  
20 associated with natural gas drilling.  
21 The workshop is intended to improve the  
22 understanding of the potential risks of  
23 hydraulic fracturing and associated  
24 natural gas development activities to  
25 drinking water supplies, and strategies

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2 for reducing or eliminating any such  
3 identified risks.

4 COUNCILMAN JONES: We would be  
5 interested -- it's nice for elected  
6 officials to have hearings like this. It  
7 informs the public. It is equally, if  
8 not more, important for practitioners  
9 like yourself to get together to give us  
10 that information. So I would like to  
11 make sure that we have a balance of  
12 people that are reviewing this and  
13 participating in that. So it's important  
14 to get that out to the public and those  
15 interest groups that might want to  
16 participate in that.

17 We'll hold questions for you  
18 until we hear from the other panelists.

19 COMMISSIONER BRUNWASSER: Sure.

20 MS. KLABER: It's just about  
21 good afternoon. Councilman Jones,  
22 members of Council, thank you for the  
23 opportunity to appear here today. My  
24 name is Kathryn Klaber and I'm President  
25 of the Marcellus Shale Coalition. The

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2 MSC was formed in 2008 and has since  
3 grown to include more than 130 members  
4 representing the majority of companies  
5 now operating in the Marcellus. We are a  
6 young organization, vibrant and growing,  
7 a reflection of the growing recognition  
8 of the benefits, economic and  
9 environmental, that Marcellus brings to  
10 Pennsylvania's business and residents.

11 The Marcellus Shale Coalition  
12 was founded to advocate the responsible  
13 development of natural gas from the  
14 Marcellus Shale geological formation in  
15 Pennsylvania and the enhancement of the  
16 Commonwealth's economy that can be  
17 realized by this clean-burning energy  
18 source. The members of the Coalition  
19 work with our partners across the  
20 Marcellus play to address issues with  
21 regulators, with government officials and  
22 the people of the Commonwealth about all  
23 aspects of producing natural gas from the  
24 Marcellus Shale formation. All of us are  
25 dedicated to developing natural gas

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2 resources safely and responsibly for the  
3 benefit of Pennsylvanians.

4 I welcome any chance to return  
5 here to Philadelphia where I started my  
6 career and family, living right down  
7 Market Street in Old City. When I worked  
8 in the environmental field at that time,  
9 not knowing where I would find myself  
10 more than a decade later, it was  
11 commonplace in the five-county  
12 Philadelphia area to look for  
13 opportunities to replace fuel oil with  
14 natural gas in order to meet our emission  
15 standards. I wrote those permit  
16 conditions, and companies applied them,  
17 even at a time when natural gas prices  
18 were high. Now that natural gas prices  
19 nationally are low and stable, a result  
20 of significant supply from shale gas  
21 development across the nation, the use of  
22 clean-burning natural gas becomes even  
23 more viable for a city like Philadelphia.

24 Given the economic and  
25 environmental issues to be addressed at

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2 today's hearing, I wanted to provide you  
3 with some details in my related  
4 background.

5 While in college in central  
6 Pennsylvania, created a major that was  
7 not yet common on campuses, Environmental  
8 Science, and through my coursework and  
9 two summers of research funded through  
10 the Katherine Mabis McKenna Foundation on  
11 water quality in the Chesapeake Bay,  
12 gained an early appreciation of the  
13 critical importance of water quality in  
14 our Commonwealth.

15 Spending the next ten years in  
16 the environmental field and around the  
17 nation, I obtained hands-on experience in  
18 permitting, designing and installing  
19 environmental treatment technologies for  
20 a wide range of industries. Combined  
21 with a Master's in Business  
22 Administration at CMU and seven years in  
23 public policy and economic development  
24 with the Allegheny Conference and the  
25 Pennsylvania Economy League, these

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2 experiences formed the foundation and my  
3 passion for working in this place at this  
4 time in the development of the Marcellus  
5 Shale, and I'm privileged to be here and  
6 talk about this topic here today.

7 The natural gas industry is  
8 bringing huge investment capital and the  
9 associated job creation to Pennsylvania.  
10 The Marcellus presents a very special  
11 opportunity for all of us in the  
12 Commonwealth, and we must take care to  
13 foster this development with modernized  
14 statutes in a competitive, secure,  
15 regulatory framework. We also must  
16 continue to keep public safety and  
17 environmental protection as the  
18 cornerstone of how we conduct business.  
19 With the industry's contribution of more  
20 than \$1 billion in revenue to state and  
21 local governments this year alone, there  
22 is a lot riding on our collective  
23 deliberations and actions.

24 Many of you have heard the  
25 results of the analysis that the Penn

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2 State University researchers conducted  
3 for the industry last year. It projected  
4 more than eight billion in annual  
5 economic value and nearly 90,000 jobs  
6 created by Marcellus development to date.  
7 And whereas this macroeconomic assessment  
8 is important for many uses, it does not  
9 capture by, in and of itself, the hearts  
10 and minds of Pennsylvanians. It will  
11 take the direct experience of thousands  
12 of landowners who are collecting  
13 revenues, and 1.8 billion in fact was  
14 collected by landowners in Pennsylvania  
15 in 2008 alone. It will take stories of  
16 family members and neighbors and  
17 good-paying jobs in the industry and its  
18 supplier companies.

19 Several months ago at a United  
20 States steel facility in the Monongahela  
21 River Valley, which is south of  
22 Pittsburgh, businessowners from trucking  
23 companies to steel to coding, many  
24 suppliers told their stories, how their  
25 companies are growing jobs and making

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2 investments in Pennsylvania because of  
3 new business from Marcellus development.

4 We spent some time out here  
5 with the Delaware Valley Industrial  
6 Resource Center working with their  
7 members to understand where the  
8 manufacturing opportunities are in this  
9 industry.

10 There are firms growing in  
11 Philadelphia to serve our industry,  
12 environmental consulting firms, law  
13 firms, water management companies and  
14 pipeline firms. There are many benefits,  
15 including the cost of energy, the home  
16 heating benefits in the lower costs, the  
17 electricity, stable costs from gas and  
18 obviously the business costs when it's  
19 more stable to heat your business and to  
20 fire those processes the more competitive  
21 those businesses can be.

22 There are many other issues we  
23 could discuss today, but in the time I  
24 have allotted, I would like to highlight  
25 two that relate directly to safety and

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2 environmental protection - well  
3 construction and hydraulic fracturing and  
4 the water management process.

5 First, well construction. The  
6 development of a well -- and we heard  
7 this from the former panel -- and the  
8 associated casing and cementing of well  
9 bores is a critical process to both the  
10 economic viability of the \$4 million  
11 investment that is being made per well as  
12 well as obviously the safety and the  
13 environmental protection. I encourage  
14 anybody to look at the film on our  
15 website, [marcelluscoalition.org](http://marcelluscoalition.org), that  
16 shows that the technology that's used in  
17 a way that is very enlightening.

18 Industry knows from drilling  
19 thousands of gas wells that the proper  
20 drilling casing and cementing is  
21 essential to secure both the maximum  
22 yield and protect the surrounding water  
23 tables. That's why we worked so closely  
24 with the state Department of  
25 Environmental Protection as the lead

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2 regulatory agency to determine and impose  
3 new regulations and best practices as it  
4 relates to well construction. This issue  
5 has recently been addressed in  
6 significant detail by the state's Oil and  
7 Gas Technical Advisory Board of the DEP,  
8 and that group of regulators, industry  
9 representatives, academia and  
10 representatives of the public interest  
11 spent many hours and multiple sessions  
12 developing a sound approach to updating  
13 25 PA Code Chapter 78 covering the  
14 construction of oil and gas wells. That  
15 rule-making includes numerous  
16 modifications regarding the drilling,  
17 casing, cementing, testing, monitoring  
18 and plugging of oil and gas wells to  
19 enhance the protection of drinking water  
20 supplies. More than 35 Marcellus Shale  
21 Coalition member companies and 85  
22 individuals met with DEP in Harrisburg to  
23 discuss the next step in implementing  
24 these standards and making Pennsylvania  
25 truly world class with respect to how we

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2 construct and regulate natural gas wells.  
3 And the industry itself imposed  
4 implementation of the rules even before  
5 the effective date.

6 An additional item of note  
7 about the Chapter 78 rules relates to the  
8 disclosure of chemicals used in the  
9 development process. Much attention,  
10 rightfully so, has been given by the  
11 media about the content of the fluids  
12 used for hydraulic fracturing, 95.5  
13 percent of which is water and sand, with  
14 the remaining 0.5 percent a mixture of  
15 other compounds. This information has  
16 been available to regulatory agencies,  
17 including the DEP and OSHA, the  
18 Occupational Safety and Health  
19 Administration, for years. But to make  
20 our operations even more transparent,  
21 operators will include information on  
22 their hydraulic fracturing chemicals to  
23 DEP under the new Chapter 78 rules in  
24 each well completion report. So not  
25 generalities, but those chemicals per

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2 well. And this is yet another example of  
3 the fact that these chemicals in fact are  
4 not a secret, but have been and will  
5 continue to be available to regulators in  
6 the public in a more transparent way,  
7 which is certainly what the public  
8 demands and deserves.

9 As you may know from an  
10 announcement made earlier this year by  
11 Governor Rendell, DEP will be hiring even  
12 more staff to help implement these rules.  
13 The Marcellus Shale Coalition issued a  
14 statement following that announcement  
15 earlier this year, and it stated this, in  
16 part: "The Marcellus Shale Coalition has  
17 consistently supported the hiring of  
18 additional DEP staff to monitor natural  
19 gas wells in the Commonwealth, as  
20 reflected in its proactive endorsement of  
21 permit fee increases in 2009 to add and  
22 train new inspectors. Our support  
23 continues with the announcement of an  
24 additional 68 DEP staff dedicated to the  
25 oil and gas program. This sustainable

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2 approach is working and will help to  
3 ensure the continued responsible  
4 development of the Marcellus Shale in  
5 Pennsylvania."

6 The second topic relates to  
7 hydraulic fracturing and water  
8 management. This is another area where  
9 Pennsylvanians deserve to get the facts  
10 about water management for Marcellus  
11 Shale development. The actions of  
12 industry, the regulatory agencies and the  
13 legislature must be based upon these  
14 facts. Furthermore, we must all work  
15 together to make sure certain that we are  
16 responsive to the concerns of the public.

17 The fact is that Pennsylvania's  
18 regulations governing the use and  
19 management of water needed to drill a  
20 Marcellus well are among the most  
21 stringent in the nation and ensure the  
22 protection of the Commonwealth's water  
23 resources. This was confirmed just last  
24 week in the findings of the report by the  
25 national organization Stronger, whose

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2 business is to go state to state and  
3 evaluate the effectiveness of oil and gas  
4 rules in state programs.

5 Water withdrawals from streams  
6 and rivers must be approved, including  
7 the withdrawal location, the amount of  
8 water required, as well as detailed  
9 storage, treatment and management plans.

10 The industry currently treats  
11 or recycles all of its flow-back water.  
12 Many operators have achieved 100 percent  
13 recycle, with an average across the  
14 industry of more than 60 percent.  
15 Recycling greatly reduces the amount of  
16 water that is treated and returned to the  
17 waterways of Pennsylvania and also  
18 reduces the amount of fresh water that is  
19 withdrawn. There are more than a dozen  
20 approved water treatment facilities  
21 available to treat flow-back water, with  
22 plans for additional capacity underway.

23 The industry is committed to  
24 the use of best practices in all aspects  
25 of its operation, including significant

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2 investment in advanced flow-back water  
3 treatment capabilities and recycling  
4 technologies, and will continue to  
5 innovate in this important area for  
6 natural gas production and environmental  
7 protection.

8           With respect to the disclosure  
9 of the components of the fracturing fluid  
10 and notwithstanding statements to the  
11 contrary, this information is available  
12 in multiple places, and would be glad to  
13 answer further questions on that from  
14 what the previous speakers had addressed.

15           Additional information on these  
16 topics can be found at  
17 [marcelluscoalition.org](http://marcelluscoalition.org), as well as  
18 [energyindepth.org](http://energyindepth.org), which has a lot of  
19 additional information on the topics  
20 today.

21           The last thing that I wanted to  
22 address before concluding, is there  
23 methane in private water wells in  
24 Pennsylvania? Absolutely, and there has  
25 been for decades. But the cause is what

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2 we really need to evaluate. The cause is  
3 not Marcellus gas, but the naturally  
4 occurring methane that is so prevalent,  
5 especially in parts of the northern tier  
6 of our Commonwealth. How do we know  
7 that? Well, the Center for Rural  
8 Pennsylvania has done an extensive study  
9 showing approximately 40 percent of the  
10 1.2 million private water wells in  
11 Pennsylvania are contaminated. We are  
12 one of the only states, if not the only  
13 state in the country, that does not have  
14 private water well standards, and I think  
15 that's an important step in conjunction  
16 with ever-more vigilant protections  
17 against spills by the industry, but I  
18 think that what we have to really look at  
19 is how those wells have become  
20 contaminated with methane.

21 The results of the Center for  
22 Rural PA are enforced by the testing that  
23 our members are doing where 25 to 50  
24 percent of the wells that we are --  
25 private water wells we're testing before

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2 entering an area for operation have  
3 pre-existing contamination.

4 This is a cause that is  
5 certainly worthy of our focus, and it is  
6 time for some honest debate about the  
7 cause of that methane in private water  
8 wells in Pennsylvania.

9 In conclusion, I appreciate the  
10 opportunity to appear here today to  
11 discuss these issues relating to the  
12 development in the Marcellus Shale. The  
13 MSC looks forward to continuing to work  
14 with the Council, our partners in  
15 Philadelphia on all the issues that will  
16 be key to responsible and prosperous  
17 development of this resource in the near  
18 future.

19 This concludes my prepared  
20 comments.

21 COUNCILMAN JONES: Thank you.  
22 We appreciate your testimony. Would you  
23 stick around? We're going to ask the  
24 panel questions.

25 Next.

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2 MR. WHITE: Good afternoon,  
3 Councilman and members of the Committee.  
4 My name is Craig White. I'm the  
5 Executive Vice-President and Acting Chief  
6 Operating Officer for the Philadelphia  
7 Gas Works.

8 I have submitted written  
9 testimony. I'm not going to read that,  
10 but I would like to make a few brief  
11 comments.

12 With respect to the issue at  
13 hand, Philadelphia Gas Works shares the  
14 concerns of the Delaware River Basin  
15 Commission, City Council and the public.  
16 We certainly want any of this type of  
17 activity done in a way that is in the  
18 public's best interest.

19 I do want to clarify one point.  
20 The last panel chose to use the term "gas  
21 company." We are a local distribution  
22 company. Typically those individuals or  
23 those entities that are withdrawing gas  
24 or extracting gas are considered  
25 producers. So we are a local

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2 distribution company. We have a network  
3 of over 6,000 miles of pipeline or pipes  
4 within the City of Philadelphia, and we  
5 serve 84 percent of the residential  
6 houses in the City of Philadelphia.

7 The most important factor is  
8 that at the present time and for the last  
9 number of decades, we have purchased all  
10 of our supply from the Gulf Coast region.  
11 That's on shore, off shore, Texas,  
12 Louisiana. We do this purchasing under a  
13 least cost procurement requirement that's  
14 required not only by the state but also  
15 by the city ordinance for the purchase of  
16 gas supply, which is voted on by the City  
17 Council.

18 We have not purchased gas  
19 directly from the Marcellus Shale or the  
20 Barnett or the Fayetteville or the  
21 Haynesville Shale deposits. And there  
22 are more than just the four that I named.  
23 The reason for that is, we have low cost  
24 interstate pipeline capacity on Texas  
25 Eastern and Transcontinental that allows

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2 us to access the cheapest supply at the  
3 present time. But, as I said, we are  
4 under a least cost procurement  
5 requirement, and, of course, if the  
6 future led us to a point where we could  
7 deliver gas to Philadelphia from the  
8 Marcellus Shale at prices much cheaper  
9 than what we're paying now or cheaper  
10 than what we're paying now, we would look  
11 to do that. This is assuming that, of  
12 course, the Marcellus Shale is being  
13 delivered in an environmentally and  
14 correct manner.

15 COUNCILMAN JONES: Could you  
16 repeat that part again.

17 MR. WHITE: Yes. At the  
18 present time, we purchase all of our  
19 supplies in the Gulf Coast region because  
20 of the fact that we can economically  
21 purchase that --

22 COUNCILMAN JONES: I got the  
23 economic part. It was the latter.

24 MR. WHITE: The second part of  
25 that is, at the present time, we do not

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2 purchase any supplies, we have nothing  
3 under contract with any Marcellus  
4 producers, nor do we have any contracts  
5 that would deliver Marcellus gas in the  
6 future.

7 Now, having said that, I would  
8 hope that the Committee would also  
9 understand that the network of interstate  
10 pipelines across this country is a spider  
11 web. The molecules that we purchase are  
12 not necessarily the molecules that we get  
13 delivered. The term we use is, you can't  
14 paint the molecules. So there may be  
15 Marcellus gas delivered into underground  
16 storage fields that we have under  
17 contract that eventually get delivered to  
18 Philadelphia, but the procurement process  
19 and who we are buying gas from at the  
20 present time, as I stated, these are Gulf  
21 Coast, on and off shore, Texas, Louisiana  
22 suppliers.

23 COUNCILMAN JONES: Okay.

24 MR. WHITE: That concludes my  
25 remarks, and I'm here for any questions.

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2 COUNCILMAN JONES: Thank you,  
3 panel.

4 Councilman Greenlee, I'm going  
5 to defer to you. You have not had any  
6 comments.

7 COUNCILMAN GREENLEE: Thank  
8 you, Mr. Chairman.

9 Good afternoon, everyone. My  
10 question is really for Commissioner  
11 Brunwasser. Commissioner, today in the  
12 Inquirer, they talk about this issue and  
13 particularly in comparison to what New  
14 York City does as compared to  
15 Philadelphia, and there's sort of an  
16 intimation -- well, maybe more than  
17 intimation here -- by a couple quotes  
18 that Philadelphia isn't as proactive, if  
19 you will, as New York City, and I know  
20 there's some response in the article, but  
21 maybe for the record could you just  
22 discuss that briefly and say what the  
23 differences here are and do you feel  
24 comfortable you're doing as much, even in  
25 a different way.

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2 COMMISSIONER BRUNWASSER: Sure.

3 That's a good question. The way we  
4 handle our water supply is quite a bit  
5 different than New York. New York is the  
6 first draw on the Delaware River, and  
7 their water is basically pristine. It  
8 comes from the Catskill Mountains. And  
9 so New York over the years has not had to  
10 develop the kind of treatment facilities  
11 that we have here in Philadelphia.

12 We have a tremendous amount of  
13 filtering of our water, which makes it  
14 one of the purest drinking waters in the  
15 country. New York has never had to  
16 filter their water because it came  
17 pristine.

18 Since we are the last draw on  
19 the Delaware and we're at the bottom of  
20 this 13,000 square mile watershed,  
21 Philadelphia has had to develop a  
22 tremendous amount of skill and technical  
23 prowess in the treating of drinking  
24 water.

25 You can see the next time

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2 you're in the Municipal Services  
3 Building, in the basement of the  
4 Municipal Services Building, around the  
5 core of the building is a display of the  
6 history of Philadelphia water, and you  
7 can see how terrible the conditions of  
8 the rivers were at one time, particularly  
9 the Schuylkill, with coal residue getting  
10 into the river and turning the river  
11 virtually black.

12 So we have a lot of experience,  
13 and we also have a great distance at this  
14 moment from Marcellus Shale. The  
15 Marcellus Shale is approximately a  
16 minimum of 100 miles north of  
17 Philadelphia on the Delaware.

18 So we have -- we don't have  
19 quite the concern that New York has. New  
20 York, without all of the filtering and  
21 all of the types of treatment that we  
22 have, would have a problem if this  
23 infiltrated.

24 COUNCILMAN GREENLEE: But you  
25 feel those other protections take care of

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2 this and, like you said, the distance  
3 from Philadelphia? Is that basically it?

4 COMMISSIONER BRUNWASSER: Yes.

5 I mean, we are fortunate. We are quite  
6 concerned about our neighbors to the  
7 north, and our concern -- and that's one  
8 of the reasons we're watching this.

9 We're also, out of an abundance of  
10 caution, we have been very much involved  
11 in this situation and we, as I said, we  
12 have made all of our points known to the  
13 regulatory agencies, and they have been  
14 listening to us.

15 COUNCILMAN GREENLEE: I  
16 appreciate that.

17 Just one more quick question  
18 for Mr. White, if I could. I know you  
19 said you have not at this point dealt  
20 with Marcellus. Do you see a timeframe  
21 where you have to make a decision if you  
22 will or do you feel comfortable that  
23 there's no reason to rush into that?

24 MR. WHITE: Well, I think the  
25 economics of supply and demand are going

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2 to drive that. The price of Marcellus  
3 Shale gas to deliver to Philadelphia is  
4 not economical. There's no direct  
5 connection at this point in time. So to  
6 build new pipeline capacity is very  
7 expensive. The capacity that we have to  
8 the Gulf Coast is very cheap. So we have  
9 a tremendous advantage. Even with  
10 slightly more expensive Gulf Coast  
11 supply, we can actually have it delivered  
12 to Philadelphia at a more economical  
13 price than we could if we were to connect  
14 to some of the new proposed projects for  
15 pipelines.

16 COUNCILMAN GREENLEE: So you  
17 already have that connection?

18 MR. WHITE: We have the  
19 connection to the Gulf Coast.

20 As far as the timeframe, I  
21 wouldn't even venture a guess. The  
22 pricing there, as I said, at the present  
23 time, it's higher, but it could move  
24 quickly.

25 COUNCILMAN GREENLEE: Economics

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2 always place a part, right?

3 MR. WHITE: Yes, sir.

4 COUNCILMAN GREENLEE: Thank  
5 you.

6 Thank you, Mr. Chairman.

7 COUNCILMAN JONES: Thank you,  
8 Mr. Greenlee.

9 Couple of questions. And I  
10 agree that we have come a long way in our  
11 evolution by way of water treatment and  
12 probably are one of the best water  
13 departments in the nation. We've come a  
14 long way.

15 For those of you who are not  
16 from Philly, the nickname of our water in  
17 Philly used to be Schuylkill Punch, but  
18 it's gotten so good that we've even  
19 bottled it at a time and tried to test  
20 the market for that, and maybe in the  
21 future do that, and the idea of this  
22 hearing is to keep it that way.

23 We have had to evolve as a  
24 filtration entity, because we're  
25 downstream. Now, we've had some sidebars

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2 about this, and I want to thank you also.  
3 Your resume from being in EPA gives me  
4 comfort, even if it's in the industrial  
5 side. At least you know your stuff. So  
6 I appreciate you being here.

7 A couple of questions. Now,  
8 you talked about an EWS system, Early  
9 Warning System, that is a part of your  
10 department's natural course of business.  
11 So could you describe what that is for  
12 the public?

13 COMMISSIONER BRUNWASSER: Well,  
14 it's something we were able to put into  
15 place around -- fully put into place, I  
16 guess, in 2005. So we've had it -- 2004,  
17 2005. So we've had it around for about  
18 six years, and we currently have 50  
19 organizations that belong to this. This  
20 is a secure communications and  
21 information-sharing system that we have  
22 on both the Schuylkill and the -- the  
23 Schuylkill watershed and also the lower  
24 Delaware watershed, and the 50 members  
25 are utilities and industries and

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2 different organizations that we are  
3 hooked into through telephone  
4 communications and e-mail that when  
5 anything happens in that river that is of  
6 any consequence, everyone knows about it  
7 as quickly as possible.

8 COUNCILMAN JONES: Do I  
9 understand that to be the Delaware and  
10 the Schuylkill?

11 COMMISSIONER BRUNWASSER: Both,  
12 yes.

13 COUNCILMAN JONES: What  
14 percentage of water do we derive from  
15 each river, and which of them, if not  
16 both of them, come up under or touch  
17 Marcellus Shale?

18 COMMISSIONER BRUNWASSER: Well,  
19 let me go to the first question first.  
20 We derive about 60 percent of our  
21 drinking water from the Delaware, and  
22 that's all through the Baxter Water  
23 Plant, which is in the Torresdale section  
24 of the City. That supports about 60  
25 percent of our customers.

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2 On the Schuylkill where we have  
3 two plants, Queen Lane and Belmont --

4 COUNCILMAN JONES: Belmont  
5 being in the Fourth District.

6 COMMISSIONER BRUNWASSER: Yes,  
7 Fourth District. Those two plants split  
8 the other 40 percent of the production  
9 and distribution of drinking water.

10 Now, Marcellus Shale, about 15  
11 percent of the Schuylkill drinking water  
12 that we get is under the Marcellus Shale  
13 or in that area, and I believe about 50  
14 percent or so of the Delaware sources are  
15 under Marcellus Shale.

16 COUNCILMAN JONES: So if you  
17 combine the two, what percentage of our  
18 drinking water potentially or does come  
19 under Marcellus Shale?

20 COMMISSIONER BRUNWASSER: I  
21 guess it would be between 40 to 50  
22 percent.

23 COUNCILMAN JONES: So that's  
24 significant.

25 COMMISSIONER BRUNWASSER: Sure.

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2 COUNCILMAN JONES: In your  
3 Early Warning Systems, could you describe  
4 for us how they, A, connect to other  
5 counties and how far does that go to the  
6 actual site of drilling of Marcellus  
7 Shale.

8 COMMISSIONER BRUNWASSER: I may  
9 turn this over to one of my experts, but  
10 I can tell you that about 280 miles of  
11 river are monitored by the Marcellus  
12 Shale, and over 7,000 miles of stream are  
13 monitored as well.

14 Our watershed I think is  
15 approximately 13,000 square miles all  
16 together, the Delaware watershed, and  
17 about -- and more than half of that is  
18 covered by our EWS system.

19 COUNCILMAN JONES:  
20 Clarification: You said 50 percent of  
21 that is covered by the Early Warning  
22 System?

23 COMMISSIONER BRUNWASSER: About  
24 7,000 square miles.

25 COUNCILMAN JONES: So what

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2 percentage is not covered by the Early  
3 Warning System leading up to that  
4 Marcellus Shale?

5 COMMISSIONER BRUNWASSER: Well,  
6 I'll be hazarding a guess, but I stand to  
7 be corrected by my staff. I suppose it's  
8 about 40 percent is not covered, 45  
9 percent is not covered. And, again, this  
10 was -- this is under the Philadelphia  
11 Water Department's authority. We would  
12 love to see -- and one of the points that  
13 I think I made in my testimony, what we  
14 would love to see is for any potential  
15 driller, extractor of this natural gas to  
16 be forced to join us, forced to join this  
17 EWS, which would continue it all the way  
18 up through the Marcellus Shale area and  
19 make that part of the -- and they should  
20 also contribute to bolstering this system  
21 so we could have realtime monitoring in  
22 more places, more often and so forth.  
23 This is one of the things that  
24 Philadelphia would like to see as an  
25 outcome of the expansion of this

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2 industry, that we all, all along the  
3 Delaware River, have the ability to see  
4 if anything is awry very quickly and so  
5 that we can take action, and we're happy  
6 here in Philadelphia to run that system.

7 COUNCILMAN JONES: Any comment  
8 from the industry on that recommendation?

9 MS. KLABER: Yes. In fact, one  
10 of our members, East Resources, last year  
11 did embark on a project contributing, I  
12 think it was, close to a million dollars  
13 to put in the Susquehanna River an  
14 in-place monitoring network. And so that  
15 is certainly within our recent history  
16 and something look forward to pursuing  
17 with you.

18 COUNCILMAN JONES: Okay. So  
19 that's a good thing.

20 In that monitoring system, did  
21 you see the chart offered by Dr. Boufadel  
22 about how they monitor? Is our warning  
23 system similar or complementary to what  
24 he was illustrating?

25 COMMISSIONER BRUNWASSER: I

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2 think I'll let Dr. Crockett answer that  
3 one.

4 COUNCILMAN JONES: We have a  
5 lot of doctors over there.

6 DR. CROCKETT: Thank you,  
7 Councilman. Thank you, Councilwoman. My  
8 name is Dr. Christopher Crockett. I'm  
9 Director of Planning and Research. I'm  
10 also the inventor of the Early Warning  
11 System for the Delaware Valley.

12 The Delaware Valley Early  
13 Warning System was developed prior to  
14 9/11, the concept, and we finally  
15 received funding to develop it after  
16 9/11. And it's a secure system that is  
17 one of the most advanced in the world  
18 that provides instant telephone,  
19 web-based and water quality monitoring  
20 information for emergency responders,  
21 regulatory agencies, et cetera, to  
22 communicate about water quality events on  
23 the Delaware and Schuylkill Rivers.

24 Currently, the coverage of that  
25 system includes realtime monitoring as

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2 far up as Easton on the Delaware River  
3 and pretty much the whole length of the  
4 Schuylkill River.

5 The watershed coverage for  
6 event notification for Philadelphia where  
7 someone would call, such as a regulator  
8 at DEP if they found out about a spill or  
9 accident or Pennsylvania emergency  
10 response, would reach up to the state  
11 boundaries of the upper boundary of  
12 Pennsylvania and New Jersey. There's  
13 only a short distance between that upper  
14 boundary and where New York City's water  
15 supply starts. And so there's a gap, but  
16 in terms of the gaps in coverage, we  
17 would definitely like to see this system  
18 enhanced so that we can expand the  
19 monitoring and make sure that anybody  
20 that's doing anything upstream is  
21 involved and aware and can utilize that  
22 system to warn us.

23 COUNCILMAN JONES: One of the  
24 things that I learned quickly being the  
25 Councilman from the Fourth District was

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2 the area of my district which is Manayunk  
3 which gets flooded from time to time.

4 There was a warning system put in place  
5 so that upstream if they had what is  
6 called a rain event, it foretold possible  
7 flooding in our area, because the  
8 rainwater runoff and all of that compiles  
9 at the end of the day in my district. So  
10 that type of system has helped prepare  
11 merchants and residents to know when to  
12 evacuate or when something bad was coming  
13 downstream.

14 To the degree that that gap  
15 exists in the warning system, what does  
16 that mean by way of realtime to react to  
17 different potential threats?

18 DR. CROCKETT: Well, for  
19 example, I'll give you an example. Back  
20 in 2005 on the Delaware River, we  
21 actually had a large P&L lake --

22 COUNCILMAN JONES: For us  
23 laypersons --

24 DR. CROCKETT: A lagoon or a  
25 lake. PP&L is Pennsylvania Power and

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2 Light.

3 COUNCILMAN JONES: There you

4 go.

5 DR. CROCKETT: They had a power  
6 facility that stored fly ash waste in a  
7 lagoon/lake along the river. The stop  
8 logs failed and a large amount of fly  
9 ash, laden with arsenic, went into the  
10 Delaware River over 100 miles upstream  
11 Philadelphia in the middle of the night.  
12 We were notified immediately when the  
13 state knew about that. We were able to  
14 get equipment and people upstream and  
15 monitor the rivers. The City of Easton  
16 actually had to shut down their intake  
17 for a period of time, and there was about  
18 a mile of river on the Delaware that was  
19 gray. Though it did not make the news  
20 here, our people were out there  
21 protecting, getting data, getting  
22 feedback and making sure that nothing was  
23 coming to Philadelphia to its water  
24 supply immediately upon that call, and  
25 this was over 100 miles upstream.

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2                   These kinds of things are what  
3 we prepare for at the Early Warning  
4 System, and we would like to make sure  
5 that, one, that people are aware of it  
6 that are doing the drilling and have that  
7 phone number to call if there's an  
8 accident and they know how to utilize it;  
9 two, that in the gap above Easton, that  
10 there would be some more monitoring  
11 equipment, as mentioned by the other  
12 speaker, so that we could have data to  
13 see if the water quality is changing  
14 rapidly or not. So if there is an event,  
15 sometimes you may not know an event  
16 happened until the water quality  
17 monitoring data tells you, because nobody  
18 knew it happened.

19                   COUNCILMAN JONES: Again, one  
20 of the outcomes of this hearing is to  
21 take recommendations like that and  
22 present it to the appropriate  
23 authorities, both at the state, the  
24 monitoring levels, and the industry to  
25 try to, to the degree that we can, put

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2 safeguards in place. So that's  
3 important.

4 What I'd like to do is give you  
5 a list of chemicals. No, don't go  
6 anywhere. You're doing real well. And I  
7 want you to look at this list of  
8 chemicals that are used in the process of  
9 fracking and to tell me, do we currently  
10 test for any of these chemicals.

11 DR. CROCKETT: Okay. You're  
12 giving me a long list, but I'll tell you  
13 that the Water Department, if you check  
14 your consumer confidence reports that we  
15 have online for the City of Philadelphia,  
16 we basically put up on that website in  
17 our consumer confidence report, which we  
18 also mail out to all the customers, a  
19 list of all the chemicals that we test  
20 for and the concentrations found in  
21 drinking water, as well as we discuss  
22 what's in our rivers and streams.

23 We can take this list back and  
24 compare that and we can get back to you,  
25 but a number of these compounds, though

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2 some of them are very specific, they do  
3 roll up into general other compounds that  
4 we would pick up in our monitoring. Not  
5 necessarily realtime. Some of these  
6 pieces of equipment that's used for some  
7 of these highly organic chemicals that  
8 would be in manufacturing, we would be  
9 testing on more of a weekly or daily  
10 basis, not on a realtime basis, because  
11 that equipment is not necessarily ready  
12 for prime time out there.

13 COUNCILMAN JONES: So one of  
14 the recommendations you will make to this  
15 panel after reviewing this list is to see  
16 if, A, currently do we test for these  
17 things.

18 DR. CROCKETT: Yes. And we've  
19 actually taken a similar list like this  
20 and sent it to the Delaware River Basin  
21 Commission, and as Chair of the Toxics  
22 Advisory Committee, I've charged the  
23 Delaware River Basin Commission and our  
24 partners at EPA and different states to  
25 look at this list as well in our Toxics

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2 Standard Committee meeting in October to  
3 go over if there are any gaps in the  
4 current standards for surface water and  
5 drinking water related to what's reported  
6 in the discharges.

7 COUNCILMAN JONES: The second  
8 part of this is, the Water Department,  
9 meaning you, did an excellent hearing to  
10 discuss what -- after, I believe it was,  
11 a newspaper article that talked about the  
12 percentage of particles and chemicals and  
13 compounds that were found still in our  
14 water after treatment. And what we  
15 discovered was some of that arguably  
16 wasn't as -- and you did percentage by  
17 one-billionth particle of this or that,  
18 but I want that compared to what is  
19 ingest possibly by humans that could be  
20 harmful based on this list of chemicals  
21 specifically. Okay?

22 DR. CROCKETT: And we are  
23 looking at that list. I'm not only a  
24 Water Department employee, I'm a  
25 customer, and I have two small children

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2 that drink this water, my wife. And the  
3 thousands of employees that work for the  
4 Water Department who do this view  
5 themselves as vanguards of public health  
6 to make sure that their drinking water is  
7 safe, and we're taking a very serious  
8 look at these.

9 COUNCILMAN JONES: That  
10 inspires confidence, because I'm on the  
11 Schuylkill side, so I drink that water.  
12 So I'm very, very concerned.

13 Let me -- any questions?

14 COUNCILWOMAN BROWN: Yes. Can  
15 I do a follow-up on that?

16 COUNCILMAN JONES: Yes.  
17 Councilwoman Brown.

18 COUNCILWOMAN BROWN: I would  
19 like to do a follow-up to the question  
20 around the list of testing of chemicals,  
21 and it goes to a question I raised before  
22 about protocols and SOP, standard  
23 operating procedures.

24 Is it reasonable to think then  
25 as we look down the road of this very

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2 vigorous planning we expect to do on the  
3 subject at hand that this type of  
4 protocol could be one that is  
5 incorporated in the process?

6 Any one of the Philadelphia  
7 Water Department officials.

8 COMMISSIONER BRUNWASSER: Well,  
9 I do remember addressing this body on the  
10 potential of pharmaceuticals in drinking  
11 water, and I guess part of that is what  
12 you are referring to now.

13 The issue with Philadelphia was  
14 in parts per billion, we did not find  
15 these chemicals, but since we are a  
16 leader in the field and we took part with  
17 some of the researchers in the water  
18 industry and started measuring, not  
19 ourselves but sending to special  
20 laboratories, samples of our drinking  
21 water that were measured in parts per  
22 trillion, which is one thousand times  
23 stronger than parts per billion, and we  
24 did find 17 chemicals in our drinking  
25 water and -- but in such minute

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2 quantities that you would -- you couldn't  
3 physically drink enough water for as many  
4 years as you needed to to even come up  
5 with a single dose of some of these  
6 pharmaceutical drugs.

7           So there's no immediate  
8 concern, but it's good that the nation is  
9 looking at this ability now  
10 scientifically to measure it, such  
11 unbelievable measurement, that better to  
12 start to think about these things and  
13 start to bring procedures in that will  
14 help us as a nation to avoid these types  
15 of -- any types of problems from  
16 pharmaceuticals or any of these other  
17 types of chemicals that we find that we  
18 know could be harmful to us.

19           COUNCILWOMAN BROWN: Thank you  
20 very much.

21           COUNCILMAN JONES: I'd like to  
22 go to the industry. You heard a lot of  
23 the comments and criticisms and concerns,  
24 and a couple of them I'd like you to  
25 specifically address. One of them was

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2 that there was no standardization.

3 How many members do you have  
4 currently?

5 MS. KLABER: About 43 are  
6 midstream or producer members and the  
7 remaining are associate members.

8 COUNCILMAN JONES: Would you  
9 describe them as small businesses?

10 MS. KLABER: Some of our  
11 associate members are small businesses.

12 COUNCILMAN JONES: And what  
13 concerns me is that the actual  
14 composition of chemicals. There is not a  
15 standard knowledge of what levels of  
16 concentration of each of those chemicals  
17 is in each individual brew, if you would,  
18 that goes into the earth and ferrets out  
19 the gas. Why is that?

20 MS. KLABER: Well, over time  
21 those products have been developed by  
22 different companies, serving the same  
23 purpose, but just like one law firm may  
24 market itself as an expert in this area  
25 because of a particular expertise, one

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2 company might market itself to a drilling  
3 company saying that their biocide works  
4 even better.

5           So over time, those certainly  
6 would have nuances, but the basic  
7 underlying purpose of having any  
8 chemicals in that hydraulic fracturing  
9 fluid is to serve a very targeted,  
10 specific purpose. There's economic  
11 reasons to keep anything to a minimum  
12 that's not the water and the sand, the  
13 two least expensive parts of the fluid.  
14 We've certainly seen both economic and  
15 environmental benefits of recycling that  
16 water, and when that occurs, there is  
17 extensive testing that's done. And the  
18 protocol you mentioned is the same in any  
19 other industry that is regulated by  
20 safety and health organizations. I mean,  
21 we have to have on site the products that  
22 are being used and in their purest form,  
23 which is much more concentrated on those  
24 material safety data sheets than you  
25 would ever see in the fluid either being

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2 injected or withdrawn.

3 COUNCILMAN JONES: Well, I'm  
4 looking at this list. Have you seen this  
5 list of chemicals that --

6 MS. KLABER: Not this  
7 particular one, but certainly the source  
8 of this data was the industry.

9 COUNCILMAN JONES: There's at  
10 least 50 varying types of chemicals that  
11 go from acids to some, just as a  
12 layperson, pretty scary stuff, and one is  
13 more dangerous than the other, and to  
14 know the amounts and concentrations seems  
15 to me the kind of information that if I  
16 was living next door to drilling I'd want  
17 to know. And so is there a reason why we  
18 cannot through the EPA monitor how much  
19 each driller puts in of this?

20 MS. KLABER: Well, there is no  
21 reason, and in my testimony I mentioned  
22 the changes to Chapter 78 that were put  
23 forth by the Department of Environmental  
24 Protection, and the industry certainly  
25 sees benefits to that, meaning that each

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2 individual well, the well report that is  
3 submitted per well -- not overall, not a  
4 whole stack of MSDS's delivered to the  
5 agency -- that that will be part of the  
6 regular well report. That information is  
7 available online at DEP's eFACTS system.  
8 It's a very transparent web portal for  
9 all sorts of information, not just on the  
10 natural gas industry, but for every  
11 single permitted source, from dry  
12 cleaners to electric utility plants and  
13 everything in between.

14 COUNCILMAN JONES: So if I  
15 understood what you said correctly, every  
16 well will list for the neighbor  
17 downstream the amount and blend of  
18 chemicals that were used to do fracking?

19 MS. KLABER: First of all, when  
20 you say "neighbor downstream," I think  
21 it's important to recognize that as the  
22 previous panel discussed, these compounds  
23 are being contained either through this  
24 recycling that I discussed and/or  
25 treatment at permitted facilities that

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2 have the kind of monitoring like we heard  
3 from Philadelphia's water authority. So  
4 the design and the day-to-day operations  
5 of this industry doesn't result in any  
6 downstream of -- downstream neighbor of  
7 this, because it's a self-contained  
8 process.

9 But to your point --

10 (People yelling.)

11 MS. KLABER: In other words,  
12 when you're doing 100 percent recycle, of  
13 which many of our companies have been  
14 achieved and it's been a major innovation  
15 that is being noted by regulators and  
16 others around the country as to how far  
17 this recycling has happened in  
18 Pennsylvania, when that happens, it is a  
19 closed-loop system. Do we know what's  
20 being put into these wells? Absolutely,  
21 and that will be available in even more  
22 venues than it already is.

23 COUNCILMAN JONES: I'm glad you  
24 don't live in my district, because you  
25 sound a little bit political to me. I'm

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2 going to ask the question again.

3 I got the fact that you take  
4 every precaution through your casings to  
5 attempt to contain this, but as we saw in  
6 the Gulf, things break, things happen.  
7 And what my question to you specifically  
8 is, will we be able to, in a transparent  
9 manner, know what's in the soup?

10 MS. KLABER: Absolutely. And  
11 when you go on to any website, first  
12 responders know this. You know how to go  
13 right to the folder, electronic and hard  
14 copy, of that data that's on site. And  
15 that is readily available today and it  
16 has been for years, and it should be even  
17 more transparent going forward.

18 COUNCILMAN JONES: So  
19 specifically this is something that the  
20 industry supports doing?

21 MS. KLABER: Absolutely.

22 COUNCILMAN JONES: And that  
23 will be another one of the  
24 recommendations that this body insists  
25 upon.

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2 MS. KLABER: And I want to  
3 point you to several of our members who  
4 are already on their websites putting  
5 even more information out. We've got  
6 several members also who are working  
7 nationally and internationally at finding  
8 the best next generation of these  
9 chemicals. And I think it's both because  
10 of the interest of the public that is  
11 very valid and other advances that are  
12 moving this industry forward all the  
13 time.

14 COUNCILMAN JONES: I want to  
15 take a moment. We invited the United  
16 States Environmental Protection Agency  
17 Region III to participate today and we'd  
18 like to take this moment to read into the  
19 record a letter of response from them. I  
20 think it will be of interest to people at  
21 this hearing.

22 THE CLERK: "Dear Councilman  
23 Jones: Thank you for your invitation to  
24 testify about the impacts of hydraulic  
25 fracturing of Marcellus Shale before

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2 Philadelphia City Council's Joint  
3 Committees on Transportation and Public  
4 Utilities and the Environment.

5 "Unfortunately, I am unable to  
6 attend your hearing. However, I would  
7 like to take this opportunity to update  
8 you on the action the U.S. Environmental  
9 Protection Agency (EPA) is taking with  
10 regard to hydraulic fracturing.

11 "Natural gas plays a key role  
12 in our nation's clean energy future and  
13 hydraulic fracturing is one way of  
14 accessing that vital resource. Over the  
15 past few years, the use of hydraulic  
16 fracturing for gas extraction has  
17 increased and has expanded over a wider  
18 diversity of geographic regions and  
19 geologic formations, including Marcellus  
20 Shale. Given this expansion and the  
21 increasing concern about potential  
22 impacts on drinking water resources,  
23 public health, and environmental impacts,  
24 EPA believes further study is necessary."

25 (Applause.)

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2 THE CLERK: "In order to  
3 address those concerns and strengthen our  
4 clean energy future, EPA announced in  
5 March 2010 that it will study the  
6 potential adverse impact that hydraulic  
7 fracturing may have on drinking water and  
8 water resources. EPA understands that  
9 citizens and their representatives want  
10 to be assured that hydraulic fracturing  
11 is safe, and we believe this is a fair  
12 question that deserves serious study.

13 "EPA is committed to using the  
14 best available science in this process  
15 and we have engaged independent experts  
16 and the public on how to best conduct  
17 this study. The study will be conducted  
18 through a transparent, peer-reviewed  
19 process, with significant stakeholder  
20 input. In July, August and September  
21 2010, EPA held highly attended public  
22 meetings across the country to discuss  
23 the design and scope of the study.

24 "As part of the study's  
25 information gathering process, EPA has

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2 issued voluntary information requests to  
3 nine leading national and regional  
4 hydraulic fracturing service providers.  
5 This data is integral to understanding  
6 any potential relationships between  
7 hydraulic fracturing and drinking water.  
8 Through this information request, EPA is  
9 seeking information on the chemical  
10 composition of fluids used in the  
11 hydraulic fracturing process and data on  
12 the impacts of the chemicals on human  
13 health and the environment. We are also  
14 seeking information on the standard  
15 operating procedures at hydraulic  
16 fracturing sites and the locations of  
17 sites where fracturing has been  
18 conducted.

19 "With input from our recently  
20 completed public meetings, EPA plans to  
21 complete the draft study by October 2010.  
22 EPA expects to initiate the study in  
23 early 2011 and to have the initial study  
24 results available by late 2012. More  
25 information about the study can be found

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2 at" -- it's their website.

3 "Finally, I would like to point  
4 out that the EPA will not pre-judge the  
5 outcome of this study, but if concerns  
6 are raised about specific threats to  
7 human health and the environment while  
8 the study is ongoing, EPA will not  
9 hesitate to investigate and take action  
10 using its existing authorities.

11 "Once again, thank you for your  
12 invitation. If you have any questions,  
13 please do not hesitate to contact me or  
14 have your staff contact Mrs. Megan  
15 Mackey, EPA's Pennsylvania Liaison.

16 "Sincerely, Shawn M. Garvin,  
17 Regional Administrator."

18 (Applause.)

19 COUNCILMAN JONES: We just got  
20 this faxed to us and I thought it was  
21 appropriate to read into the record. My  
22 only reaction is that ordinary people  
23 working together can do extraordinary  
24 things, and I'm pleased with the EPA's  
25 stance.

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2 We're going to continue the  
3 hearings, and Councilwoman Blondell  
4 Reynolds Brown has a few questions.

5 COUNCILWOMAN BROWN: I do.  
6 Thank you very much.

7 Ms. Klaber, you open your  
8 remarks by saying that your organization  
9 expects to move, and I quote, "safely and  
10 responsibly" as we look at this issue.  
11 Share with us what the 43 small  
12 businesses have done already that support  
13 that statement.

14 MS. KLABER: Actually, the 43  
15 businesses are the midstream and the  
16 drilling companies. The remaining of the  
17 130 or so members have some small  
18 businesses in there.

19 So, if I may, I'll respond to  
20 your question. Those 43 companies who  
21 are doing the drilling, who are  
22 responsible for the safety and the  
23 environmental protection are involved in  
24 quite a few ways. In my testimony I  
25 referred to the gas management work that

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2 we did with the DEP in an area that is  
3 really critical to the safety and the  
4 protection of groundwater, and that's how  
5 you drill a well, how you do it. Not  
6 just how it's done in other places, but  
7 how we make sure that we're understanding  
8 the geology of Pennsylvania. It's not a  
9 homogenous geology. We've had some of  
10 the nation's foremost experts from among  
11 the industry come to Pennsylvania to  
12 advise, to help develop not only the best  
13 practices, but the regulations that were  
14 reflected in the Chapter 78 regulations.  
15 So I think that's a very critical issue.

16 Second I would put the safety  
17 work. We have a safety committee that  
18 has representation from across both the  
19 drilling companies, the midstream  
20 pipeline companies, as well as the  
21 associate members, those who are also on  
22 site and need to be partners in safety.  
23 We have worked to develop a first  
24 responder program that was put in place  
25 originally last spring, and that has gone

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2 through a "train the trainer" process and  
3 is now being rolled out among municipal  
4 officials to make sure that the training  
5 that they've already received for  
6 decades, that they also understand what  
7 issues may be involved at a well site, to  
8 recognize what they may encounter in a  
9 first response. And it's very important  
10 that we be partners with those folks who  
11 have the first responder responsibilities  
12 in our community. So that training has  
13 been a very big part of what the safety  
14 committee has done.

15 COUNCILWOMAN BROWN: Do you  
16 believe there was a lack of that in the  
17 Gulf debacle?

18 MS. KLABER: I really am not --  
19 I mean, I know a lot of what's going on  
20 in detail in Pennsylvania, and  
21 technically I'm not qualified to comment  
22 on all the technical issues in the Gulf.

23 COUNCILWOMAN BROWN: Given that  
24 then, what would you say, given your rich  
25 experience on the other side of the

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2 ledger, what are one or two lessons  
3 learned?

4 MS. KLABER: Well, I think  
5 accountability is very important. That's  
6 been a discussion in the Marcellus Shale  
7 Coalition, that the responsibility for  
8 that site is with the operator, and  
9 that's why it's so important that our  
10 safety practices and environmental  
11 practices are spread throughout that  
12 supply chain. But it's ultimately the  
13 responsibility of the operator of that  
14 site. I think that's a lesson learned in  
15 terms of accountability.

16 The size and shape and  
17 conditions of a well in the Gulf of  
18 Mexico versus on the surface in  
19 Pennsylvania are very different  
20 landscapes, but I think the other lesson  
21 learned has to be around well casing.  
22 And that's why that's been such a big  
23 focus, making sure you're building those  
24 wells correctly, that they protect the  
25 environment and that they have an

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2 integrity for not just environmental  
3 protection, but obviously the safety of  
4 anybody on the site or proximate to the  
5 site.

6 COUNCILWOMAN BROWN: So then  
7 with that said, is there uniformity then  
8 in just the building of the well?  
9 Because I have yet to hear affirmatively  
10 that -- uniformity helps take the mystery  
11 out of a lot of this and it also opens up  
12 the transparency piece of this. So with  
13 X number of members that make up the  
14 Coalition, where might there be some  
15 uniform practices?

16 MS. KLABER: Good question.  
17 Certainly uniformity in the well casing  
18 reports, how do you log what you're  
19 finding, what are the steps that you're  
20 going through, all that needs to be  
21 reported, submitted to the Department's  
22 Bureau of Oil and Gas. There's also  
23 consistency in the water management  
24 plans, what are the elements that need to  
25 be there, from the time of any withdrawal

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2 through how that water is handled to its  
3 ultimate either reuse or disposal. That  
4 water management plan, through the  
5 efforts of the Department in the past few  
6 years, have become more streamlined.

7 We have six different regions  
8 of DEP. Five of them have a Marcellus  
9 well, at least one, in them. It's  
10 important to be consistent across those  
11 regions so that the industry knows what's  
12 acceptable and so that the agency can be  
13 consistent as well.

14 So there's been a lot of hard  
15 work, rolling up the sleeves in rooms to  
16 define what the requirements are for  
17 these wells. It may be different from  
18 the shallow wells that have been drilled  
19 for over 100 years in Pennsylvania.

20 COUNCILWOMAN BROWN: So with  
21 those three that you've mentioned, who  
22 then is responsible for the audit?  
23 Accountability is one thing, but who has  
24 the hammer once there has been a  
25 violation of what those standards are?

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2 MS. KLABER: The enforcement,  
3 the inspectors from the Department of  
4 Environmental Protection have that  
5 authority. Those are both done at the  
6 regional office level and obviously  
7 coordinated out of Harrisburg.

8 COUNCILWOMAN BROWN: Is there  
9 any self-imposed enforcement procedures  
10 amongst the group where you hold your  
11 peers accountable?

12 MS. KLABER: Right. There's a  
13 tremendous amount of that. In our  
14 organization, I would say that's the  
15 single value add. It could be otherwise  
16 just a lot of individual companies being  
17 regulated by DEP, EPA, basin commissions  
18 and otherwise. But it's really -- I  
19 think the value out of my organization to  
20 be able to bring those people together,  
21 whether it's with regulatory agencies or  
22 not, we do it both ways depending on the  
23 issue, share what we're finding in  
24 different places around the play, get  
25 folks up to speed very quickly who are

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2 coming to Pennsylvania. We've been  
3 thrilled when a new company decides to  
4 enter the Marcellus. One of the first  
5 places that they call is the Marcellus  
6 Shale Coalition, because they know they  
7 can go from zero to 60 to understand what  
8 the requirements are, what the best  
9 practices are, and I think that's what  
10 makes the organization a value to our  
11 members.

12 COUNCILWOMAN BROWN: And,  
13 lastly, what is the temperature with  
14 regards to the relationship that your  
15 organization shares with its neighbors?

16 MS. KLABER: In the community?

17 COUNCILWOMAN BROWN: Yes.

18 MS. KLABER: Well, most of my  
19 members at this point do have individuals  
20 who are responsible for, I guess we call  
21 it, the advance work, really  
22 understanding what the requirements are  
23 in individual municipalities, because  
24 those vary across municipalities in  
25 Pennsylvania, making sure to meet up

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2 front the local emergency response  
3 officials, the fire department, the  
4 police, the local PennDOT office. We're  
5 doing a lot of work with PennDOT to make  
6 sure that before we come into a  
7 community, we know what the road use  
8 agreement is, know what the bonding  
9 requirements are.

10 So I would say that that  
11 advance work is probably the most  
12 valuable aspect of working with our local  
13 communities, and then obviously being  
14 responsive and communicate, and that's  
15 what spending -- what we need to invest  
16 even more in going forward.

17 COUNCILWOMAN BROWN: The  
18 communication piece, because there are  
19 citizens who do not fit in any of those  
20 categories you just mentioned, but yet  
21 are deserving of that reality coming in  
22 their backyard.

23 MS. KLABER: Absolutely. And I  
24 think that landowners who have leased  
25 their land with a gas company probably do

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2 have a lot more information than those  
3 who have not or those who that's not --  
4 they don't own the land and haven't had  
5 that opportunity. So I agree with you.  
6 Communication is key. That is something  
7 that I think we're focused on doing even  
8 more of, but, as you know, it's a very  
9 big Commonwealth. I know Philadelphia is  
10 at the center, but there are 66 other  
11 counties and we're spending a lot of time  
12 in each of those communities.

13 COUNCILWOMAN BROWN: Okay.

14 Well, I thank you all for your important  
15 testimony. Any final closing comments or  
16 remarks you care to make, any one of you?

17 (No response.)

18 COUNCILWOMAN BROWN: Then thank  
19 you very, very much for your testimony.

20 If we could please invite  
21 members of Panel No. 3, which include  
22 Denise Dennis, historic farmland owner;  
23 Iris Marie Bloom, Director of Protecting  
24 Our Waters; and Dr. Frederic Murphy,  
25 Temple University, Department of

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2 Economics. And if we could please invite  
3 to the table Congressman Joe Sestak's  
4 representative to read your statement to  
5 the record, fully recognizing that time  
6 is not your own, like the rest of us.  
7 Please have a seat.

8 (Witnesses approached witness  
9 table.)

10 COUNCILWOMAN BROWN: Okay. We  
11 will start with the representative for  
12 Congressman Joe Sestak. If you would  
13 state your name for the record and  
14 proceed with your testimony.

15 MR. WALSH: Thank you very  
16 much, Councilwoman.

17 COUNCILWOMAN BROWN: You're  
18 welcome.

19 MR. WALSH: My name is Bill  
20 Walsh. I'm the Congressman's District  
21 Director. I work at his district office  
22 in Media, Pennsylvania. I've known the  
23 Congressman since our plebe year at the  
24 United States Naval Academy many years  
25 ago. I've had the honor to work for him

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2 for the past four years, and he asked me  
3 to pass to you and to President Verna the  
4 sincere appreciation for the opportunity  
5 to testify today.

6 I've left copies of his press  
7 release over there describing his  
8 position on the Marcellus Shale, for  
9 those who want them, and if there others  
10 who need them, they can contact our  
11 office and we'd be happy to provide them.

12 With that, I'll provide the  
13 Congressman's statement.

14 President Verna and  
15 Councilmembers, my thanks to you for  
16 bringing together such a wide range of  
17 experts today to testify on the  
18 environmental impacts that hydraulic  
19 fracturing in the Marcellus Shale will  
20 have on Philadelphia and the surrounding  
21 region. Accountability and accessibility  
22 are the two crucial elements of good  
23 government and should be applied to all  
24 activities in our watersheds, including  
25 the stewardship of the Marcellus Shale.

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2 That is why I co-sponsored the Fracturing  
3 Responsibility and Awareness of Chemicals  
4 Act, or FRAC Act. This bill would take  
5 the important step of closing the  
6 Halliburton loophole, which exempted  
7 hydraulic fracturing from regulation  
8 under the Safe Drinking Water Act in the  
9 2005 Bush Energy Act. Its passage --

10 (Applause.)

11 MR. WALSH: Its passage would  
12 allow the EPA to assist the Pennsylvania  
13 Department of Environmental Protection in  
14 the regulation of hydraulic fracturing  
15 and provide for enhanced protections.  
16 Unfortunately, I am one of only two  
17 Pennsylvania members of the House of  
18 Representatives currently co-sponsoring  
19 this bill.

20 (Applause.)

21 MR. WALSH: I also supported an  
22 effort to include language in last year's  
23 Appropriations bill to allocate funding  
24 for the U.S. Environmental Protection  
25 Agency to study the impacts of hydraulic

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2 fracturing in unconventional shale plays  
3 such as the Marcellus Shale formation  
4 here in Philadelphia. It is, therefore,  
5 critical that this study be detailed and  
6 completed in a transparent manner. As  
7 such, I submitted a public comment to the  
8 EPA which recommended a thorough and  
9 scientifically based study. I also  
10 encouraged the EPA to complete this  
11 effort in as expeditious a manner as  
12 feasible given the strong economic  
13 pressures and rapid development already  
14 taking place in our nation shale plays.

15 There is extraordinary economic  
16 potential associated with the development  
17 of Marcellus Shale resources. However,  
18 as the oil spill in the Gulf reminded us,  
19 there is also great risk when industry is  
20 allowed to police itself when our quality  
21 of life, present or future, is at stake.

22 (Applause.)

23 MR. WALSH: Our nation should  
24 be committed to taking steps needed to  
25 transition us away from fossil fuel, but

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2 this will take time. Through that  
3 process, there needs to be a responsible  
4 utilization of our domestic energy  
5 resources, including natural gas.  
6 Natural gas can boost our economy and cut  
7 our dependence on foreign oil. It  
8 produces half the carbon emissions of  
9 coal, allowing us to reduce our impact on  
10 climate change in the near term.

11 In addition, the responsible  
12 development of the Marcellus Shale  
13 formation can create needed jobs in our  
14 state during these difficult economic  
15 times. However, in order to ensure that  
16 jobs in Pennsylvania are filled by  
17 Pennsylvanians, not out-of-state workers,  
18 I recently introduced House Bill 6141,  
19 the Marcellus Shale On-the-Job Training  
20 Act of 2010, to provide a national grant  
21 program for on-site training in this  
22 field. Unfortunately, this legislation  
23 is not yet law.

24 The scale of natural gas -- the  
25 natural gas boom in the Marcellus Shale

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2 region is unprecedented, and we cannot  
3 compromise the right of Pennsylvanians  
4 and the generations that follow to have a  
5 clean and safe environment, including  
6 clean drinking water.

7 (Applause.)

8 MR. WALSH: That is why I've  
9 called for a halt to new drilling until  
10 greater environmental, health and safety  
11 regulations and legislation can be  
12 finalized and until we have had time to  
13 train Pennsylvanians for the jobs now  
14 going, in the vast majority, to  
15 out-of-state workers.

16 The coal industry left our  
17 state with a legacy of 2,500 miles of  
18 deteriorated streams, 250,000 acres of  
19 contaminated land and a \$15 billion  
20 clean-up bill. Let us not make mistakes  
21 like that again. Lack of governmental  
22 and regulatory foresight should not lead  
23 Pennsylvanians to needlessly bear the  
24 burden of the increased cost to our  
25 infrastructure, risks to our health and

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2 safety, and environmental degradation  
3 once more.

4 In closing, let me thank  
5 President Verna, Councilman Jones and the  
6 Philadelphia City Council for your desire  
7 to see this and other environmental  
8 issues reviewed in a thorough and  
9 thoughtful way. I have no doubt that if  
10 the best science, public policy and  
11 leadership are applied to this  
12 extraordinary opportunity, protections  
13 will result that will simultaneously  
14 benefit our environment and our economy  
15 in a way that will make the Commonwealth  
16 of Pennsylvania the global standard for  
17 responsible stewardship of natural  
18 resources. We should settle for nothing  
19 less.

20 Thank you.

21 (Applause.)

22 COUNCILMAN JONES: Sometimes it  
23 is very difficult to remember that I'm up  
24 here to chair this. I caught myself  
25 clapping about the jobs part. I had to

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2 restrain myself.

3 MR. WALSH: Thank you, sir.

4 You're very kind. Thank you all.

5 (Applause.)

6 COUNCILMAN JONES: Will the  
7 next person to testify please approach  
8 the mike and read your name. And  
9 remember, once again, feel free to  
10 summarize. All of this will go into the  
11 record. All written testimony will be  
12 memorialized in the record.

13 Thank you.

14 MS. DENNIS: Hi.

15 COUNCILMAN JONES: Hello.

16 MS. DENNIS: Councilman Jones  
17 and Councilwoman Reynolds Brown, thank  
18 you for inviting me to speak today and  
19 for having the discernment and, might I  
20 say, courage to convene these hearings.

21 Before I start, I want to hold  
22 up a book that was written by a  
23 Pennsylvanian, Rachel Carson. Fifty  
24 years ago she warned the nation about the  
25 effects of chemicals, non-biodegradable

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2 chemicals, on our environment, and she's  
3 considered the mother of the  
4 environmental movement, and I am evoking  
5 the spirit of Rachel Carson here today,  
6 and our Department of Environmental  
7 Protection is named after her, and I hope  
8 they live up to the woman whom they are  
9 named for.

10 So now I will begin my remarks.

11 Believe it or not, I am not --

12 COUNCILMAN JONES: Again,  
13 repeat your name.

14 MS. DENNIS: I am Denise  
15 Dennis.

16 I am not a professional  
17 environmentalist. I am not an activist.  
18 I am here today as a private citizen with  
19 knowledge to share. I speak for the  
20 landowners in the Marcellus Shale region.

21 I am all for progress, but I am  
22 for progress that is at least reasonably  
23 safe. To ensure the safety of the people  
24 of the Greater Philadelphia area, we need  
25 cumulative impact studies and results of

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2 EPA studies before allowing gas companies  
3 to drill in the Delaware River Basin.

4 I have lived in Philadelphia  
5 for 30 years, but I grew up in  
6 Northeastern Pennsylvania in what people  
7 think of as the coal region, although  
8 I've never seen a coal miner. I am also  
9 the steward of a property on the  
10 Marcellus Shale that was settled by my  
11 ancestors, free African Americans who  
12 came here from Connecticut 200 years ago.  
13 My four generations of my family are  
14 buried in the cemetery on our family  
15 property. We have been working to  
16 preserve the property, which the National  
17 Trust for Historic Preservation has  
18 identified as one of the rarest African  
19 American historic sites in the United  
20 States and one of the kind. There is no  
21 other African American family that has  
22 been able to retain ownership of its  
23 property for 200 years.

24 (Applause.)

25 MS. DENNIS: And, again, that

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2 property is on the Marcellus Shale.

3 As I speak today, please  
4 remember how the tobacco industry tried  
5 to deny the impact of smoking on our  
6 health.

7 (Applause.)

8 MS. DENNIS: And how they  
9 attempted to intimidate and to silence  
10 anyone who tried to simply tell the  
11 truth.

12 I began to research gas  
13 drilling when after receiving offers from  
14 various gas companies for leases to drill  
15 on our farm. I decided to find out for  
16 myself what this drilling entailed. I  
17 approached it with an open mind. I must  
18 say, though, I had reservations, thinking  
19 about all the African Americans who had  
20 their land swindled away from them, taken  
21 from them, when they had no rights in the  
22 courts and also stolen from them,  
23 because, again, courts would not defend  
24 them. So when I was offered gobs and  
25 gobs and gobs of money, I didn't think

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2 this is good. I thought anything this  
3 good is too good to be true, probably is  
4 too good to be true.

5 (Applause.)

6 MS. DENNIS: Because, as I've  
7 said to my -- that is a predominantly  
8 white area. I said, This is what it  
9 feels like to be black, as the gas  
10 companies have told false truths to get  
11 people to sign leases up there.

12 I approached it nonetheless  
13 with an open mind, because if this proved  
14 to be safe, it would have been great for  
15 us, because it would have given us money  
16 to go on with our preservation projects.  
17 So if it proved to be safe, I would have  
18 been all for it. Unfortunately, though,  
19 the more I learned, the more I learned  
20 and studied the drilling process, the  
21 more concerned to horrified I became.

22 (Applause.)

23 MS. DENNIS: The farm is about  
24 ten miles down the road from a place  
25 called Dimock, and if you go to the 1850

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2 census, you will see the names of James  
3 Dennis and Henry Dennis, my  
4 great-great-great grandfather and my  
5 great-great grandfather. And the only  
6 reason they're not in Dimock now is,  
7 Henry married Angeline and moved down to  
8 the farm, right ten miles down the road,  
9 her family's property.

10 On New Year's Day 2009, a gas  
11 well exploded because the cement well  
12 casement -- those cement, steel, cement  
13 we heard about today, guess what? It  
14 cracked. Designed by Halliburton. The  
15 same designer of the well in Dimock  
16 designed the well in the Gulf in the BP  
17 spill.

18 Right now 32 residents of  
19 Dimock -- and it's a small place.  
20 Thirty-two is like half the population --  
21 have to have their water delivered to  
22 them for all their needs - for bathing,  
23 cooking, drinking and household chores,  
24 because their water is contaminated.

25 Imagine what would happen,

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2 whether it's in the near future or the  
3 distant future, if the population of the  
4 Greater Philadelphia area had to have  
5 their water delivered to them. Imagine  
6 the pecking order. Imagine the pecking  
7 order about who would get the clear water  
8 and who would not.

9 Imagine all the lawsuits when  
10 the gas companies deny culpability, as  
11 they have done in Dimock. They say the  
12 methane was already there. You heard  
13 Ms. Klaber. The methane was in the --  
14 well, if you know the methane is there,  
15 don't drill. If this sounds improbable  
16 that American citizens who pay their  
17 property taxes and who are living their  
18 lives not having to worry about  
19 contamination are now having to have  
20 their water brought to them, talk to the  
21 residents of Dimock.

22 (Applause.)

23 MS. DENNIS: You might see  
24 television commercials now extolling  
25 natural gas as clean energy. This is not

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2 true.

3 (Applause.)

4 MS. DENNIS: I promised myself

5 I was going to be calm.

6 The process for extracting  
7 natural gas from shale is as dirty as  
8 coal mining, and, as I said, I'm from the  
9 coal region. When natural gas escapes  
10 into the atmosphere as unburned methane,  
11 it is 20 times more powerful than carbon  
12 dioxide at trapping heat.

13 (Applause.)

14 MS. DENNIS: You know, when  
15 your ancestors are buried somewhere, you  
16 do your homework.

17 The industry claims that  
18 fracking doesn't cause methane  
19 contamination, but what the industry  
20 doesn't tell you is that drilling the gas  
21 wells releases the methane that then  
22 migrates to the wells and aquifers.

23 I've heard them speak before.

24 The industry says that  
25 hydraulic fracturing -- you heard it here

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2 today -- has been around for 50 to 60  
3 years, but what they don't tell you is  
4 that horizontal hydraulic fracturing, the  
5 kind that you use to go into shale as  
6 deep as the Marcellus, is new, and it was  
7 developed by Halliburton, and it is  
8 untested, and Pennsylvania is the lab and  
9 Pennsylvanians are the lab rats.

10 (Applause.)

11 MS. DENNIS: Lord help me.

12 (Audience member yelled "Lord  
13 help us all.")

14 MS. DENNIS: Yes, especially  
15 the people upstate, my neighbors.

16 The industry claims that this  
17 will bring jobs to Pennsylvania. Well,  
18 I'm a journalist and I interviewed  
19 Secretary Hanger for an article, and I  
20 said, Secretary Hanger, who is Secretary  
21 of the DEP, from my data I've learned  
22 that most of these jobs are going to  
23 people from out of state who are now  
24 riding around in their trucks up there  
25 with confederate flags, who have years of

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2 experience in this industry. And  
3 Secretary Hanger said -- and I've read it  
4 so many times from my notes that I know  
5 it by heart -- It is true, most of the  
6 jobs are going to people from out of  
7 state, but the Governor and I believe  
8 they should go to Pennsylvanians.

9           The industry claims that only  
10 one percent of the solution, the fluid,  
11 that goes into the ground is made of  
12 chemicals. What the industry does not  
13 tell you is that it takes from two to  
14 five million gallons of fresh water to  
15 frack a well, and one percent of two to  
16 five million gallons is 200,000 gallons  
17 to 500,000 gallons of toxic chemicals.  
18 And there was a big discussion today  
19 about what comes out and what doesn't  
20 come out. This is from a scientist,  
21 Sandra Steingraber. This is what comes  
22 back in addition to the chemicals, in  
23 addition to the brine, benzene brine and  
24 radioactivity, because it is that level  
25 that shale has radioactive qualities to

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2 it. So what also comes up in this water,  
3 benzene brine, radioactivity and heavy  
4 metals, that for the past 400 million  
5 years have been safely tucked a mile  
6 below the surface, and now because of  
7 drilling, these things come to the  
8 surface. And they are not biodegradable.  
9 You can't clean them up. I was listening  
10 to Ms. Klaber. What was her word? You  
11 can -- something that implied clean them  
12 up. No can do. The science is there.  
13 I'm an ordinary person. I could find  
14 this science. And I heard what the  
15 industry said and I looked at what the  
16 industry told me and I looked at what the  
17 scientists, multiple scientists, told me,  
18 and I said someone is not telling the  
19 truth here, and it wasn't the scientists.  
20 You can spin anything. They're  
21 spinning, you know, like a jowly with  
22 plates. They're spinning. They're  
23 spinning people. We got to make sure the  
24 plates crack.  
25 Okay. There is a PR campaign

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2 now on television and the radio  
3 describing natural gas, and they're  
4 spending millions of dollars on these  
5 campaigns claiming that natural gas is  
6 home-grown American energy for Americans.  
7 The truth is that all of the companies  
8 investing in the Marcellus Shale are  
9 multi-national corporations. For  
10 example -- and I've had letters from all  
11 of them -- EnCana is Canadian based in  
12 Calgary, Alberta, Canada; Chesapeake, 32  
13 percent of Chesapeake is owned by  
14 Statoil, a Norwegian company, and they  
15 will not allow hydraulic fracturing in  
16 Norway. Schuemberger, a French company,  
17 is a major shareholder in Cabot. An  
18 Indian company has invested \$6 billion in  
19 the Marcellus Shale, in land owned by  
20 Pennsylvanians. And a Japanese company  
21 has invested 1.6 billion. The largest  
22 American-only gas company, Devon, has not  
23 invested in the Marcellus Shale because  
24 they believe it is too risky.

25 Already a

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2 Pennsylvania-to-Canada pipeline is  
3 planned. This gas is not going to stay  
4 in Pennsylvania and lower your gas bills.  
5 It's not even going to stay in the United  
6 States. Rather, this gas will go into  
7 the global marketplace, where it will  
8 make international shareholders wealthier  
9 than they already are. Just as --

10 (Applause.)

11 MS. DENNIS: Just as  
12 corporations received tax breaks based on  
13 the rationale that they would create jobs  
14 for Americans, only to then take those  
15 jobs overseas where labor is cheap in  
16 order to make their shareholders' profits  
17 higher, the gas companies will take  
18 natural gas from Pennsylvania, pay a few  
19 people chump change and reap  
20 stratospheric profit, leaving us to clean  
21 up the mess they leave behind.

22 (Applause.)

23 MS. DENNIS: Including  
24 healthcare for those stricken by the  
25 effects of contamination. And I've got

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2 the information on asthma, cancer,  
3 infertility, brain lesions. These are  
4 the health issues we can look at, and  
5 we'll have to take care of them. And the  
6 effects of living in a ravaged, a ravaged  
7 Commonwealth.

8           The gas industry has the  
9 financial resources to go back to the  
10 drawing board and develop a way to  
11 extract gas from shale safely. If we  
12 stand up to them, perhaps they will.

13           We have the shale. We've got  
14 it. We've got the resource. It has been  
15 here for 400 million years and it isn't  
16 going anywhere. The industry has  
17 threatened Harrisburg that they will  
18 leave if Harrisburg doesn't comply with  
19 their demands. But, my friends, as long  
20 as there is gas in Marcellus Shale, the  
21 industry will remain interested in it.  
22 We've got the bargaining chips that we're  
23 rolling over. We can afford to wait for  
24 the EPA and for cumulative impact  
25 studies. We've got the cards in our

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2 hands. We just got to stand up.

3 (Standing ovation.)

4 MS. DENNIS: Someone needs to  
5 be the adult in this situation. Someone  
6 needs to stand up and say, Stop, wait and  
7 listen.

8 (Applause.)

9 MS. DENNIS: We need to  
10 understand the overall risk and the  
11 impact on our community, our state and  
12 our nation. Our nation is at stake.  
13 We're going to poison ourselves into  
14 oblivion. We're not going to have to  
15 just import oil; we're going to have to  
16 start importing water. Isn't that going  
17 to be fun?

18 Eight blocks east and one block  
19 south from here, a few men stood up in  
20 1776 and said, Enough is enough. Now,  
21 they were not perfect men. A lot of them  
22 had slaves. But they did stand up to the  
23 most powerful empire of their time, the  
24 British. What better place, what better  
25 place than Philadelphia for --

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2 (Applause.)

3 MS. DENNIS: -- for someone,  
4 the DRBC maybe, to say, Enough is enough.  
5 We're going to wait, we are going to wait  
6 and see the results of the EPA and  
7 cumulative impact studies, and until  
8 then, the Delaware River Basin is off  
9 limits.

10 (Applause.)

11 COUNCILMAN JONES: Well...

12 MS. DENNIS: You invited me.

13 COUNCILMAN JONES: I sure did,  
14 and I'm glad I did.

15 MS. DENNIS: Don't mess with a  
16 woman.

17 COUNCILMAN JONES: I have no  
18 questions on that. I'm going to let the  
19 other panelists speak, but that was  
20 powerful, and thank you.

21 (Standing ovation.)

22 COUNCILMAN JONES: Well, I feel  
23 sorry for the next panelist. I really  
24 do. But please begin your testimony.

25 MS. BLOOM: Thank you. Denise

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2 Dennis is a wonderful researcher,  
3 wonderful speaker, wonderful writer, and  
4 I'm proud to be sitting next to her. My  
5 name is Iris Marie Bloom and I'd like to  
6 thank you, Councilman Jones and  
7 Councilwoman Blondell Reynolds Brown, for  
8 your leadership prior to today and your  
9 leadership today. We really, really  
10 appreciate it. This is the most  
11 important public health issue in our  
12 region in our time. And, of course, it  
13 is an environmental issue, but I think  
14 it's very important for us to understand  
15 this is a public health issue.

16 I speak on behalf of Protecting  
17 Our Waters, a Philadelphia-based, all  
18 volunteer, grassroots group of about  
19 1,600 people on our list, 160  
20 organizations in our network, sometimes  
21 tens of thousands who read what we write  
22 and a dozen people who do all the work.

23 Thank you, Protecting Our Water  
24 volunteers, who are absolutely amazing.

25 I am tremendously grateful for everyone

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2 in Protecting Our Waters and everyone  
3 here today who cares enough about clean  
4 water and air, public health, climate and  
5 environmental justice to be heard.

6 I also speak on behalf of  
7 myself. I am a people person. I live in  
8 West Philly and have worked for a  
9 healthier Philadelphia for over 20 years  
10 as an educator, businesswoman, as founder  
11 and director of the non-profit Women's  
12 Anti-Violence Education, as a writer and  
13 editor. I am an activist, and I am most  
14 amazed that Homeland Security never  
15 tracked me until I began advocating for  
16 clean water and clean air.

17 (Applause.)

18 MS. BLOOM: There is more I'd  
19 love to tell you about how much I love  
20 our rivers and why, not just the tap  
21 water that I do love to drink but the  
22 rivers themselves, how well I know the  
23 Schuylkill and Delaware and how rivers  
24 bring people together across all the  
25 dividing lines known to human kind, urban

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2 and rural, upstream and downstream, all  
3 the divisions of class, race, age,  
4 culture and personal histories, but I  
5 have about 17 points to make in four  
6 minutes, so I will talk fast.

7 This is a public health issue,  
8 and, City Council, we are asking you to  
9 stand up for our drinking water, our  
10 rivers and streams, economic justice and  
11 our future loud and clear.

12 Gas drilling upriver threatens  
13 Philadelphia. Toxic chemicals can in  
14 fact cause serious harm, illness and  
15 premature death even in trace amounts.  
16 PCBs in the Hudson River were proven to  
17 travel 200 miles. So fracking upstream  
18 can impact our drinking water.

19 This June, the national  
20 non-profit American Rivers named the  
21 Upper Delaware River the number one most  
22 endangered river in the United States, a  
23 dubious distinction, due to the threat of  
24 up to 20,000 unconventional gas wells  
25 being drilled upstream. Two weeks ago

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2 the environmental group Riverkeeper  
3 released a report summarizing more than  
4 100 cases of water contamination related  
5 to gas drilling around the country, and  
6 the independent reporters at ProPublica  
7 have documented over 1,000 instances of  
8 water contamination due to gas drilling  
9 nationwide.

10 We cannot afford to treat  
11 contaminated water, we cannot afford to  
12 replace contaminated water, and we cannot  
13 afford to drink contaminated water.

14 (Applause.)

15 MS. BLOOM: I'm going to step  
16 aside from my prepared comments just to  
17 address some things that haven't been  
18 stated yet in other comments.

19 Denise referred to the  
20 radioactivity of the Marcellus Shale.  
21 This is a very important -- this is one  
22 of the most important features that has  
23 not been adequately addressed yet. The  
24 Marcellus Shale has high levels of  
25 radium-226, which is a leading cause of

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2 lung cancer and bone cancer. Radium-226  
3 comes up -- the 13 samples have come up  
4 as high as 16,000 picocuries per liter.  
5 That is 3,200 times the safe level for  
6 drinking water, which is five. So five  
7 picocuries per liter is what's safe for  
8 drinking water. Sixteen thousand  
9 picocuries per liter is what comes up.

10 What comes up is also 267 times  
11 the safe level for exposure to the  
12 environment. But when it comes up, it is  
13 exposed to the environment, workers are  
14 exposed to it, and I have not heard any  
15 adequate description for treatment of  
16 this radioactive waste. So we should be  
17 clear that the waste, the flow-back, is  
18 not just toxic, but it is radioactive.  
19 So when it's called brine and we're  
20 envisioning like simple salt water,  
21 that's not it.

22 (Applause.)

23 MS. BLOOM: A couple of other  
24 points. There was a reference to New  
25 York City being more proactive. On this

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2 issue, New York City, City Council and  
3 Mayor have been proactive. They insisted  
4 that a study be done. They hired a firm,  
5 Hazen and Sawyer, to do an engineering  
6 study of the New York City watershed.  
7 That cost, I believe, a million dollars.  
8 It took 11 months, and it's done. When  
9 it came back, the conclusion was there  
10 should be no fracking, no horizontal  
11 drilling in the Marcellus Shale within  
12 seven miles of New York City's watershed.

13 (Applause.)

14 MS. BLOOM: We need a  
15 comparable study for Philadelphia's  
16 watershed. That study -- the million  
17 dollars for that study is in the federal  
18 pipeline right now. Congressman Sestak  
19 and two other Congressmen have fought for  
20 that. We need to make sure that that  
21 study happens.

22 And in terms of Pennsylvania  
23 having the most stringent regulations --  
24 that was also stated -- in fact New York  
25 state has the most stringent regulations,

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2 because they have a moratorium. The New  
3 York State Senate passed a moratorium on  
4 gas drilling. And that's what we need.  
5 That's what stringent regulations would  
6 mean. Until we have adequate  
7 regulations, we need a moratorium.

8 I'm going to --

9 (Applause.)

10 MS. BLOOM: So to be very clear  
11 what we're asking for, City Council, we  
12 insist that you do everything in your  
13 power -- you've already done a lot; we  
14 need you to do more -- everything in your  
15 power to demand a cumulative impact study  
16 be undertaken and completed specifically  
17 for the Delaware River Basin before any  
18 rules are issued for drilling in this  
19 watershed, before any more exploratory  
20 wells, water withdrawals or drilling  
21 permits for vertical or horizontal wells  
22 are approved.

23 A letter from Fish and Wildlife  
24 Service and the National Park Service,  
25 which I submitted as part of written

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2 testimony, specifies the DRBC must review  
3 the cumulative impacts of exploratory  
4 wells, which can and do cause as much  
5 harm -- as much or more damage than  
6 producing wells. So we insist that a  
7 cumulative impact comes first.

8 If it takes three years to  
9 perform that cumulative impact study,  
10 that moratorium will provide protection  
11 to families and children, land and water  
12 for three more years.

13 This month, 13 more families in  
14 Susquehanna County filed suit against gas  
15 drillers for water contamination by  
16 poisonous fracking fluid, sickening a  
17 young child in one of those families. On  
18 Thursday, this Thursday, the day after  
19 tomorrow, September 30th, DEP Secretary  
20 John Hanger is expected to announce  
21 publicly that it will cost \$10 million to  
22 pipe in replacement water for the  
23 families in Dimock because the nine  
24 square mile aquifer is permanently  
25 contaminated. It cannot be cleaned up.

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2 So they're talking about creating a whole  
3 new municipal water system, piping in  
4 water from elsewhere. The bill is going  
5 to be paid for by the State of  
6 Pennsylvania. That's us.

7 We can't afford gas drilling.

8 Under these circumstances, the  
9 environment and public health cost is too  
10 expensive. Please support a statewide  
11 moratorium on all new fracking permits.

12 We're asking that as a specific  
13 demand, because there are two bills in  
14 the House -- in the State Legislature  
15 right now calling for a moratorium. The  
16 best bill is being introduced by Tony  
17 Payton from Philadelphia calling for a  
18 three-year moratorium, but any statewide  
19 moratorium we're asking you to give your  
20 full support.

21 So as Philadelphia Water  
22 Department mentioned, drilling will  
23 degrade Philadelphia's water quality if  
24 it's allowed to go forward, not only due  
25 to the toxic content, but also due to

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2 deforestation and soil compaction.  
3 Remediation for the soil and for the  
4 water quality is not an expense we can  
5 afford.

6 We haven't talked about the  
7 salt line yet. The salt line in the  
8 Delaware River is now at Chester, five  
9 miles north where it usually is this time  
10 of year. The salt line would march north  
11 if drilling proceeds because of draining  
12 potentially billions of gallons of fresh  
13 water permanently from the ecosystem,  
14 permanently, and injecting most of that  
15 underground in a contaminated form.

16 Furthermore, global warming and  
17 sea level rise will cause the salt line  
18 to move north and dumping of high,  
19 tedious, salty wastewater from the  
20 Marcellus Shale, and she will cause more  
21 salt.

22 So we have a salt problem.  
23 That's a cumulative impact. It has not  
24 been studied yet.

25 We need to talk about global

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2 warming. Unconventional gas drilling  
3 contributes to global warming by pouring  
4 hydrocarbons, over a thousand truckloads  
5 per frack, plus 800 gallons of diesel per  
6 day for a typical generator into the air,  
7 along with massive routine methane  
8 emissions. Methane, as Denise pointed  
9 out, is a potent greenhouse gas,  
10 trapping, according to which scientists  
11 you're listening to, 25 to 72 times more  
12 heat than CO2. So we're talking about  
13 increased global warming, but no one, not  
14 DEP, not EPA and not DRBC, has any plans  
15 to regulate these massive routine methane  
16 emissions. Philadelphia cannot afford  
17 more global warming, which threatens to  
18 inundate the wetlands and eventually the  
19 City itself.

20 Preliminary studies by Richard  
21 Howarth of Cornell University suggest  
22 that gas compares poorly to coal in terms  
23 of impact on global warming and is about  
24 equivalent to petroleum products, a  
25 little better than gas, a little worse

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2 than diesel, in global warming impact  
3 when extraction costs are taken into  
4 account. This is not an alternative  
5 energy fuel. This is a fossil fuel,  
6 which dangerously increases global  
7 warming.

8 Further, gas drilling  
9 explosions, fires, blowouts, pipeline  
10 problems create potentially catastrophic  
11 risks for the region, which have yet to  
12 be evaluated, let alone prevented. Due  
13 to its structure, in that DEP is directed  
14 by the bus, Ed Rendell, to fast-track  
15 drilling permits that's a structural  
16 problem, they're fast-tracking drilling  
17 permits and the same entity is charged  
18 with regulating the processes that result  
19 from those same drilling permits that are  
20 being handed out like candy. So because  
21 of that structure, because of its lack of  
22 funding, its inability to catch up to the  
23 pace and destructiveness of this  
24 industry, DEP is unable to appropriately  
25 regulate this industry.

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2 Secretary John Hanger said that  
3 the June 3rd Clearfield blowout would  
4 have been catastrophic had a single spark  
5 been present. As it was, it was merely a  
6 disaster. As everyone knows, toxic  
7 fluids and flammable gas spewed 75 feet  
8 into the air for 16 hours in that  
9 incident. It was potentially  
10 catastrophic. That happened in a  
11 beautiful state forest. In this more  
12 densely populated region, that spark more  
13 likely would have been present, turning  
14 disaster into catastrophe.

15 We need a moratorium for safety  
16 and emergency planning that has not  
17 happened yet.

18 When the West Virginia disaster  
19 fire happened, the workers, seven  
20 workers, who were severely burned had to  
21 drive themselves to the hospital, and the  
22 volunteer fire workers rushed to the  
23 scene and put themselves at risk, not  
24 knowing what they were handling, because  
25 there had been no emergency training, no

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2 safety planning, and that is the case  
3 throughout the State of Pennsylvania.

4 We need facts, not fabricated  
5 figures. The industry's only argument  
6 about how they're going to benefit the  
7 public, the general public, is jobs. No  
8 jobs will be created in Philadelphia due  
9 to gas drilling, unless we get a whole  
10 new crop of environmental lawyers, which  
11 we sorely need, and civil rights lawyers,  
12 which we also need.

13 Furthermore, the industry's  
14 prediction of 90,000 jobs created this  
15 year by drilling was fabricated by a  
16 computer program called IMPACT, which can  
17 produce whatever numbers are desired  
18 using fabricated multipliers. This  
19 discredited study was paid for by the  
20 industry. Pennsylvania Labor and  
21 Industry figures show an increase of only  
22 2,500 in-state jobs in the mining sector  
23 since 2007 and 5,000 jobs in the  
24 hospitality sector, according to  
25 Responsible Drilling Alliance. So those

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2 are the state figures. No 90,000 jobs.

3 That is a fabrication.

4 We need facts.

5 I'm just going to say this,  
6 because my mother died of lung cancer  
7 after smoking for 60 years, and my  
8 brother has worked in the -- has worked  
9 against tobacco for many years as a  
10 lawyer, and every time I tell him what  
11 the PR strategy is of this industry, he  
12 is stunned how identical it is to big  
13 tobacco. This is not just rhetoric.  
14 This is what they're doing. Big gas  
15 behaves like big tobacco, which actively  
16 suppressed scientific evidence linking  
17 cigarettes to lung cancer for decades,  
18 while arguing that our economy needed all  
19 these jobs. Same PR strategy, same  
20 de-valuing of life and health.

21 Why is the industry trying to  
22 rush and fast-track everything? Common  
23 Cause has shown the industry spent \$5  
24 million lobbying in Pennsylvania. That's  
25 only in our state, \$5 million so far to

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2 grease the rails of speedy drilling.  
3 Why? They want to drill fast before the  
4 EPA study or any cumulative impact study  
5 can be done, before lawsuits have time to  
6 even come to court or let alone be  
7 resolved, and before the general public  
8 can fully comprehend the massive harm.

9 (Applause.)

10 MS. BLOOM: Unions are being  
11 shut out from gas drilling jobs, but only  
12 unions can make drilling safer, because  
13 workers who speak up about health, safety  
14 or environmental violations can be fired  
15 without whistleblower protections,  
16 whatever state they're from, wherever  
17 they're from. They have no protection if  
18 they're not in a union. And many people  
19 have spoken to workers on site, and  
20 that's what they say. They say, We are  
21 paid a lot of money to do a job and look  
22 the other way and not speak the truth.

23 A diverse economy is a healthy  
24 economy. Eco-tourism, organic farming,  
25 trout fishing, healthy agriculture,

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2 hiking, every other form of commerce that  
3 requires clean water, clean air and  
4 healthy, beautiful landscape are all at  
5 risk. Trout fishing one species alone of  
6 trout puts \$4.7 billion into the  
7 Pennsylvania economy every year. And if  
8 you look at a map of the best trout  
9 fishing streams -- I didn't know this  
10 until I started studying Marcellus Shale,  
11 where the trout fishing streams are.  
12 They overlay -- these are all the trout  
13 fishing streams. They overlay exactly on  
14 top of the Marcellus Shale extraction  
15 areas.

16 We've been warned. People have  
17 come all the way from Texas to warn us  
18 that the air pollution is worse than the  
19 water contamination.

20 There's a problem with  
21 fragmentation here, fracturing and  
22 fragmentation. The agencies are  
23 fragmented. So it's my understanding the  
24 DRBC does not control or study or worry  
25 about air pollution. Their job is water

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2 quality. DEP is being directed to  
3 fast-track permits. EPA is kind of shut  
4 out from the whole thing because of the  
5 Halliburton loophole. So who is looking  
6 at air pollution?

7 Studies have confirmed that in  
8 Fort Worth gas drilling poured as much  
9 CO2 into the air as all the cars in Fort  
10 Worth annually. You can replace water,  
11 but you can't replace air.

12 Just a little bit more. And I  
13 know people have a lot to say, so I  
14 really hope we can hear from the public,  
15 but we need to know that Pennsylvania DEP  
16 has logged over 1,614 gas drilling  
17 violations since 2008, of which 1,056 are  
18 identified as most likely to harm the  
19 environment. We can't afford this kind  
20 of damage for the sake of a boom-and-bust  
21 cycle. Marcellus wells are depleted 75  
22 percent within the first year, according  
23 to industry records. When the wells are  
24 done, the destruction of habitat,  
25 wetlands, streams, water quality, air

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2 quality, climate and public health  
3 remains behind. Not just for a few  
4 months, but for many years, for decades,  
5 and as Dr. Boufadel pointed out, for  
6 10,000 years in terms of all of the toxic  
7 materials that are injected underground.

8 The only reason -- I'm sorry.  
9 Just a little bit here.

10 Councilmembers, we have to  
11 stand up, slow down, say halt, say study  
12 first, say moratorium until science, not  
13 cash, can guide policy. We have to  
14 protect our neighbors by insisting on no  
15 forced pooling. If forced --

16 MS. DENNIS: Thank you.

17 MS. BLOOM: If forced pooling  
18 were to go through, then this precious  
19 land with this amazing legacy on the  
20 Dennis farm would be forced against their  
21 will to have gas drilling underneath  
22 their property, as well as all around  
23 their property.

24 We must insist that PGW not buy  
25 Marcellus gas for as long as it takes for

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2 the EPA study to be done, for our own  
3 cumulative impact study to be done and  
4 for the public to be in discourse to run  
5 its course. We need a societal consensus  
6 about whether or not this is good. So,  
7 PGW, don't buy Marcellus gas until then.

8           Meanwhile, we must reduce our  
9 carbon footprint as if there were no gas.  
10 There are 250 cities Philadelphia's size  
11 in China which heat 100 percent of their  
12 hot water using solar systems. We can do  
13 that.

14           (Applause.)

15           MS. BLOOM: There's a lot more  
16 I would love to say about people, because  
17 rural people from Tioga County, Bedford  
18 County, Bradford County, Sullivan County,  
19 Susquehanna County are calling me day and  
20 night because I've got Protecting Our  
21 Waters on my Gmail and on my website and  
22 they think that I can help protect them.  
23 And that's why I'm coming to you. That's  
24 one of the reasons I'm coming to you,  
25 because rural people -- we are healing

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2 the urban rural divide and we are caring  
3 about our rural neighbors as well as our  
4 urban population. We know your first job  
5 is to protect the urban population here,  
6 but we do need to protect our neighbors  
7 as well.

8 The only reason for the  
9 Marcellus rush is that fossil fuel  
10 extraction is the most profitable  
11 activity known to man. Check out  
12 marcellusmoney.org to see whose pockets  
13 Marcellus money is filling. But their  
14 money isn't going to stop us from  
15 protecting our health, our waters, our  
16 flowers, our fields, our air, our  
17 climate, our economy, our people, our  
18 future.

19 (Standing ovation.)

20 MS. BLOOM: I hope you're all  
21 clapping for your yourselves, because  
22 your dedication really matters.

23 And before I turn the mike over  
24 to our esteemed economist, I just want to  
25 mention [www.protectingourwaters.com](http://www.protectingourwaters.com) as a

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2 way to find out more information and look  
3 at our allies' links.

4 Thank you.

5 COUNCILMAN JONES: I want to  
6 thank everyone for their patience. We  
7 are running behind time. I told you five  
8 minutes. It seems as though everyone's  
9 watch is broken. So is mine, because the  
10 information is important to get out  
11 there. But what we want to do is get  
12 everybody in so it's a matter of public  
13 record.

14 So, remember, we are listening.  
15 All written testimony will be  
16 memorialized. If you want to summarize,  
17 feel free.

18 Thank you and begin your  
19 testimony.

20 DR. MURPHY: Okay. I'm  
21 Frederic Murphy, a Professor at the Fox  
22 School of Business at Temple University.  
23 Prior to coming to Temple, I was in  
24 charge of the U.S. forecasting systems at  
25 the Department of Energy for forecasting

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2 U.S. energy markets, and I was involved  
3 in the major policy analyses that went  
4 through for all the major energy  
5 legislation that affected the nation when  
6 the first energy crises hit in the  
7 1970's.

8 I've also been involved in  
9 economic impact assessments. I took the  
10 Army Corps of Engineers' economic  
11 assessment of the deepening of the  
12 channel, and I was the one who found the  
13 major flaws in that first analysis that  
14 caused them major headaches and having to  
15 redo that study.

16 I've also looked at the  
17 economic impact of casinos, and I found  
18 the major flaws in those studies as well.  
19 And so I do have a background of digging  
20 deeply into these things.

21 Now, doing those analyses took  
22 me -- it took me a couple of person weeks  
23 to figure out what was going on with the  
24 Army Corps of Engineers study and about a  
25 month to redo the casino study, and I've

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2 only had a few hours to look at this, so  
3 these are preliminary views.

4 But let me first start out with  
5 the basic principles that I use to look  
6 at an economic impact statement. First,  
7 number one, it's a sell document. These  
8 documents are produced by interested  
9 parties who want to sell a position, sell  
10 a project, and they all point out the  
11 positives and never the negatives.

12 And next, a consultant who  
13 writes one of these documents has to be  
14 as positive as possible, because  
15 otherwise they wouldn't have any future  
16 customers. So you always have to put on  
17 your green eyeshade when looking at these  
18 things.

19 And then another thing -- and  
20 this applies to the other ones that I was  
21 looking at relative to the City -- is,  
22 you have to look at projects that create  
23 true, what I call, export earnings, they  
24 bring in dollars from outside the region  
25 into the region, because otherwise we're

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2 talking about projects like doing each  
3 other's dry cleaning, which clearly does  
4 not add jobs to the economy.

5           And then -- and this involves  
6 being very careful about understanding  
7 the net job additions that come from the  
8 project as opposed to the gross job  
9 additions. So that, for example, in the  
10 casino economic impact reports, they  
11 talked about all the jobs they added in  
12 the casinos, but they did not address the  
13 question of what were the job losses  
14 elsewhere, because people have constant  
15 recreation budgets they don't violate and  
16 if they spend their money in the casinos,  
17 they don't spend their money at local  
18 restaurants and local entertainment  
19 venues. And so that means the casinos  
20 were a net job loser for the City. This  
21 applies to stadiums, it applies to  
22 concerts and arts. It applies to the  
23 Convention Center and even medical  
24 research labs. So that, for example,  
25 stadiums are mostly local people, so it's

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2 local recreation dollars. That means  
3 other recreation businesses are impacted  
4 in the region.

5 Convention centers bring in  
6 outside dollars, but they cost a lot of  
7 money and don't make any money on  
8 themselves. So it's a question of  
9 whether that's a good investment.

10 Medical research labs I put on  
11 here because that's 100 percent outside  
12 money from national institutes of health  
13 and other research funders that generate  
14 huge jobs without a lot of cost to the  
15 City.

16 Now, the other question I ask,  
17 Are the numbers consistent with other  
18 economic impact statements. So that, for  
19 example, SugarHouse claimed that they  
20 would provide jobs that average \$40,000  
21 each. Foxwoods said \$18,000. You look  
22 at Foxwoods' report, Foxwoods told the  
23 truth. And you look at the casino  
24 reports. University of Iowa did the same  
25 analysis for their local casinos and

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2 showed that they were job killers, too.

3           So now this brings me to the  
4 gas report. And, again, this is  
5 preliminary, because I haven't spent  
6 hours digging through the numbers, but  
7 clearly, the industry puts its better  
8 foot forward in this report. It talks  
9 about all the positives. And probably  
10 the job numbers are inflated, but I  
11 haven't had a chance to check the  
12 multipliers in this model that they used.  
13 They're checkable at some point.

14           The authors were paid by the  
15 industry and have worked in the industry  
16 for years. Considine is a known  
17 researcher, by the way, so he does have a  
18 respected career, but he's producing a  
19 product for the industry.

20           Now, in favor of the gas  
21 industry report, this is a pure export  
22 industry. I mean, all that gas that they  
23 produce either substitutes for gas we  
24 would have imported or it's sold. So  
25 it's an export industry.

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2 Now, I would have said that  
3 there's little job loss, except in the  
4 impacted farmlands, but as was pointed  
5 out to me, I'm not an expert in  
6 recreation industries and to what extent  
7 does this do damage to the fishing  
8 industry, and I don't know, and it could  
9 be significant jobs.

10 Now, I can't judge whether  
11 these numbers are consistent with other  
12 impact statements, but a couple points  
13 are clear.

14 The authors try to claim that  
15 the Marcellus Shale is in competition  
16 with the Barnett Shale and other shale  
17 deposits in the country, and so they try  
18 to create this horse race sense and we  
19 got to take care of them. But, in fact,  
20 there's a national natural gas price with  
21 regional differences, and you see that  
22 PGW buys from the Gulf from standard gas  
23 supplies. And this is a national market.  
24 We're not competing against the Barnett  
25 Shale.

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2 Now, one of the reasons for  
3 this report is to address the issue of  
4 taxes or to fight back the taxing of the  
5 gas. However, the report says nothing  
6 about the job impact of taxes. How would  
7 one do that? One would compare the  
8 number of jobs before and after the taxes  
9 with a tax model that incorporates the  
10 geology, the cost of the industry and the  
11 gas prices. There's nothing in the  
12 report on that. So the only conclusion I  
13 can come is if they're willing to pay  
14 that much in upfront money, they could  
15 afford to eat the cost of the taxes and  
16 they could afford to eat higher costs of  
17 production to make it more  
18 environmentally safe to produce the gas.

19 Now, the one thing I do know is  
20 that this is the natural gas industry,  
21 and natural gas is a depletable resource,  
22 so that any jobs that are not there now  
23 because of our choices on environmental  
24 regulation or taxes will probably be  
25 there eventually, because right now gas

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2 prices are between \$4, \$5, bouncing  
3 around 4.50 mostly, whereas a few years  
4 ago the gas price was \$10 a thousand  
5 cubic feet.

6 Now, eventually, once the  
7 shales are depleted, the gas price is  
8 going to get back up there, and so no  
9 matter what the taxes are, no matter what  
10 the environmental restrictions are, it  
11 will at some point become economic and  
12 there will be jobs in that industry, but  
13 they'll be jobs that are safer and better  
14 protect the environment.

15 The other thing is that one of  
16 the things about Pennsylvania is that  
17 this has been a boom-bust state as far as  
18 natural resources. We were the major oil  
19 producer, and now there's some, but not a  
20 lot. And we've seen the destruction from  
21 the timber industry. Thank God that it  
22 was renewable and grew back. And we're  
23 still paying the price of the depleted  
24 coal fields, and we have a lot of people  
25 without a lot of jobs in the T part of

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2 the state.

3 It's better to have a thousand  
4 jobs for ten years than 10,000 jobs for  
5 ten years.

6 COUNCILMAN JONES: Say that  
7 again.

8 DR. MURPHY: It's better to  
9 have a thousand jobs for a hundred  
10 years -- did I misspeak -- than 10,000  
11 jobs for ten years. So we don't  
12 necessarily want an extreme boom that  
13 will create an extreme bust as far as the  
14 health of the state economy.

15 Now, the other thing is, the  
16 economics literature on taxes and on how  
17 the federal government ought to take  
18 lease bonuses and royalty payments --  
19 there's a big literature on that -- it is  
20 important to look at, and there's -- and  
21 the thing you look at when you do this  
22 kind of tax analysis is not who writes  
23 the check to the government, but who  
24 ultimately pays. And in terms of, say, a  
25 tax on natural resource, it would just

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2 mean lower lease bonus payments for the  
3 holder of the natural resource, and it  
4 would not mean necessarily higher cost  
5 for citizens of Pennsylvania in general.

6 And so in conclusion, I would  
7 say that one would have to take the  
8 economic impact statement with a  
9 jaundiced eye. One would have to put on  
10 one's green eyeshade and recognize that  
11 this is a sell document. And the  
12 industry is so highly profitable,  
13 otherwise it wouldn't be paying so much  
14 in upfront royalties, that there is the  
15 opportunity to regulate and still have  
16 the gas produced or the jobs there. And  
17 there's no rush. The resource has been  
18 there for hundreds of millions of years.  
19 It will still be there.

20 Thank you.

21 (Applause.)

22 COUNCILMAN JONES: I want to  
23 thank this panel both for your passion  
24 and your knowledge about this important  
25 research we're doing. One economic

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2 question, because this is more  
3 environmental in this nature and hearing,  
4 but I can't resist the question of, is  
5 it -- I know and I've traveled abroad  
6 where there are oil-producing nations.  
7 It is not uncommon for the residents of  
8 that nation to receive a subsidy on the  
9 gas that is produced in Middle East  
10 countries, that they get a benefit from  
11 the origin of the natural resources,  
12 meaning that people in Amman, Jordan  
13 don't pay a lot for gas because they're  
14 neighbors to Saudi Arabia and they  
15 subsidize their actual petroleum use.

16 In the case of Pennsylvania,  
17 are there any measures that you know of  
18 or things that in other states have been  
19 done to give a hometown discount, if you  
20 would, for the resource that is produced  
21 here? We heard very little jobs being  
22 created for Pennsylvanians and a great  
23 deal of risk assumed by Pennsylvanians  
24 environmentally. Have we looked at that  
25 at all?

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2 DR. MURPHY: Well, first off,  
3 one should look at the kind of cars that  
4 are driven in Saudi Arabia, and they're  
5 the biggest gas guzzlers around, because  
6 gas is so cheap.

7 So essentially if we lower the  
8 price, we would have much higher  
9 consumption, and that has consequences  
10 for the environment and has consequences  
11 for when the resources go out and we  
12 build this infrastructure around cheap  
13 resources and we don't prepare for when  
14 the resources are going to be very  
15 expensive. So, in fact, that actually is  
16 not a good idea. If you're going to take  
17 it, take it as tax revenue and lower the  
18 cost for taxpayers in other ways.

19 COUNCILMAN JONES: The purpose  
20 for this hearing is to vet ideas. Even  
21 when they're bad, we need to know it.

22 DR. MURPHY: Okay.

23 COUNCILMAN JONES: Councilwoman  
24 Brown.

25 COUNCILWOMAN BROWN: Let me

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2 echo, the testimony was powerful, deeply  
3 compelling and an affirmation that we  
4 need to be having this discussion.

5 My question is, what are the  
6 elected officials doing or saying in the  
7 rural areas around this issue? Have they  
8 been energized, galvanized, talked to,  
9 sat down with, whatever?

10 MS. BLOOM: Well, I'll just  
11 mention a couple of things, and also if  
12 Brady Russell is still here, he has more  
13 expertise on that and the big picture  
14 from Clean Water Action perspective. But  
15 Senator Ferlo is from the Pittsburgh  
16 area, not a rural area but a heavy, heavy  
17 gas drilling area, and he is the first  
18 person in Legislature to introduce the  
19 one-year moratorium. So it's very  
20 significant that somebody from one of the  
21 areas that's been drilled the most  
22 heavily for the longest is actually in  
23 the forefront of pushing for a statewide  
24 moratorium.

25 COUNCILWOMAN BROWN: His full

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2 name is what?

3 MS. BLOOM: That's co-sponsored  
4 by Vince Hughes in Philadelphia. So  
5 that's SB 1447. SB 1447, I believe, and  
6 then HB 2609 that was introduced by  
7 Phyllis Mundy. Just a couple of other  
8 bills. I can tell you more about the  
9 bills than the specific legislators, but  
10 there's an HB 2213, which would require  
11 disclosure of chemicals. That's in the  
12 House. And then I've heard -- I haven't  
13 read the bill, but our own Senator  
14 Williams has introduced a bill requiring  
15 full disclosure of chemicals, because as  
16 we heard, the industry says they're  
17 disclosing it, but they're not. We  
18 didn't know that hydrochloric acid was  
19 being used in the fracking process until  
20 there was a hydrochloric acid spill.  
21 That's what's happening. So there needs  
22 to be that full disclosure.

23 And you wanted to...

24 MS. DENNIS: Well, you just  
25 mentioned it. I was going to -- Phyllis

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2 Mundy of Luzerne County, which is where I  
3 grew up, she's calling for -- well, she's  
4 also working on the forced pooling. One  
5 of the things that's happening right now  
6 that a lot of the local legislators are  
7 involved with is the forced pooling bill.  
8 They've changed it. They're calling it  
9 conservation pooling. But basically what  
10 they've attached to the severance --  
11 they're trying to get a severance tax in  
12 Harrisburg. What the Senate attached to  
13 the legislation for the severance tax are  
14 two things. One would be exempting the  
15 gas companies from local zoning rules, so  
16 that the local zoning rules that might  
17 prevent them from drilling, they would  
18 be -- the gas companies would now be  
19 exempt.

20 The other thing is this thing  
21 called forced pooling, which they've  
22 changed to conservation pooling. That  
23 would enable the gas companies to go on  
24 unleased land, like mine, extract the gas  
25 from the subsurface, and they say that

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2 they're going to go under the surface,  
3 but to get those pipes underneath, we  
4 asked, they do disturb the surface of it  
5 to do it. Then they would extract the  
6 gas from properties like mine and force  
7 me to pay whatever royalty they feel like  
8 paying.

9                   They have attached those two  
10 clauses. Just like the Halliburton  
11 loophole was attached to the energy bill,  
12 the Senate has attached those two  
13 clauses.

14                   We were in Harrisburg. We  
15 talked to the House leadership or his  
16 representative. They said the House is  
17 against us. I said, Well, if the Senate  
18 sends the bill back with those two  
19 clauses, can you promise us that since  
20 the House is against it, you will not  
21 pass it, and they didn't.

22                   So look at that severance tax  
23 very carefully. That's right now where  
24 most of the attention of the local  
25 legislators. They're all over the place.

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2 Chris Carney, who is up in -- he lives in  
3 Dimock, and yet Chris Carney is not  
4 standing up. And I know Chris Carney. I  
5 am really disappointed in Chris Carney.  
6 He is going along with gas drilling.

7 The problem that I found -- and  
8 I've stopped being angry with  
9 legislators -- everybody is handing a lot  
10 of stuff, and unless it's your property  
11 and you're taking the time or you're  
12 activists and you're taking the time to  
13 look through all of this, it is -- the  
14 truth is easy to find. You just have to  
15 take the time to do it. And when people  
16 are -- you've got a state economy that's  
17 depleted, because corporations are  
18 controlling the Legislature and the  
19 Congress in Washington, so states have no  
20 money, everybody sees a cash cow and they  
21 stop thinking. That's where I said  
22 somebody has to be an adult.

23 You know, money can't buy you  
24 love and money can't buy you depleted  
25 forests. I tried to address

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2 Philadelphia's concerns. There's so many  
3 different facets to this issue. There's  
4 so many ways in which it is dangerous, I  
5 can't begin to go into them here. And  
6 I'm certain you agree with me.

7 So the individual legislators,  
8 remember, these are small-town people.  
9 They are dazzled by dollar bills, too.

10 COUNCILWOMAN BROWN: Thank you  
11 again both very, very much for your  
12 testimony. That is an additional  
13 instruction for us. Thank you.

14 (Applause.)

15 COUNCILMAN JONES: Our  
16 stenographer here, who has been taking  
17 notes for four hours straight, needs a  
18 five-minute break. So we will take a  
19 short recess, five minutes, to allow that  
20 break. Thank you.

21 (Short recess.)

22 COUNCILMAN JONES: We are going  
23 to reconvene. Is the Clerk back from  
24 break? There she is. Would you announce  
25 the next panel.

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2 THE CLERK: Carol Collier,  
3 Executive Director of the Delaware River  
4 Basin Commission; Deputy Secretary Scott  
5 Roberts from the Pennsylvania Department  
6 of Environmental Protection. And is  
7 Matthew Klayman still here from the  
8 Energy Coordinating Agency?

9 (Witnesses approached witness  
10 table.)

11 COUNCILMAN JONES: I want to  
12 first thank you so much for your patience  
13 and ask you to read your testimony.

14 MS. COLLIER: I have submitted  
15 written testimony, and there's some maps  
16 attached to that that you might want to  
17 look at.

18 I'm Carol Collier, Executive  
19 Director of the Delaware River Basin  
20 Commission, and I really appreciate this  
21 opportunity.

22 DRBC is an interstate federal  
23 commission, the mission of which is to  
24 manage water resources without regard to  
25 political boundaries. Not that easy to

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2 do. The members are the governors of the  
3 four basin states - Pennsylvania, New  
4 York, New Jersey and Delaware - and the  
5 Commander of the North Atlantic Division  
6 Corps of Engineers, who represents both  
7 the President and all federal agencies.  
8 Philadelphia serves as an advisor to the  
9 Commonwealth of Pennsylvania, and staff  
10 members of the Water Department serve on  
11 many of our advisory committees. PWD has  
12 been a really strong partner as we manage  
13 the waters of the basin.

14 Today I will discuss how DRBC  
15 currently provides protection of  
16 Philadelphia's drinking water, our  
17 proposed regulations for natural gas  
18 production in the basin and concerns for  
19 the future.

20 The Delaware River is a  
21 treasure. The Delaware River drains the  
22 portions of the four states and provides  
23 drinking water to over 15 million people,  
24 including New York City and Philadelphia.  
25 While you look nationally, the drainage

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2 area of the Delaware is relatively small,  
3 but it serves a big need. Believe it,  
4 there are 8.7 billion gallons of water  
5 withdrawn from the basin daily.  
6 Forty-two percent of all Pennsylvanians  
7 live in the Delaware River Basin. I  
8 always think that's an impressive number  
9 when I'm in Harrisburg talking to  
10 representatives.

11 As you know, the Delaware is  
12 the longest un-dammed river east of the  
13 Mississippi, and three-quarters of the  
14 non-tidal river is designated in the  
15 Federal Wild and Scenic River program.  
16 While there are 200 miles upstream of  
17 non-tidal, there are 130 miles of tidal  
18 river. While the tidal river is this  
19 busy working river so important to  
20 Philadelphia and the urban area, the  
21 upper river is pristine, has very high  
22 water quality and provides outstanding  
23 recreational opportunities. This  
24 high-quality water of the upper river is  
25 critical to the ecology of river and to

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2 the water users along the river,  
3 including the City of Philadelphia.

4 As you know, water does not  
5 respect political boundaries, and that is  
6 why the Delaware River Basin Commission  
7 was formed in 1961, signed into law by  
8 President Kennedy, ratified by Congress  
9 and by each of the four states. We do  
10 have regulatory authority, and we will be  
11 regulating Marcellus Shale, but we also  
12 serve as a coordinator of holistic  
13 watershed management and provide a forum  
14 to adapt policies and management  
15 strategies as issues change. We develop  
16 action plans using our multi-sector  
17 advisory committees and are able to  
18 implement the strategies through  
19 regulations, operating plans such as the  
20 lower basin drought watch that we just  
21 announced last Friday. It appears that  
22 if you make a drought watch, that makes  
23 it rain. So it's good. And imposing  
24 management approaches of equitable  
25 allocation. DRBC is not above the

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2 states, but provides a forum for states  
3 and federal government to come together  
4 to manage critical resources.

5 DRBC has a number of programs  
6 for protection of Philadelphia water  
7 supply currently, and I want to mention  
8 two of the most important, because this  
9 relates to Marcellus Shale regulation.

10 One is maintaining what we call the  
11 Trenton Flow Target. If there is not  
12 sufficient fresh water flowing down the  
13 Delaware River, salty water from the bay  
14 can work its way up into Philadelphia  
15 intakes at Torresdale, threatening the  
16 operations of the water treatment  
17 facility and the health of Philadelphia  
18 citizens. This almost came to pass in  
19 the droughts of the '60s. DRBC maintains  
20 flow levels adequate to keep the salt  
21 below Philadelphia by calling for  
22 releases of water from New York City  
23 reservoirs and water that we actually own  
24 in Beltzville and Blue Marsh reservoirs,  
25 which are operated by the Corps of

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2 Engineers. The releases from the latter  
3 reservoir, Beltzville, also help flows  
4 for the water supply in the Schuylkill,  
5 your personal water supply.

6 As of yesterday, the Commission  
7 had directed the release of almost 13  
8 billion gallons to keep the salt away  
9 from Philadelphia during these dry times.  
10 I'd like to say, though, that it's  
11 working now, but in the future, I am  
12 concerned about climate change and how  
13 that will raise the level of sea level,  
14 bringing the salt further up, also making  
15 for more intense storms but also summer  
16 droughts, something we need to talk about  
17 in the future.

18 We also have the issue that  
19 salts, total dissolved solids, are being  
20 seen increasing in fresh water, so the  
21 water coming down to Philadelphia, due to  
22 a number of causes, but including mining  
23 and drilling.

24 COUNCILMAN JONES: Could you  
25 repeat that.

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2 MS. COLLIER: If you look at  
3 the chemical composition of fresh water,  
4 while it's not above standards, we don't  
5 have the same problems as, say, in the  
6 Monongahela River, but gradually we are  
7 seeing an increase in salts in fresh  
8 water, and this is from wastewater  
9 plants, road salt, but it is also from  
10 mining and drilling.

11 The second area that we have in  
12 place now, which is especially important  
13 and to Philadelphia, is what we call  
14 Keeping the Clean Water Clean. We have  
15 done years of monitoring and found that  
16 the waters of the non-tidal river from  
17 Hancock, New York all the way down to  
18 Trenton are better than water quality  
19 standards. Three-quarters of this  
20 non-tidal water are designated Federal  
21 Wild and Scenic, as I mentioned, and that  
22 is managed by the National Park Service,  
23 but DRBC has a role in protecting the  
24 water quality of the system. And I am  
25 proud to say that DRBC has designated the

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2 whole non-tidal river as what we call  
3 Special Protection Waters. So we are  
4 maintaining existing conditions, and it  
5 is the longest stretch of  
6 anti-degradation waters in the nation.  
7 So this SBW, as we call it, regulatory  
8 program provides an extra level of  
9 protection for the waters of  
10 Philadelphia.

11 Let's jump to Marcellus gas  
12 well drilling. Approximately 34 percent  
13 of the Delaware River Basin -- when I say  
14 "the basin," I also include the area  
15 below Philadelphia -- is underlain by the  
16 Marcellus Shale, and, of course, it is  
17 also located in river headwaters, and  
18 this is the most vulnerable part of a  
19 river system. And there's some graphics  
20 there to look at.

21 The shale also underlies the  
22 Special Protection Waters of the basin  
23 that I just mentioned. So protecting the  
24 existing water quality during Marcellus  
25 Shale drilling is really paramount.

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2 Potential water-related impacts  
3 we have heard about, which include  
4 consumptive use of water for high-volume  
5 fracking, treatment and disposal of the  
6 drilling wastewater, the flow-back and  
7 production waters, potential spills and  
8 non-point source runoff, potential  
9 contamination of groundwater, and changes  
10 to the landscape of the upper basin.

11 I have found it very  
12 interesting that even though the Delaware  
13 River headwaters are more than 150 miles  
14 upstream from here, the Water Department  
15 stated in their source water protection  
16 analysis that impacts to the headwaters  
17 of the Delaware could potentially impact  
18 the City's drinking water system. And my  
19 understanding is that analysis was  
20 primarily looking at loss of forest,  
21 forest fragmentation, which of course  
22 could be due to gas flow drilling or  
23 development, but the overall changes.

24 The headwaters of the Delaware  
25 are over 85 percent forested, and it is

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2 these forests that protect the quality  
3 and quantity of our water systems, and  
4 forest fragmentation is really a major  
5 concern of ours.

6 DRBC does regulate gas well  
7 drilling. In May 2009 -- so over a year  
8 ago -- I issued an Executive Director  
9 Determination stating that all gas well  
10 activity would be regulated by DRBC  
11 regardless of the wastewater or water  
12 withdrawal thresholds because of its  
13 cumulative impact, potential cumulative  
14 impact, and significant impact to the  
15 waters. At that time, we exempted  
16 exploratory wells. So they were allowed  
17 to go forward, because we put them in the  
18 same category as water wells, vertical  
19 wells that do not take the high volume of  
20 water and was more standard.

21 COUNCILMAN JONES: For the  
22 record and again for laypersons,  
23 exploratory well is to discover if in  
24 fact you're on a trajectory, is that  
25 right, to a gas deposit?

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2 MS. COLLIER: Right. It's a  
3 well that the industry would drill down  
4 to the Marcellus, or whatever layer  
5 they're interested in, to see if it  
6 really can produce the gas, if it's  
7 worthwhile going forward.

8 COUNCILMAN JONES: And at some  
9 point, it becomes a producer.

10 MS. COLLIER: That was not our  
11 original understanding, but, yes,  
12 sometimes they want to turn these  
13 exploratory wells into production wells.  
14 Not all of them.

15 This past May 2010, my  
16 commissioners - New York, New Jersey,  
17 Pennsylvania, Delaware - and the federal  
18 government directed staff to develop  
19 regulations specific to gas well drilling  
20 because of the overall impact, and that  
21 we were not to review any well pad  
22 operation applications, prepare or review  
23 for their action, until regulations are  
24 in place. We should continue to review  
25 applications for water withdrawals,

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2 because that's something DRBC has done  
3 for years.

4 So there has been one water  
5 withdrawal approved to date. There are  
6 no production wells in the Delaware River  
7 Basin because of DRBC action.

8 (Applause.)

9 MS. COLLIER: Since May, we  
10 have supplemented the Executive Director  
11 Determination stating that exploratory  
12 wells will also be regulated and,  
13 therefore, will not be reviewed until new  
14 DRBC regulations are adopted. And if I  
15 can, the reason we did that is because,  
16 one, there is different operations when  
17 you're drilling down over a mile. So  
18 there is more site infraction. And as  
19 you mentioned, the exploratory wells can  
20 become production wells. We are  
21 concerned about the siting of wells, so  
22 if we don't regulate exploratory wells,  
23 we might have lost that whole portion of  
24 it.

25 We did provide exemptions for

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2 up to ten wells because they were already  
3 in the process and had already gone  
4 through the Pennsylvania state review  
5 approval process. So there's seven new  
6 exploratory wells that have occurred from  
7 the summer up till this time, but we  
8 don't see any others coming on board  
9 until we have regulations.

10 COUNCILMAN JONES: So if I  
11 understand what you just said, we have  
12 somewhat of a moratorium?

13 MS. COLLIER: My commissioners  
14 don't like to use that word, but we are  
15 not reviewing or taking any action on  
16 well permits until we have regulations in  
17 place.

18 COUNCILMAN JONES: Okay.

19 (Applause.)

20 MS. COLLIER: We really do  
21 appreciate the good work of Congressman  
22 Sestak, Hinchey and Holt for providing  
23 dollars or starting the path to dollars  
24 for a U.S. geological survey cumulative  
25 impact study. It needs to be done, but

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2 we also feel that we need to get  
3 regulations in place, and that's what the  
4 commissioners directed staff to do, and  
5 we feel that if we get draft regulations  
6 out there for public review, people will  
7 see what DRBC is interested in. We'll  
8 have a level playing field, and we'll  
9 also -- I mean, the commissioners have  
10 stated that it would be an iterative  
11 process, so that if new information comes  
12 up through the EPA study, USGS study,  
13 TMC, the Nature Conservancy study,  
14 whatever, we can reopen those  
15 regulations, if needed, but we need to  
16 get started.

17 So DRBC staff are currently  
18 working with our states and federal  
19 agencies to finalize draft regulations,  
20 with our hope of having them out for  
21 public review by mid October. It's not  
22 very far away. Regulations will address  
23 what we are calling the three-legged  
24 stool - water withdrawal, well pad siting  
25 and operations, and wastewater disposal.

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2 We are also evaluating bonding  
3 requirements, ground and surface water  
4 monitoring requirements, pass-by flow  
5 requirements for water withdrawals, well  
6 pad siting prohibitions, such as keeping  
7 them out of floodplains, and also  
8 incentives to avoid forested areas and  
9 steep slopes, which development there can  
10 obviously affect water quality.

11 We are also developing a water  
12 tracking program in order to account for  
13 the source of water from each well, how  
14 much is used at the well and what's the  
15 final treatment and disposal of that  
16 wastewater.

17 Over 15 million people depend  
18 on the waters of the Delaware. It is  
19 important that we find the right level of  
20 regulation so that DRBC does not  
21 duplicate the regulatory requirements  
22 already set by the states, Pennsylvania  
23 and New York, but that we do fill  
24 regulatory gaps and protect those Special  
25 Protection Waters and the people

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2 downstream. And I hope that you as City  
3 Council and others all in Philadelphia  
4 will really be active in our public  
5 review process of our gas well  
6 regulations.

7 Thank you for the time.

8 (Applause.)

9 COUNCILMAN JONES: It was  
10 interesting when we did the resolution  
11 and started this hearing process, a  
12 semi-friend from the Harrisburg area  
13 asked me, Well, why would a City  
14 Councilman from West Philly be concerned  
15 about this, and what do you think at the  
16 end of the day you're going to be able to  
17 do about this?

18 If nothing else, we have raised  
19 awareness, and I am really happy you're  
20 here to hear, but what I need to know and  
21 I'm going to ask each of you. What I've  
22 learned as a freshman Councilman here is  
23 that when you don't want a law to work or  
24 you really don't want to enforce a  
25 regulation, you limit the number of

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2 inspectors and you limit the number of  
3 resources applied to that regulatory  
4 process. Simply put, do you have enough  
5 people to monitor this?

6 MS. COLLIER: That is a very  
7 good question, and let me start off with  
8 saying that right now I do not have a  
9 full complement of employees, because we  
10 are dependent on state and federal  
11 funding, and since 1996, we've received  
12 one year of federal funding. So we do  
13 not have the dollars that we're supposed  
14 to have. But in the proposed  
15 regulations, we have a section on fees  
16 specifically for the natural gas well  
17 drilling, and it would also include  
18 monitoring fees. So with that -- we're  
19 talking to the states now, because the  
20 question is should DRBC have inspectors  
21 or should the states have more inspectors  
22 or how do we work that best. But we do  
23 need more people out there, no doubt  
24 about it.

25 COUNCILMAN JONES: That's

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2 important.

3 Okay. I'm going to go to my  
4 next panelist.

5 MR. ROBERTS: Thank you,  
6 Councilman Jones. My name is Scott  
7 Roberts. I am Deputy Secretary at  
8 Pennsylvania's Department of  
9 Environmental Protection for Mineral  
10 Resource Management, and I am here at the  
11 request of yourself in your request to  
12 Secretary Hanger, who couldn't be here  
13 personally. So I'm speaking for him  
14 today.

15 DEP is charged with enforcing  
16 state laws as they relate to oil and gas  
17 activities in the Commonwealth of  
18 Pennsylvania, and as I will try to lay  
19 out to you, we have been doing our best  
20 to keep up and change with a lot of the  
21 issues you've been hearing about today.

22 Very early on with talk about  
23 the Marcellus Shale, Governor Rendell  
24 recognized that there was an economic  
25 opportunity being presented to the

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2 Commonwealth of Pennsylvania. However,  
3 he charged his Administration, including  
4 at DEP, with doing two things. One is  
5 maximizing benefits to Pennsylvanians and  
6 minimizing impacts, and it is that second  
7 part, minimizing impacts, that DEP's role  
8 falls.

9 Pennsylvania has plenty of  
10 other agencies that can deal with  
11 economic opportunities. Our job is to  
12 enforce those laws and to do our best to  
13 protect the environment and the safety of  
14 the public.

15 Oil and gas activities are not  
16 new to Pennsylvania. In fact, the  
17 industry itself was born in Titusville,  
18 Pennsylvania 151 years ago. Within  
19 Pennsylvania today, we have about 120,000  
20 wells that are on Pennsylvania's  
21 inspectable units list that my inspectors  
22 go out and look at.

23 COUNCILMAN JONES: Can you  
24 repeat that figure?

25 MR. ROBERTS: One hundred and

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2 twenty thousand oil and gas wells.  
3 Sixty-six thousand of those wells are gas  
4 wells. The rest are either oil wells or  
5 fall into a legal definition of being  
6 inactive.

7 In addition, there are over 50  
8 large underground gas storage fields.  
9 These are facilities that were developed  
10 in already exhausted natural gas  
11 reserves, one of which being something  
12 called the Oriskany sandstone, that  
13 instead of gas coming out of, now during  
14 the low demand months in the marketplaces  
15 in the Northeast, gas is pumped back down  
16 into that reservoir rock and then at high  
17 demand periods the gas is pumped back  
18 out. It is a large program in  
19 Pennsylvania.

20 We have had this year already  
21 4,958 applications for oil and gas wells  
22 in the state. It breaks down to 2,539  
23 wells for conventional gas reserves or  
24 for oil, and 2,419 Marcellus gas well  
25 applications. We see -- and this is a

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2 long-term number -- roughly two well  
3 applications per well drilled. The  
4 industry will get applications, get  
5 permits, and then for one reason or  
6 another, never drill the well. To  
7 date --

8 COUNCILMAN JONES: What are  
9 some of those reasons?

10 MR. ROBERTS: They may end up  
11 not reaching agreement with somebody as  
12 far as property issues. They may run  
13 into financing issues. I'm not familiar  
14 with all the reasons.

15 To date in 2010, we've had  
16 2,036 wells drilled. One thousand and  
17 seventy-two of those were conventional  
18 oil and gas wells, 964 are Marcellus  
19 wells. There are 90 rigs in Pennsylvania  
20 capable of drilling Marcellus wells that  
21 are active. It takes them roughly a  
22 month per well to drill, to give you some  
23 idea of sort of how that plays out. And  
24 from 2005, which is an important date,  
25 because that's when the first Marcellus

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2 well itself was drilled, to present,  
3 we've had 2,102 Marcellus wells drilled  
4 in this state and 18,740 conventional oil  
5 and gas wells.

6 Also to date -- and I actually  
7 agree wholeheartedly with your position  
8 that if you want to judge whether or not  
9 people are truly interested in enforcing  
10 the law, are they actually walking the  
11 walk. We've done 10,340 inspections,  
12 6,325 wells, 3,072 of those inspections,  
13 and 1,320 of those wells were Marcellus  
14 operations.

15 COUNCILMAN JONES: Hold it.  
16 Does this -- so if I were to go  
17 pre-Marcellus Shale, how much of an  
18 increase in activity on wells inspections  
19 does this represent for your department,  
20 roughly?

21 MR. ROBERTS: Well, in 2010,  
22 it's about half of the applications we're  
23 now getting, but a little less than half  
24 of the number of wells that are being  
25 drilled, but most of the inspections --

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2 we have been targeting -- we've done  
3 3,072 inspections out of 10,000. So  
4 about 30 percent of the inspections are  
5 done on Marcellus wells, and we have  
6 inspected all of the Marcellus wells.

7 COUNCILMAN JONES: So is that a  
8 30 percent increase in activity from 2007  
9 to now?

10 MR. ROBERTS: Well, that's an  
11 interesting question, because we actually  
12 hit our highest number of well permit  
13 applications before the Marcellus came on  
14 us, with 8,000 applications. So this  
15 isn't a high point for us. But the  
16 industry is obviously changing as you  
17 look at those numbers. Pennsylvania's  
18 oil and gas industry has traditionally  
19 been one where we deal with relatively  
20 small operators, and, as a matter of  
21 fact, some of those wells I just talked  
22 about are wells drilled by private  
23 individuals to supply gas just to their  
24 home. In Erie County, that's something  
25 people do. So we go from that spectrum

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2 up in the conventional industry to  
3 relatively sizable companies, but  
4 certainly nothing of the size we're  
5 seeing now with the Marcellus, the type  
6 of companies that are coming in for that.

7 So our industry has  
8 traditionally been smaller. They've  
9 drilled a lot more wells, because they  
10 were all vertical wells. So to drain the  
11 gas from whatever rock they were trying  
12 to get it from, they had to go out and  
13 drill wells in close centers to be able  
14 to get the gas to drain to it. But they  
15 were lower production, shallower wells,  
16 for the most part, that don't cost as  
17 much to put into production as one of  
18 these Marcellus wells. The exception to  
19 that was back in the 1930's the drilling  
20 end of that Oriskany sandstone that I  
21 mentioned, which is physically below the  
22 Marcellus, and it was from that point in  
23 time that people realized there was gas  
24 in the Marcellus, but it wasn't until the  
25 marriage, if you will, of horizontal

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2 drilling with hydraulic fracturing that  
3 that gas was produceable. So while the  
4 Marcellus has been known about and people  
5 have drilled through it for a long time,  
6 it's only been since 2005 that people  
7 have specifically targeted to drill it,  
8 and there was only one well in 2005.

9 COUNCILMAN JONES: If we were  
10 to segment your more commercial wells  
11 from your independently owned household  
12 wells, property wells, how often in the  
13 lifetime of a well or over a period of a  
14 year should a well be inspected?

15 MR. ROBERTS: Again, the life  
16 of a well starts out with, you first go  
17 out and you construct the drill pad that  
18 we've heard people talking about, and for  
19 Marcellus wells, it's about five acres of  
20 earth disturbance that's leveled off to  
21 create a place where the drilling is  
22 going to occur. Then you bring a drill  
23 rig on that drills part of the well.  
24 And, again, talking Marcellus, they drill  
25 the vertical portion, do all the

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2 construction and that type of thing of  
3 that portion of the hole, move that rig  
4 off, move a second rig on that drills the  
5 horizontal portion of the well, move that  
6 off and then bring in yet a third well  
7 that perforates the steel pipe in the  
8 Marcellus. That moves away and then  
9 there is -- a crew comes in to actually  
10 do the hydraulic fracturing. Once that  
11 fracturing is done, then a rig comes in  
12 to clean out the well to put it into  
13 production. All of those steps -- the  
14 construction of the well pads can be done  
15 independent of the drilling, but the rest  
16 of those steps, the companies appear to  
17 be trying to make them go sort of bang,  
18 bang, bang, and it's probably six weeks  
19 to eight weeks per well to do all of that  
20 activity.

21 At that point in time, the well  
22 is ready to be connected to a pipeline,  
23 and from that for the rest of its life  
24 expectancy, which for the Marcellus  
25 people are opining could be 30 to 50

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2 years, it's a steel pipe sticking out of  
3 the ground. And while we try to go out  
4 and inspect those wells that are in  
5 production, really that's not where the  
6 problems occur. The problems would occur  
7 during those drilling operations. So we  
8 try to target having our inspectors going  
9 out at points of the process that are  
10 most likely to have problems.

11 COUNCILMAN JONES: So in that  
12 phase, how many times is a good number of  
13 inspections?

14 MR. ROBERTS: It depends again  
15 on the nature of the operation and the  
16 operator, but four, five, six times.

17 COUNCILMAN JONES: Okay.

18 MR. ROBERTS: There's also  
19 multiple wells now with the Marcellus and  
20 the pads, because they did drill  
21 horizontally. Instead of being like the  
22 conventional wells that had to go out and  
23 drill on a grid pattern, they can put  
24 multiple wells on one pad. So we're  
25 already seeing up to ten wells being

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2 drilled from one pad, which limits the  
3 earth disturbance, which makes those  
4 concerns perhaps lesser, but increases  
5 some materials handling issues both with  
6 drill cuttings as well as with fluids on  
7 that site.

8 COUNCILMAN JONES: I don't know  
9 if you can answer this, but what is the  
10 frequency of a well being closed?

11 MR. ROBERTS: Being?

12 COUNCILMAN JONES: You said an  
13 average lifespan could be ten years. How  
14 often and is there a process by which you  
15 monitor a well being shut down?

16 MR. ROBERTS: Yes. There are  
17 specific legal requirements in the State  
18 of Pennsylvania for what's called well  
19 plugging, and when that well reaches the  
20 end of its commercial life, the owner or  
21 operator of that has an affirmative  
22 obligation to plug that well. It has to  
23 be done in a particular manner to make  
24 sure that the gas from a depth isn't  
25 leaking up the well bore and it's safe.

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2 COUNCILMAN JONES: So is it  
3 equally as a vulnerable time as the  
4 initial drilling? Is that also --

5 MR. ROBERTS: Oh, absolutely.  
6 And obviously with the Marcellus wells  
7 being as young as they are, we don't have  
8 any that have reached that point in their  
9 life expectancy. We do have inspectors,  
10 though, that deal with the older  
11 conventional wells and how they're  
12 plugged.

13 COUNCILMAN JONES: And would  
14 that plugging also include restoring the  
15 earth?

16 MR. ROBERTS: Yes. Yes. And  
17 as a matter of fact, once the well is  
18 drilled and ready to be put into  
19 production, there'll be some restoration  
20 of that well pad back down to a minimal  
21 area for the production well.

22 COUNCILMAN JONES: So from the  
23 five acres down to?

24 MR. ROBERTS: Down to an acre  
25 or so. So it sort of shrinks once the

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2 drilling is done.

3 Within DEP --

4 COUNCILMAN JONES: I see  
5 people's hands up. It's not that kind of  
6 process.

7 MR. ROBERTS: Within DEP, we've  
8 been doing a number of different things,  
9 though, to also deal with issues being  
10 raised by the Marcellus, and I provided  
11 you with some of those in written form.

12 Secretary Hanger has clearly  
13 instructed us that he expects us to have  
14 tough regulations with great enforcement.  
15 He expects us to be on the field, boots  
16 on the ground, doing our jobs on it. The  
17 things that we are looking at and the  
18 types of things are water withdrawals,  
19 and that has been something that's been  
20 talked about, where is the source of the  
21 water from. We are working with the  
22 Delaware River Basin Commission on what  
23 regulatory form that will look like in  
24 the Delaware River Basin, but in the  
25 other river basins of Pennsylvania, the

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2 approach we've taken is one of pass-by  
3 flow. They have to ensure that a certain  
4 volume of water passes by their  
5 withdrawal point, and that volume of  
6 water is calculated upon what's necessary  
7 for other users downstream, as well as  
8 the aquatic life in the stream. So they  
9 can't take out more than a given amount.

10 COUNCILMAN JONES: So as more  
11 wells -- I'm going to wait. I'm going to  
12 hold my questions that I can. Finish  
13 your testimony and I'll allow you --

14 MR. ROBERTS: However you'd  
15 like to do it.

16 COUNCILMAN JONES: But you guys  
17 are just opening up so many different  
18 aspects of questioning that it's just  
19 hard for me to resist, but go ahead.

20 MR. ROBERTS: That's why I was  
21 happy to come.

22 We have -- as you said, one of  
23 the measures is whether you're serious  
24 about this staffing-wise. We have  
25 greatly expanded the size of our oil and

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2 gas staffing. In 2008 and early 2009, we  
3 went to Pennsylvania's Environmental  
4 Quality Board to convince them that it  
5 was appropriate to drastically increase  
6 the fee that we charge for permit  
7 applications. That went from \$250 in the  
8 case of a Marcellus well to probably  
9 somewhere between 2,500 and 5,000 per  
10 well, depending upon the length of the  
11 bore hole. We have used those funds to  
12 both deploy staff in parts of the state  
13 that hadn't seen historic oil and gas  
14 activities. We opened an office in  
15 Scranton. When we put oil and gas staff  
16 in our office in Williamsport, those  
17 parts of the state had not seen these  
18 activities previously. And we increased  
19 the number of our staff. We added 37  
20 additional enforcement staff members in  
21 2009, 68 more in 2010. And to put that  
22 into context, while we were doing that  
23 under the 2009 state budget, we were  
24 forced to furlough from other parts of  
25 the department. So we recognize that

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2 this is an area that we do need to devote  
3 staff to. By having that fee in place,  
4 we have the funding mechanism to pay  
5 those staff people, and we are putting  
6 them out there.

7 Now, I would remiss to not  
8 point out perhaps at this point that the  
9 severance tax debate is raging in  
10 Harrisburg. The Governor and the  
11 Administration and DEP, even though we  
12 have a separate funding source, firmly  
13 believe that an appropriate severance tax  
14 is necessary and appropriate. What's  
15 more, we also agree that some of that  
16 money should be going back to the  
17 municipalities where the drilling is  
18 taking place to help them manage impacts.  
19 Other portions of the money -- and one of  
20 the things I'm pleased to hear about  
21 being discussed -- is having it go into  
22 environmental protection and restoration  
23 projects sort of a la Growing Greener.

24 COUNCILMAN JONES: I'm sorry.  
25 If we were BP, would there be anything

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2 that would closely resemble a contingency  
3 fund for just in case?

4 MR. ROBERTS: No.

5 COUNCILMAN JONES: Is that  
6 being proposed?

7 MR. ROBERTS: No, not that.  
8 What we do have is, we require people to  
9 post bonds for the operation and  
10 restoration of their well and well site,  
11 and that's been in the law since it was  
12 first enacted in the 1980's. It is a  
13 problem, however, in that the values that  
14 are assigned per well are low, and in a  
15 way that is incredulous to me actually,  
16 you can post a \$25,000 bond for as many  
17 wells as you can possibly drill. And  
18 rather than having a contingency fund  
19 that somehow or another the taxpayers  
20 have put together, I would prefer to see  
21 real honest-to-goodness and appropriate  
22 bonding for these sites.

23 COUNCILMAN JONES: So to more  
24 closely adjust the per well worth and/or  
25 risk assessment to each well as opposed

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2 to a blanket?

3 MR. ROBERTS: Right.

4 COUNCILMAN JONES: I got it.

5 MR. ROBERTS: Exactly.

6 Some of the other things we've  
7 done is, we absolutely agree with the  
8 public and everybody else that the  
9 industry needs to be transparent with  
10 what they are using in these wells. And  
11 it is more difficult than perhaps was  
12 explained earlier in trying to get the  
13 industry to do that, but as was  
14 mentioned, we are changing our  
15 regulations and modifying them. One of  
16 those changes does require the owner of  
17 the well to submit as part of the  
18 completion report, which is required to  
19 be filed within six months after the well  
20 is finished, a complete accounting down  
21 to percentages of what was used in  
22 drilling and completing that well.

23 COUNCILMAN JONES: Do you take  
24 samples of what is being used?

25 MR. ROBERTS: We do. We have

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2 not seen -- there's been some talk about  
3 whether or not that hydraulic fracturing  
4 fluid, when it gets down to depth and is  
5 breaking up the Marcellus, whether or not  
6 that's creating problems with  
7 groundwater. We have no instances of  
8 that that we've seen, but we do have  
9 documented cases where inappropriate  
10 handling of those chemicals on the  
11 surface, either as they are being  
12 delivered to the site, they're spilled;  
13 as they're being mixed, they're spilled.

14           During the hydraulic  
15 fracturing, it's a high-pressure  
16 operation. A hose will burst, the  
17 materials will be sprayed out and  
18 spilled, or after the water flows back  
19 from the well, there's materials handling  
20 problems. And those are unacceptable.  
21 They're illegal under state law, and we  
22 should not accept that, period. So  
23 that's where I come from on it.

24           TDS was the other issue that  
25 has been talked an awful lot about and

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2 what to do with the water that comes back  
3 up from these wells. Right now the  
4 statewide average, we're seeing about 13  
5 percent of the water that is pumped  
6 underground comes back up during what's  
7 called the flow-back stage of the well.  
8 There's some water that will continue to  
9 come back from those wells in much  
10 reduced amounts probably over the life of  
11 it, but that flow-back period is only  
12 about 13 percent. That's the water that  
13 Ms. Klaber talked about as being  
14 recycled, which is an excellent thing,  
15 something we encourage.

16 Industry's first steps out of  
17 the box with that was to build lagoons to  
18 hold it. I think they're starting to  
19 realize there are issues with that. And  
20 so what we're seeing is more of a  
21 movement towards container storage of  
22 those flow-back materials until they're  
23 either recycled or taken for appropriate  
24 disposal.

25 We have put in place a 150-foot

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2 buffer around high-quality and  
3 exceptional-value waterways in  
4 Pennsylvania for oil and gas well  
5 drilling and construction, and as I  
6 mentioned, we have an entire package of  
7 regulatory changes dealing with both the  
8 construction of water wells, the dealing  
9 with emergencies on well sites --

10 COUNCILMAN JONES: That's been  
11 proposed?

12 MR. ROBERTS: They are being  
13 voted on as final by the Environmental  
14 Quality Board on October 12th. So  
15 they've been both proposed, gone through  
16 the comment period and now we're up for  
17 final.

18 The EOG well accident in  
19 Clearfield County was talked about. That  
20 was the case of people on the site just  
21 being stupid, but it was -- it points out  
22 that in a lot of human activities, being  
23 stupid is not acceptable. And in the  
24 handout I gave you, you can read a number  
25 of the different steps we are taking to

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2 make sure that those types of accidents  
3 don't occur again. And we've also been  
4 partnering with the State Police to do  
5 something we called Frack Net, which are  
6 unannounced vehicle pullovers, pulling  
7 over trucks hauling water and wastewater  
8 and other waste from these drill sites,  
9 checking them for appropriate  
10 documentation of what they're hauling,  
11 who is it from, where it's going, as well  
12 as is the truck physically appropriate to  
13 be on the highway, are the brakes  
14 working, those types of things.

15 So we are out there working  
16 hard on dealing with these issues. We  
17 don't have a mandate that we have to  
18 issue permits. Nobody has ever said you  
19 have to get permits out tomorrow or  
20 anything like that. However, the Oil and  
21 Gas Act of Pennsylvania does provide that  
22 within -- if actions aren't taken within  
23 45 days, then that permit can be deemed  
24 approved. So we have a statutory issue  
25 we have to deal with. So that, I think,

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2 can be misinterpreted by some. We have  
3 none of those that occur. We get to them  
4 all, but part of that is having staff in  
5 place to do it.

6 One of the previous speakers  
7 invoked the name of Rachel Carson, and I  
8 work in a Rachel Carson state office  
9 building, and I agree with her sentiment.  
10 In this particular issue, I think back to  
11 one other famous Pennsylvanian, one of  
12 our former governors, Governor Gifford  
13 Pinchot, who 20 years before he became  
14 Governor of Pennsylvania came up with the  
15 entire idea of conservation, which is one  
16 of the three elements of modern  
17 environmentalism. So I think in this  
18 particular case, he's the one I try to  
19 invoke, and we're trying our best at DEP  
20 to implement the state laws that are out  
21 there in a way that conserves and  
22 protects Pennsylvania's environment, and  
23 I look forward to answering your  
24 questions after the next speaker.

25 COUNCILMAN JONES: Thank you.

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2 We have one more panel after  
3 this. We're almost there.

4 MR. KLAYMAN: Good afternoon.

5 Thank you, Councilman Jones, ladies and  
6 gentlemen. Thank you for allowing me to  
7 testify before City Council about the  
8 serious issues surrounding fracking and  
9 gas extraction from Marcellus Shale.

10 Today I'm speaking on behalf of two  
11 organizations - the Energy Coordinating  
12 Agency, ECA, and the Keystone Energy  
13 Efficiency Alliance, or KEEA.

14 ECA is a non-profit corporation  
15 whose mission is to help people conserve  
16 energy and to work toward a sustainable  
17 and equitable energy future for all in  
18 the Philadelphia area. ECA administers  
19 almost all the low-income energy services  
20 in the City and has been a leader in  
21 green jobs training and in increasing the  
22 energy efficiency and sustainability of  
23 housing statewide.

24 KEEA is a non-profit  
25 corporation dedicated to

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2 energy-efficiency market transformation  
3 in Pennsylvania through advocacy,  
4 education and training. KEEA monitors  
5 and supports energy-efficiency policies  
6 at the local, state and federal level for  
7 both residential and commercial sectors  
8 to reduce carbon emissions and help  
9 Pennsylvania transition to a cleaner  
10 energy economy.

11 ECA and KEEA support a  
12 realistic approach to the energy and  
13 environmental impacts that the fracking  
14 of Marcellus Shale will have on  
15 Philadelphia and the surrounding region.  
16 The natural gas trapped in the Marcellus  
17 Shale is a tremendous potential energy  
18 resource, but it is not without  
19 significant risks. Chief among them is  
20 widespread environmental damage to local  
21 water and land. While so many in  
22 Pennsylvania have caught fracking fever,  
23 the dangers of watershed contamination  
24 are very real and must be thoroughly  
25 understood and addressed if disasters are

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2 to be avoided.

3 (Applause.)

4 MR. KLAYMAN: These hearings  
5 have brought many of these important  
6 concerns to light, and we applaud the  
7 Council's initiative in calling for them.

8 While others can speak and have  
9 spoken more insightfully as to the  
10 environmental impact of fracking, I am  
11 testifying today to share with you all  
12 what we believe to be one of the most  
13 important economic and ultimately  
14 environmentally friendly benefits that  
15 Philadelphia and Pennsylvania can derive  
16 from Marcellus Shale, a substantial  
17 investment in energy conservation.

18 Marcellus Shale has been  
19 described as a vast resource, and no  
20 doubt it is potentially significant, but  
21 like all fossil fuel, it is finite.  
22 Renowned energy investment banker Matthew  
23 Simons described shale gas as having a  
24 very limited lifespan of 30 to 40 years.  
25 It is absolutely critical that

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2 Pennsylvania reduce its demand for energy  
3 as deeply and quickly as possible in  
4 order to be able to withstand --

5 (Applause.)

6 MR. KLAYMAN: -- in order to be  
7 able to withstand the relentless economic  
8 pressure of rising energy prices. This  
9 can be achieved by instituting a  
10 severance tax in Pennsylvania and  
11 dedicating at least ten percent of any  
12 tax on gas extraction to the support of  
13 energy-efficiency initiatives for all  
14 natural gas, propane and fuel oil  
15 customers statewide.

16 Most states, if not every one  
17 of them, with a shale gas asset, the  
18 three largest being Oklahoma, Texas and  
19 West Virginia, already have a natural gas  
20 extraction tax. Yet, Pennsylvania does  
21 not. Pennsylvania must ensure that a  
22 substantial extraction tax is passed in  
23 order to pay for all damage attendant to  
24 hydraulic fracturing and related  
25 industrial practices, and it should

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2 invest at least ten percent of this tax  
3 in energy savings for residents  
4 throughout the Keystone State.

5           Currently, the beneficiaries of  
6 Marcellus Shale gas are the gas industry  
7 and select private landowners. Yet, all  
8 Pennsylvanians feel the burden of high  
9 energy prices. This is especially true  
10 for consumers of natural gas, fuel oil  
11 and propane. Pennsylvania Act 129  
12 mandates that electric utilities  
13 institute programs to help consumers save  
14 energy and reduce their consumption of  
15 energy, but no such mandate exists for  
16 natural gas utilities. In addition, many  
17 of Philadelphia's low-income households,  
18 about 40 percent of them, are heated  
19 using fuel oil or kerosene, non-utility  
20 resources that lack desperately needed  
21 energy conservation programs.

22           Not only would this money serve  
23 to reduce energy bills for vulnerable  
24 customers, but it would also stimulate  
25 the economy. Businesses saving on energy

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2 costs are more financially sound and will  
3 be better equipped to grow and invest in  
4 job creation. And an infusion of  
5 severance tax money into the  
6 energy-efficiency market will create  
7 green jobs, as businesses and individuals  
8 are called upon to perform energy audits  
9 and install energy-efficiency measures.  
10 This is especially relevant given the  
11 testimony of the economist earlier who  
12 was talking about whether the jobs will  
13 be local. Energy-efficiency jobs,  
14 especially home audit and  
15 energy-efficiency measure installation,  
16 are local jobs.

17 It is essential for all  
18 Pennsylvanians to benefit from the  
19 Marcellus Shale by using revenue from the  
20 extraction to help reduce their energy  
21 consumption this year and every year.  
22 Investing at least ten percent of the tax  
23 in the increase of energy efficiency of  
24 residential, commercial, municipal and  
25 industrial customers across the state

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2 will pay lasting economic, social and  
3 environmental dividends statewide. It  
4 will also help prepare us for the even  
5 higher energy prices which will  
6 inevitably follow when the shale gas  
7 resource is depleted.

8 Thank you, and I look forward  
9 to your questions.

10 (Applause.)

11 COUNCILMAN JONES: Thank you.

12 I have one last question for  
13 the panel. The Early Protection Warning  
14 System, how are you guys plugged into  
15 that?

16 MS. COLLIER: DRBC is one of  
17 the members. We worked very closely with  
18 Philadelphia on that, and we're one of  
19 the co-hosts for the workshop in October.  
20 And we do see the value of expanding it.  
21 I'm working with my staff now to figure  
22 out how best to do that.

23 MR. ROBERTS: There's a  
24 complementary system in place as well  
25 through Pennsylvania's Emergency

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2 Management Agency, or PEMA. If we would  
3 have an accident at any type of  
4 industrial facility that had a release or  
5 a discharge into a river or stream, that  
6 Emergency Management Agency can get that  
7 and does get that word out to suppliers  
8 that their intakes might be in danger.  
9 So there are other sort of safety nets.  
10 I don't think it is as intensive as was  
11 being described earlier, nor is it  
12 specific to this particular industry, as  
13 was described for that Early Warning  
14 Network.

15 COUNCILMAN JONES: Well, one of  
16 the pieces we will take from this is that  
17 that warning system, the earlier, the  
18 better. To the people who are closest to  
19 the drilling, to the people down river,  
20 that process has to be kind of  
21 consistent, and everybody -- I know when  
22 we have a certain list of numbers that in  
23 fact when something happens in  
24 Philadelphia, these are the ten people  
25 that have to be notified. It seems to me

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2 that something so important, something so  
3 vital to life should have that same kind  
4 of early, early, earlier the better  
5 warning system.

6 So we're going to look at that  
7 as one of the recommendations.

8 MR. ROBERTS: I think you're  
9 spot on with that, and I think technology  
10 today provides us an opportunity to do  
11 that in ways that weren't possible  
12 before.

13 Two points that I skipped over  
14 that I'm sorry I should have mentioned.  
15 One was, in the discussion of the  
16 Schuylkill River, which I understood was  
17 sort of where your drinking water came  
18 from --

19 COUNCILMAN JONES: I live near  
20 that river.

21 MR. ROBERTS: -- the portion of  
22 the Marcellus that underlies the  
23 headwaters of the Schuylkill River is at  
24 present understood to not be valuable for  
25 its gas content, that tectonically that

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2 rock has been altered and changed and  
3 heated, and the current understanding of  
4 the Marcellus is that it is not a  
5 resource.

6 COUNCILMAN JONES: Today.

7 MR. ROBERTS: Yeah. I think it  
8 will be a long time before you see any  
9 drill rigs up there. However, we do have  
10 four other shales that we have already  
11 received permit applications for, two  
12 shales, one called the Rhinestreet,  
13 another called the Burkett, that are  
14 above the Marcellus and two, the Mendota  
15 and the Utica, which are below the  
16 Marcellus. So there are other shale  
17 resources under consideration by industry  
18 as well.

19 COUNCILMAN JONES: Well, what  
20 we can take from this drilling can help  
21 us to be prepared for future  
22 applications, if there are any --

23 MR. ROBERTS: Absolutely.

24 COUNCILMAN JONES: -- based on  
25 the danger and the way that we're

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2 ferreting this gas.

3 So I want to thank you all, and  
4 particularly you, I agree many of the  
5 residents of the City of Philadelphia  
6 don't understand clearly what is to come.  
7 Energy prices and conservation are going  
8 to be as essential as the mortgage crisis  
9 or as critical in our thinking to  
10 survival as income. Because when we  
11 spend money on utilities, that's money  
12 that we don't spend on food.

13 So thank you. Thank you all.

14 Can you introduce the last  
15 panel, and I do mean last.

16 THE CLERK: Rabbi Arthur  
17 Waskow, Shalom Center; Sisters of Saint  
18 Joseph Sustainability Center; the League  
19 of Women Voters of Pennsylvania; Maya van  
20 Rossum, Delaware Riverkeeper Network; and  
21 Margery Stein Schab, New York H2O.

22 RABBI WASKOW: Shalom.

23 COUNCILMAN JONES: Can you  
24 state your name for the record.

25 RABBI WASKOW: Yes. It's Rabbi

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2 Arthur Waskow. I am Director of The  
3 Shalom Center, which is now 27 years old.  
4 It's a national Jewishly based  
5 organization with its offices here in  
6 Philadelphia. They have been since 1984,  
7 '83. And I'm also the author of 20  
8 books, about two-thirds of them on an  
9 understanding of how to apply religious  
10 tradition to contemporary issues and the  
11 other third on issues of U.S. public  
12 policy, including energy policy. And the  
13 issue that we're about to face, it may  
14 seem as somewhat surprising that a  
15 3,500-year-old tradition would have  
16 anything to say about a very new  
17 technology, but, in fact, the issues that  
18 we're facing around the question of the  
19 Marcellus Shale and its implications for  
20 human and other forms of life are in fact  
21 not so different from those faced many  
22 years ago. I could in fact draw on  
23 several passages of the Hebrew Bible,  
24 Torah, and the rest of the Hebrew Bible,  
25 but I thought drawing on one, a kind of

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2 sacred science which is encapsulated in  
3 one of the great icons of this city, the  
4 Liberty Bell, would be an easy way to  
5 pluck out one's story from actually  
6 dozens that we could talk about.

7           The line on the Liberty Bell,  
8 proclaim liberty throughout the land to  
9 all the inhabitants thereof, was -- the  
10 liberty it was talking about, if we were  
11 to look back at Chapter 25 of Leviticus,  
12 was not what we might consider freedom of  
13 the press, let's say. It was about the  
14 freedom of human beings and the earth to  
15 pause to rest, to reconsider what should  
16 be done, not to be worked to the utmost  
17 technological power even of that time,  
18 which was less oppressive and less  
19 intrusive than the technological power we  
20 have in Arian today. That's in Leviticus  
21 25.

22           The necessity of pausing in a  
23 rhythm so that every seventh year, the  
24 whole project of agriculture and so on  
25 would pause for an entire year, seems

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2 pretty amazing and, in fact, the Torah  
3 has a whole discussion of the economics  
4 of it. Because as people said, Well,  
5 wait a minute, how are we going to be  
6 able to make a profit and grow food --  
7 enough food for people to eat if we do  
8 that, and the Torah answers. But first I  
9 want to quote then something that happens  
10 in the next chapter of Leviticus where  
11 the Torah says, Now, what happens if you  
12 don't pause to reconsider, to let the  
13 land rest? What happens if you try to  
14 make it work to its absolute most  
15 efficient? And the Torah's answer is,  
16 The land will get to rest on your head  
17 through famine, through drought, through  
18 plague, through locusts, through exile;  
19 that is, people having to leave where  
20 they have lived. The land will get to  
21 rest.

22 And that's exactly the question  
23 that we're facing. Do we want to use the  
24 most ultimate technology that we have to  
25 squeeze every possible, what looks like,

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2 economic efficiency out of the Marcellus  
3 Shale or do we risk the poisoning of the  
4 water of the citizens of Philadelphia,  
5 which will produce a kind of exile, a  
6 kind of disaster in health, in economics  
7 and in every other way you want to think  
8 about it.

9           What did it mean to pause?  
10 What did it mean to say for one year out  
11 of every seven, we do not make the earth  
12 rest? Was this just, quote, religion or  
13 was it based on observation and science?  
14 Well, we know now in fact that what the  
15 Torah answered to those who said, We  
16 won't have enough to eat, the Torah  
17 answered, There will be more blessing,  
18 more food if you pause.

19           We know now that in fact what  
20 we call letting the land lie fallow or  
21 rotating crops, we know that that in fact  
22 produces more blessing, more abundance  
23 than if we tried to get every last ounce.  
24 The land would be used up and the land  
25 would be abandoned and would be

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2 unfruitful.

3 Well, what this means in our  
4 generation is taking enough time to pause  
5 to think through the real implications of  
6 what we could do, and several facts about  
7 this very issue, Marcellus Shale,  
8 suggests that the pressure to move  
9 quickly is based on this shortsighted  
10 notion of super profits rather than the  
11 sense that over generations not to force  
12 Philadelphia, half the State of  
13 Pennsylvania, into exile, into disease,  
14 into disaster by trying to get super  
15 profits in a few years.

16 Why is it that the EPA was told  
17 not to do a serious study of the impact  
18 of this kind of shale drilling? Because  
19 the shale drillers embodied in that case  
20 by former, thank God, Vice-President  
21 Cheney said, No, we don't want to have  
22 anybody look, we don't want to have to  
23 pause to find out what the true impacts  
24 would be. That's already a danger  
25 signal.

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2 If the businesses involved are  
3 so desperate to make short-range super  
4 profits that they can't bear to have an  
5 examination of the full impact, the full  
6 effect, that's already a danger flag.

7 (Applause.)

8 RABBI WASKOW: And a second one  
9 we have seen inside the Commonwealth of  
10 Pennsylvania in the last two weeks. When  
11 the issue arose of this cockamamy  
12 supposed investigation of supposed  
13 terrorist organizations, which turned out  
14 to include in fact practically entirely  
15 peaceful, peace-committed and utterly  
16 non-violent public advocacy groups like  
17 the groups that are opposing instant  
18 exploitation of Marcellus Shale, what was  
19 the reaction of the head of the  
20 Pennsylvania Homeland Protection office?  
21 The first thing that came out of his  
22 mouth to the whistleblower was, Wait a  
23 minute, we went into this and this that  
24 you're proposing to make public, it is  
25 going to damage the companies that do

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2 Marcellus Shale work and it will help the  
3 advocates of wait a minute. Why was that  
4 the first reaction of an official of the  
5 State of Pennsylvania, whose obligation  
6 ought to be to the people, not to those  
7 companies?

8 (Applause.)

9 RABBI WASKOW: So in a kind of  
10 ironic way, the line on the Liberty Bell,  
11 which wasn't originally about that kind  
12 of liberty, turns out to be implicated  
13 when that kind of liberty, the liberty of  
14 the earth as well as human beings, to  
15 pause and to think, when that kind of  
16 liberty is jammed up against the wall for  
17 the sake of super profits turns out that  
18 the kind of liberty we call civil  
19 liberties are also in danger. Again, a  
20 danger flag that we should pay attention  
21 to.

22 So this 3,500 years of wisdom,  
23 which is not just wisdom plucked out of  
24 the sky but wisdom grown out of the earth  
25 by farmers and shepherds and people who

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2 grew olive trees as they watched from  
3 year to year and decade to decade and  
4 generation to generation, as they watched  
5 for what the sacred wisdom was of how to  
6 keep a culture in a society in tune with  
7 the land, out of which that culture and  
8 society could grow, and without which  
9 that culture and society couldn't grow at  
10 all, that wisdom, ancient and utterly  
11 contemporary as well, is what we should  
12 be paying attention to.

13 Thank you.

14 (Applause.)

15 COUNCILMAN JONES: I will go on  
16 the record and maybe out on a limb and  
17 say that was the most interesting  
18 application of this testimony that I've  
19 heard today.

20 RABBI WASKOW: Thank you.

21 COUNCILMAN JONES: I heard some  
22 of my -- I saw some of my Native American  
23 friends, who I won't point out, but they  
24 were nodding in agreement to some of the  
25 spiritual implications of letting the

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2 earth rest and the nature balance  
3 implied.

4 But I'm going to try to get us  
5 out of here at a reasonable hour, so  
6 we're going to -- I'm not going to ask  
7 you any questions.

8 SISTER MARY ELIZABETH: Thank  
9 you, Councilman Jones. My name is Sister  
10 Mary Elizabeth Clark, a Sister of Saint  
11 Joseph of Philadelphia. I am Director of  
12 the Sisters of Saint Joseph Earth Center  
13 in Chestnut Hill and Special Assistant to  
14 the President for Sustainability of  
15 Chestnut Hill College. I am also  
16 representing Genesis Farm in Blairstown,  
17 New Jersey, an organic farm. I'm a Board  
18 member of Genesis Farm.

19 For the past 11 years, the  
20 congregation of Sisters of Saint Joseph  
21 have had a commitment to the issue of  
22 sustainability, especially about the  
23 issue of water and the health of planet  
24 earth. As a result, we've educated and  
25 advocated about the respectful treatment

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2 of water.

3 The issue of drilling for gas  
4 in the Marcellus Shale region has serious  
5 moral consequences and thus, for this  
6 reason, is a concern of ours.

7 I urge you as City Council, as  
8 our immediate representatives, to insist  
9 that the ethical standards of  
10 purification of our drinking water be  
11 enforced on any possible contaminants  
12 from the drilling. There ought to be a  
13 moratorium on drilling until it has been  
14 shown to be absolutely safe for the  
15 Delaware River, the source of our  
16 drinking water.

17 This is only one of the issues  
18 that threaten our planet caused by the  
19 potential drilling. Another issue such  
20 as deforestation is a major concern of  
21 ours. Twenty percent of global climate  
22 change is caused by deforestation  
23 worldwide.

24 Legislation prior to the actual  
25 drilling for gas in the Marcellus Shale

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2 region ought to include investigation  
3 into the health-related effects of any  
4 toxic chemicals or especially radioactive  
5 ingredients resulting from the drilling  
6 and entering the Delaware River.

7 In addition, when researching  
8 the components of hydraulic fracturing  
9 fluids that may seep into the  
10 groundwater, investigations by the DEP  
11 ought not to be funded by any money  
12 coming from vested interests in the  
13 profit of the drilling. The ethical  
14 implications of political gain or profit  
15 by individuals must be examined by those  
16 creating legislation to protect the  
17 health of Pennsylvania watersheds. Every  
18 means available for honest investigation  
19 ought to be employed by the State  
20 Legislature. As members of our City  
21 Council, you are in a prime position to  
22 call for this ethical behavior.

23 Thank you.

24 (Applause.)

25 COUNCILMAN JONES: Thank you.

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2 Thank you.

3 We have five people testifying  
4 with two mikes. So please share and  
5 speak into the mike and give us your name  
6 and then your testimony.

7 MS. PARSONS: I'm Shireen  
8 Parsons. I'm a community organizer with  
9 the Community Environmental Legal Defense  
10 Fund, which is based in Chambersburg,  
11 Pennsylvania. We work in Pennsylvania,  
12 Virginia, New Hampshire, Maine, Boston,  
13 Washington state, California, Ecuador,  
14 and what we do is called right-spaced  
15 organizing.

16 What I'd like to tell you here  
17 is, you do not have a fracking problem.  
18 You have a democracy problem. We have a  
19 democracy problem in this nation. And we  
20 assist communities, free of charge, to  
21 fend off corporate assaults by exercising  
22 their God-given inherent local governing  
23 authority. And we have over 120  
24 communities in Pennsylvania alone that  
25 have stood up to the unjust structure of

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2 law that renders us subordinate to  
3 corporate interests in the State  
4 Legislature. They have stood up to this  
5 unjust structure of law and enacted  
6 binding local laws, ordinances, that  
7 affirm and assert their local governing  
8 authority, strip corporations of their  
9 constitutional rights of personhood.  
10 They're not persons. They're legal  
11 fictions created by the state. And  
12 because of their great wealth, their  
13 rights trump ours every time.

14 (Applause.)

15 MS. PARSONS: The state will  
16 not save us. The regulatory agencies  
17 will not save us. Our regulatory system  
18 was not set up to protect human  
19 environmental health. Our regulatory  
20 system was designed to serve as a barrier  
21 between corporate industries and we, the  
22 people.

23 When our regulatory agencies  
24 permit a corporate activity, they  
25 legalize it, which means that we, the

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2 people and our communities, have no  
3 rights to protect ourselves. We can't  
4 regulate it further. And the EPA was  
5 created in 1970, our state regulatory  
6 system, subsequently, and now by every --  
7 by all indications, our soil, water and  
8 air is far more contaminated than before  
9 our regulatory system arose. Regulations  
10 permit harm. They legalize harm.

11 (Applause.)

12 MS. PARSONS: That's what their  
13 job is. And they say to the  
14 corporations, With a permit -- this is  
15 what a permit does. You may spew this  
16 much filth into the soil, air and water.  
17 You will be self-monitoring. You will be  
18 self-reporting, and good luck and rake in  
19 the profits. And that is what our  
20 regulatory system does. It's working  
21 perfectly as it was designed.

22 The City of Pittsburgh is  
23 concerned about gas fracking, and a  
24 couple of weeks ago, Councilman -- I  
25 can't remember his name. I haven't met

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2 him, but anyway a Councilman submitted a  
3 local ordinance that was drafted by the  
4 Legal Defense Fund that affirms their  
5 right to local self-government, strips  
6 corporations of their legal rights as  
7 persons, affirms the right of every  
8 living thing to clean air, clean water  
9 and clean soil, and bans gas fracking  
10 within the boundaries of the City of  
11 Pittsburgh.

12 (Applause.)

13 MS. PARSONS: Other  
14 communities -- we are getting calls daily  
15 from communities throughout the Marcellus  
16 Shale and people who are -- communities  
17 that are downstream from the Marcellus  
18 Shale drilling. I got called by somebody  
19 in Brooklyn, New York saying, Help us, we  
20 are downstream from the Marcellus  
21 drilling.

22 So what we are asking these  
23 communities to do -- and this is  
24 preliminary -- before they would enact an  
25 ordinance banning drillings in their own

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2 communities, is to pass an ordinance in  
3 support of the Pittsburgh City Council in  
4 trying to protect its community. And  
5 this is not -- an ordinance is not  
6 legally binding in any way. This is a  
7 show of support saying we agree that we  
8 should be able to exercise your inherent  
9 governing authority. We agree that you  
10 should be able to protect your water and  
11 your community. And so this is simply a  
12 support measure.

13 I have a copy here in my folder  
14 and I'd like to leave it with you, along  
15 with my card, and I would like to come  
16 back and talk to the full Council at some  
17 time about what we can do for the City of  
18 Philadelphia. This is the other big city  
19 in Pennsylvania. You are downstream, and  
20 you must protect yourselves.

21 (Applause.)

22 COUNCILMAN JONES: Well --

23 MS. PARSONS: We don't need a  
24 severance tax. The severance tax is an  
25 incentive to communities to roll over and

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2 say, Okay, come and rape us, we'll get a  
3 little money out of it. We do not need  
4 any more studies. We know what it does.

5 COUNCILMAN JONES: All right.

6 It would be helpful to get the  
7 Councilman's name. My attorney there  
8 is --

9 MS. PARSONS: It's Doug  
10 Shields. Sorry.

11 COUNCILMAN JONES: Because  
12 we're going to contact them. That's an  
13 intriguing concept there.

14 MS. PARSONS: Actually, I have  
15 a copy of that ordinance. I marked it  
16 up, but I'll give it to you.

17 COUNCILMAN JONES: In Philly,  
18 an ordinance is law. Resolution is  
19 non-binding. So we will look at the  
20 possibility of resolution.

21 MS. PARSON: Yeah, the  
22 resolution is non-binding, but I  
23 encourage you to talk about doing a  
24 binding law, an ordinance, protecting the  
25 City.

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2 COUNCILMAN JONES: We'll take a  
3 look.

4 MS. PARSONS: So you call me  
5 any time. Thank you.

6 COUNCILMAN JONES: All right.  
7 Thank you.

8 (Applause.)

9 COUNCILMAN JONES: We're going  
10 to spread the mike around there. State  
11 your name and give your testimony,  
12 please.

13 MS. COLES: My name is Phoebe  
14 Coles. I am here testifying on behalf of  
15 the League of Women Voters of  
16 Pennsylvania. I am a Board member of the  
17 Philadelphia League. I am representing  
18 Roberta Winters, who is our state Board  
19 Director and Marcellus Shale specialist.  
20 I'm just going to summarize some of the  
21 testimony and tell you what's coming up  
22 for us.

23 In May of this year, the League  
24 of Women Voters of Pennsylvania completed  
25 a year-long study of natural gas

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2 extraction from Marcellus Shale,  
3 including its ramifications for  
4 Pennsylvania water, air, infrastructure,  
5 agriculture, forest, tourism and economy.

6 Today our testimony is based on  
7 member consensus. We have 40 or so  
8 chapters in Pennsylvania and thousands of  
9 members, and they were polled. And  
10 basically most important to this hearing  
11 today is that we are encouraging our  
12 legislators in all of our communities to  
13 extend the moratorium on drilling on the  
14 Delaware River Basin and really look at  
15 what the aspects of the harm could be to  
16 the environment. We're also encouraging  
17 the severance tax as well.

18 One of the things coming up  
19 from us is, as we know that some of these  
20 issues are already being addressed, we  
21 are looking statewide at the issues of  
22 pipelines, which I think will be  
23 especially important to Philadelphia as  
24 the pipelines need to come through here  
25 to get to the Delaware port to get the

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2 gas out of the state, as well as looking  
3 at the eminent domain issue. For  
4 pipelines we're actually having a meeting  
5 on Saturday, October 9th in Radnor -- in  
6 Wayne at the Radnor Township Building.

7 COUNCILMAN JONES: Could you  
8 repeat that for people listening.

9 MS. COLES: Sure. Saturday,  
10 October 9th, at Radnor Township Municipal  
11 Building in Wayne, we will be having a  
12 meeting to start to talk about the  
13 pipeline issues that are coming into this  
14 area, starting at 10:00 a.m.

15 And I just encourage you to  
16 look at the League of Women Voters of  
17 Pennsylvania's website to look at their  
18 position, which has already been stated,  
19 and look at some of the other ways that  
20 Philadelphia can be involved with all of  
21 the regions in Pennsylvania.

22 Thank you.

23 COUNCILMAN JONES: Thank you.

24 Can you state your name for the  
25 record.

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2 MS. VAN ROSSUM: Sure. I'm  
3 Maya van Rossum. I'm the Delaware  
4 Riverkeeper and my organization is the  
5 Riverkeeper Network. I know I'm last,  
6 but I have some, I think, pretty  
7 important information to share with you  
8 about the importance of the Delaware  
9 River, economic information, which I know  
10 is a focus of today's hearing.

11 Earlier the economist who spoke  
12 had some very interesting information,  
13 but one of the things that he  
14 specifically said was that he was missing  
15 the information about the values of the  
16 Delaware River and recreational uses and  
17 income of the river, and so I'm going to  
18 be specifically speaking to that set of  
19 issues today and touching on a couple of  
20 other things.

21 As you know, I hope you know,  
22 the Delaware River attracts visitors from  
23 all over the world and all over the  
24 region, and they come here and they spend  
25 lots of money and they enjoy themselves,

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2 including right here in Philadelphia.  
3 For those people who live here, the  
4 Delaware River is giving us clean  
5 drinking water. It's also giving us  
6 memorable recreation. It's giving food.  
7 There are a lot of people -- you go out,  
8 you can see the folks fishing along the  
9 banks of the river and the Schuylkill to  
10 try to get clean, fresh fish to help feed  
11 their families. And it provides  
12 good-paying jobs and supports a lot of  
13 our local economies. It is the backbone  
14 of a number of local economies in this  
15 region, upstream and down.

16 Now, the gas drillers, they  
17 like to talk jobs a lot. They talk  
18 numbers, they talk income, they talk jobs  
19 and the economies. Well, we believe, I  
20 agree, this is about jobs, but this isn't  
21 about the few jobs that they may bring  
22 here on a limited basis or the workers  
23 they're going to bring in from out of  
24 town to work here for a short period of  
25 time, but this is about the jobs, the

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2 good-paying jobs, that they're going to  
3 take away from people who live here in  
4 Philadelphia, up river and down river  
5 today, and it's about the jobs that  
6 they're going to rob from future  
7 generations because of the harm that  
8 they're going to inflict on the river and  
9 on the land.

10 I do want to mention too that  
11 the gas drillers really try to shape this  
12 as a property rights fight, and they try  
13 to bring in those who are leasing the  
14 lands and have them assert their claim to  
15 get the income from the gas drilling.

16 Well, we also believe that this is a  
17 fight about rights, but it's about the  
18 right to life and it's about the right of  
19 communities to make sure that pieces of  
20 property within the community are not  
21 used in a way that harms everybody else.  
22 That's not okay. Our rivers shouldn't be  
23 used that way and our land shouldn't be  
24 used that way.

25 (Applause.)

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2 MS. VAN ROSSUM: But that's  
3 what the gas drillers want to do.

4 You've heard a lot about the  
5 devastation that gas drilling is going to  
6 reap on our river and on our land, from  
7 the pollution to the deforestation, to  
8 the depletion of the water, to the  
9 traffic, to the odor, to the noise, to  
10 the runoff. Now, Dr. Martin -- and I  
11 want to get it right, because I think you  
12 were asking about it, or Councilwoman  
13 Blondell. He began his talk by saying he  
14 wants to talk about what will happen when  
15 we do things right, when the gas drillers  
16 do it right. And he can go and paint his  
17 pretty picture about what will happen if  
18 everything goes right, but the fact of  
19 the matter is, we know that the drillers  
20 aren't doing it right. We already know  
21 that they're doing it devastatingly  
22 wrong. And there's a great report that  
23 was put out recently by the Pennsylvania  
24 Land Trust Association. They looked at  
25 two and a half years of gas drilling in

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2 the Marcellus Shale, and they found  
3 already 1,435 violations of law, 952 of  
4 which they have identified specifically  
5 as having potentially a direct impact on  
6 the environment. And these are not  
7 little paper violations. We're talking  
8 about the discharge of industrial waste  
9 onto the ground, pollution of  
10 Commonwealth waters and drill cuttings,  
11 brine and oil being discharged into  
12 streams in violation of the law, drilling  
13 close to a wetland or a body of water  
14 without a permit. And these are  
15 specifically, those particular violations  
16 I identify, are the ones that are  
17 environmentally harmful.

18 Exceeding the level of  
19 wastewater in their impoundments so that  
20 you could -- you're at risk of  
21 catastrophic failure or discharge, the  
22 improper burying of drill cuttings,  
23 inadequate blowout prevention and, of  
24 course, the list goes on and on. So we  
25 already know that the drillers aren't

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2 doing it right.

3           And we also know that our  
4 states and the Delaware River Basin  
5 Commission don't now have the knowledge  
6 or the legal capacity to force them to do  
7 it right, because they haven't bothered  
8 to do the cumulative environmental impact  
9 analysis that's necessary, and they  
10 haven't bothered to put in place the  
11 regulations that are needed to make sure  
12 that the drillers don't hurt us. And  
13 that's not okay.

14           So the drillers aren't going to  
15 do it right, no matter what the pipe  
16 dream Dr. Martin would like to paint.

17           And I'll also say that the fact  
18 of the matter is that the gas drillers  
19 don't have the ability to do it right at  
20 this point in time, and one good example  
21 is the treatment of wastewater.

22 Dr. Martin said, Well, it's the problem  
23 of the drillers what to do with their  
24 wastewater. If they can't get it clean  
25 enough and bring it up to standards,

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2 well, that's on them, that's not on the  
3 rest of us. But we all know that's not  
4 true. If the gas drillers are allowed to  
5 create volumes and volumes of toxic,  
6 contaminated water, they're going to need  
7 to do something with it, and if they  
8 can't figure out how to do it the right  
9 way, they're going to do it the wrong way  
10 or they're going to do something they  
11 characterize as the right way, but we all  
12 know is the wrong way. And really right  
13 now there is not in place the treatment  
14 technologies or the facility to handle  
15 the flow-back water that is coming out of  
16 these gas drilling operations, and, in  
17 fact, it is so bad --

18 (Applause.)

19 MS. VAN ROSSUM: -- that the  
20 solution they're talking about is,  
21 besides trying to force through simply a  
22 dilution method of treatment, is, All  
23 right, let's inject it into the ground  
24 and let's try to safely harbor it away  
25 from everybody else. Well, there are two

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2 problems with that. First off, if you  
3 inject this contaminated water into the  
4 ground, as Dr. Boufadel had said, I mean,  
5 there is always the worry that it will  
6 break free. And this is very seriously  
7 toxic, contaminated water. And so if we  
8 don't do the right analysis, it may break  
9 free.

10 But even if it doesn't, the  
11 loss of that fresh water that they've now  
12 contaminated with toxins is significant  
13 and meaningful. We can't afford, our  
14 river can't afford, our communities can't  
15 afford, our earth can't afford the loss  
16 of that fresh water. And we're talking  
17 about millions upon millions of gallons  
18 of fresh water over time being lost and  
19 harbored away underground, never to be  
20 seen from again. We have a limited  
21 supply of fresh water in this region, in  
22 this world. We can't give it to the gas  
23 drillers to toxify and steal from us.

24 (Applause.)

25 MS. VAN ROSSUM: But to get

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2 back on point -- I had to speak to  
3 Dr. Martin's points. But as you also  
4 heard earlier from the Philadelphia Water  
5 Department, they are investing very  
6 heavily in watershed protection and  
7 restoration and, in fact, have already  
8 invested, I think, \$25 million was the  
9 figure that we heard. Well, allowing the  
10 gas drilling to go forward is going to be  
11 totally counterproductive for the City of  
12 Philadelphia, because while Philadelphia  
13 is working so hard investing \$25 million  
14 in restoring the watersheds that provide  
15 it clean, fresh drinking water, the gas  
16 drillers are going to be destroying that  
17 very same land and very same water  
18 source. So we're undermining the efforts  
19 and the investments of the City of  
20 Philadelphia if gas drilling is allowed  
21 to move forward.

22 I think it's also important to  
23 note this nonsense about the gas drilling  
24 in the Marcellus Shale is going to wean  
25 us off of U.S. foreign oil. It's

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2 nonsense. We did hear -- we heard some  
3 claims that all this gas is going to come  
4 directly to Philadelphia. Well, the one  
5 distributor acknowledged that that's not  
6 in fact true. There's no guarantee that  
7 it's going to come here. But we also  
8 know, and we know for a fact, that much  
9 of the gas to be extracted from the  
10 Marcellus Shale in the Upper Delaware is  
11 already planned for shipment overseas to  
12 places like China, Japan, Norway, France  
13 and India. It's not staying in the U.S.  
14 So it's not weaning us off of anything.  
15 It's giving the gas drillers more profits  
16 as they ship it off, and we're still  
17 dependent on the fossil fuel sources.

18 In terms of global climate  
19 change, people did speak to that, so I  
20 won't speak to that, except for the  
21 summary statement that the gas drilling,  
22 when you look at it from cradle to grave,  
23 is not going to make global climate  
24 change better. In fact, it's going to  
25 make it worse, with the emissions, with

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2 the truck traffic and the dirty diesel  
3 fuel that they'll be using for the 1,400  
4 truck trips that have to happen for every  
5 single one of these 10,000 to 50,000  
6 wells, and the loss of trees.

7 Now, though, really to speak  
8 directly to the point of the economic  
9 ramifications for Philadelphia and for  
10 the region from gas drilling, there are  
11 many. Destroying the health of the river  
12 is going to drive business away from  
13 Philadelphia. That's one of our biggest  
14 concerns. Businesses increasingly look  
15 to settle, particularly their headquarter  
16 operations, to settle in beautiful areas  
17 that are attractive, that are well  
18 renowned, like Philadelphia. If we lose  
19 the river, we lose the cache of a healthy  
20 river, then we're going to drive this big  
21 business away.

22 We also are going to be putting  
23 directly in jeopardy jobs, eco-tourism  
24 and recreation and river-related jobs.  
25 And you have a report from the Delaware

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2 Riverkeeper Network titled "River Values"  
3 that lays all of this out in great  
4 detail, but I want to highlight a few of  
5 those economic jobs that are going to be  
6 harmed.

7 In just one year, the upper  
8 reaches of the Delaware River brought to  
9 local communities over 367,000 white  
10 water paddlers who spent over \$20  
11 million, contributed almost \$10 million  
12 to our local economies and supported 447  
13 jobs.

14 There are 20 canoe liveries  
15 that operate along the Delaware River.  
16 Some of them employ as many as 200  
17 people. Some of them have an attendance  
18 of 60,000 or more in a given year. That  
19 means that one livery alone can create  
20 gross revenue of more than \$3 million a  
21 year for our region. One canoe livery  
22 alone.

23 Trout fishing in the Upper  
24 Delaware in one year -- and these figures  
25 are 20 years old, so you can imagine what

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2 they would be today -- resulted in over  
3 17 and a half million dollars in local  
4 business revenue. This revenue supported  
5 348 jobs. It provided over three and a  
6 half million dollars in wages and over  
7 \$719,000 in local taxes. And that  
8 investment translated into almost \$30  
9 million in local economic activities.

10 River festivals up and down the  
11 river, because the river is so clean and  
12 beautiful and healthy, a lot of  
13 communities celebrate it, including  
14 Philadelphia. Lambertville's shad fest,  
15 by example, draws 30,000 to 35,000 people  
16 to that community for one brief weekend  
17 to celebrate our clean and healthy  
18 Delaware River. That generates a  
19 tremendous amount of business for that  
20 community.

21 Just a few weeks ago  
22 Philadelphia had another river-focused  
23 festival on the bank of the Delaware  
24 River. That brought income.

25 Philadelphia has a lot of

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2 restaurants and hotels that market  
3 themselves in terms of their relation to  
4 the river, and actually some hotels  
5 charge over \$100 more for a room if it  
6 faces the river than if it doesn't. And  
7 then, of course, we've got lots of  
8 boating along the Schuylkill and lots of  
9 boating along the Delaware, rowing,  
10 paddling, motorized boats. The  
11 Schuylkill has hosted over 20 regattas in  
12 a single year, some of them bringing as  
13 many as 5,000 visitors from all over the  
14 country to enjoy Philadelphia and our  
15 beautiful, clean rivers.

16 And this nonsense that the  
17 Schuylkill is not going to be fracked,  
18 you know, the Marcellus Shale is there,  
19 the drillers will be coming. But both  
20 the Schuylkill and the Delaware are at  
21 risk from the drilling, and so is their  
22 boating and their fishing, which, of  
23 course, is very, very common along both  
24 rivers.

25 But the protection and the

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2 restoration of the Delaware River and all  
3 the work that goes into accomplishing  
4 that isn't just important in terms of  
5 these local economies and these jobs, but  
6 it's also directly important in terms of  
7 the health and safety of our communities,  
8 because the woodlands and the forests  
9 that are in the upper waters -- in the  
10 headwaters of the Delaware protect us  
11 from flooding and flood damages. And we  
12 have communities already along the  
13 Delaware River that suffer from  
14 catastrophic flooding, and if we further  
15 remove the vegetation and deforest the  
16 Upper Delaware in order to accommodate  
17 natural gas drilling, we're putting these  
18 communities downstream at tremendous risk  
19 from increased flood damages. And who  
20 has to pay when we have to help them  
21 rebuild and restore and clean up?  
22 Everybody in the region. We pay for it  
23 through our tax dollars and through our  
24 hearts, because it's very hard to witness  
25 that when it happens year after year.

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2 COUNCILMAN JONES: In

3 conclusion.

4 MS. VAN ROSSUM: I will. We  
5 have to talk about the drinking water,  
6 though, and we have to say that both  
7 Philadelphia and New York City understand  
8 that to best protect your drinking water,  
9 you best protect the source. And  
10 experience has shown that for every  
11 dollar you invest in watershed  
12 protection, you get \$7.50 up to \$200 of  
13 economic savings in the form of not  
14 having to put in new infrastructure and  
15 water treatment. And, in fact, New York  
16 City has invested \$1 to \$1.5 billion in  
17 protecting the Upper Delaware in order to  
18 save itself \$10 to \$20 billion.

19 So I will say in conclusion  
20 that the one thing that you heard from  
21 the Basin Commission today is, Carol  
22 Collier talked about the Special  
23 Protection Waters regulation, and I will  
24 tell you those regulations were created  
25 and put in place because of petitions by

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2 the Delaware Riverkeeper Network. They  
3 finally put them in place. They're now  
4 doing us great good when it comes to  
5 natural gas drilling.

6 She talked about the money  
7 coming for the environmental analysis.  
8 She talked about the creation of gas  
9 drilling-specific regulations, but the  
10 thing that she mentioned that I think  
11 gets lost a little bit in the noise,  
12 because of the political pressure,  
13 particularly from Governor Rendell, the  
14 Basin Commission is not going to wait for  
15 the outcome of the cumulative  
16 environmental assessment before doing  
17 their regulations. They're going to do  
18 it backwards. They're rushing through  
19 regulations. There's a lot of political  
20 pressure on the staff to make the  
21 regulations that are being drafted weaker  
22 than what would have come out. And once  
23 those regulations get out the door, the  
24 drilling happens. And that cumulative  
25 environmental assessment and analysis

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2 that's going to be completed over the  
3 course of the next one, two, three years  
4 is going to be useless, because the  
5 damage will be done.

6 So we really need the City of  
7 Philadelphia to stand up, stand strong  
8 and stand not just in support of the  
9 Basin Commission doing it the right way,  
10 doing the environmental analysis, then  
11 the regulations, but we need the City of  
12 Philadelphia to be reaching into  
13 Harrisburg, telling Governor Rendell and  
14 all of those legislators that they need  
15 to stand with Philadelphia to defend our  
16 drinking water supply, not with the  
17 drillers to damage it.

18 Thank you.

19 (Applause.)

20 COUNCILMAN JONES: I heard a  
21 lot of testimony today, but that last  
22 part, the cart before the horse part, is  
23 resonating for me.

24 MS. VAN ROSSUM: Thank you.

25 MS. SCHAB: I'm Marge Schab and

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2 I am the last one, and what I prepared is  
3 kind of, in a sense, a conclusion for a  
4 very interesting day. But I want to make  
5 two points of correction.

6 The first point is, when the  
7 representative from the PADEC was here,  
8 he said we began to get permits for the  
9 Marcellus in 2005. I have a friend who  
10 says there's no such thing as a  
11 coincidence. Like I am here in the town  
12 where I was born. Here I am again. And  
13 2005 was the year the energy bill was  
14 passed that allowed for gas drilling in  
15 this high-impact hydraulic fashion to be  
16 exempt from the Clean Water Air, the  
17 Clean Air Act and the Clean Drinking  
18 Water Act. That's the same year that  
19 they applied for permits in the  
20 Marcellus. That's one thing.

21 The second thing that was said  
22 is that a well would produce 30 years of  
23 natural gas. I have a chart from  
24 Chesapeake themselves which show a quick  
25 decline of each well, which means in

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2 order to have a lot of output, you have  
3 to drill lots of wells. I mean, tens of  
4 thousands, if not more, wells. This is  
5 from Chesapeake. I just witnessed a  
6 presentation from the New York lobbyist  
7 from Chesapeake, and for some reason,  
8 this chart is no longer in their  
9 presentation. So I will leave this with  
10 you and then I'll go to my prepared  
11 remarks, but I want to thank you,  
12 Councilman Jones, for doing this and for  
13 Councilwoman Blondell for doing this and  
14 for being so patient through all the  
15 testimony and all these hours, and I am  
16 so happy that you scheduled me and I'm so  
17 happy that I came and that I heard  
18 everybody, and I will be back more than I  
19 ever thought I would be in Philadelphia.

20 I'm here today representing  
21 NYH20, which is a New York advocacy group  
22 for clean drinking water. I was born in  
23 Philadelphia. I now live in New York. I  
24 do not own a house in either rural  
25 Pennsylvania or upstate New York. Yet,

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2 the prospect of drilling in the Delaware  
3 basin with high-impact hydro-fracturing  
4 doubly pains me because of Philadelphia,  
5 where I came from, and New York is where  
6 I now live.

7 I read an article in the  
8 Pittsburgh Tribune, and I quote one  
9 sentence, "Residents and municipal  
10 officials are trying to balance the  
11 benefits of money and jobs with the right  
12 to clean water and air. Have we come to  
13 a point of such utter callousness that we  
14 must compromise the rights of millions to  
15 clean water and air for the possible  
16 benefit of money and jobs?"

17 How can we possibly live and  
18 thrive without clean water and air? This  
19 is our most basic right, more basic than  
20 our right to vote, more basic than  
21 democracy, more basic than our economic  
22 system. It is the most basic service we  
23 ask our government to protect, is the  
24 right to live healthy, productive lives.

25 As for money, the bulk of the

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2 money goes to the energy companies. It  
3 does not benefit the states, because  
4 there'll be increased healthcare costs,  
5 infrastructure repairs, new water  
6 treatment plants, all of which may cost  
7 billions of dollars.

8 As for jobs, the high-paid  
9 welders and riggers come from out of  
10 state. There will be some jobs for  
11 vendors to service those high-paying  
12 jobs, but all this will approximately  
13 last five years per well site, but the  
14 polluted water and air will remain for  
15 generations.

16 We are in a battle. The 20th  
17 century fossil fuel industry is reluctant  
18 to assume its smaller role in the 21st  
19 century. Green energy is knocking at the  
20 door. Exploration for black energy has  
21 become expensive and dangerous, because  
22 there is no easy way available anymore.

23 We have witnessed the worst  
24 spill in history just this past summer.  
25 In western part of Pennsylvania, there

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2 have been spills, fires and a dangerous  
3 blowout of a rig in early June. Many  
4 communities have seen their real estate  
5 values plunge, because who will buy in a  
6 community with questionable aquifers.

7 Now the birth place of our  
8 nation, born in the age of enlightenment,  
9 may succumb because of the threat to its  
10 water supply from hydraulic fracking in  
11 the Delaware River Basin.

12 I submit to you -- and I'm not  
13 going through the whole article -- there  
14 was an article in the New York Times this  
15 past Sunday in their series called Beyond  
16 Fossil Fuels. It is an article about  
17 homes that can be built with no need of a  
18 furnace even in cold climates. Quote,  
19 "America's drafty building methods amount  
20 for as much as 40 percent of its primary  
21 energy use, 70 percent of its electricity  
22 consumption and 40 percent of its carbon  
23 dioxide emissions. Pennsylvania and New  
24 York do not need an additional  
25 infrastructure based on 20th century

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2 black energy technology, because we do  
3 not need the increased capacity of black  
4 energy. We certainly do not need to use  
5 it if it will foul our water supply of  
6 this great city. If green technology is  
7 at hand, let us use it."

8           So I left the article with you.  
9 You will see that this means jobs that  
10 will last forever, jobs that can be made  
11 now. They are doing this construction of  
12 these homes in Europe and there are only  
13 13 here, but we do have the green jobs.  
14 They're available now. It's up to our  
15 government to let them spring and prosper  
16 and flourish, and these will be jobs for  
17 generations. And thank you very much for  
18 doing this.

19           (Applause.)

20           COUNCILMAN JONES: I wanted to  
21 say that we as Councilpeople often deal  
22 with constituent groups, none with such  
23 patience, none with such endurance and  
24 none with such passion as I've heard  
25 today.

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2 If my colleague Marian Tasco  
3 were here, she would say act in haste and  
4 repent in your leisure. Act in haste and  
5 repent in your leisure. If nothing else,  
6 we've learned that we need to slow down,  
7 take a hard look at what we are about to  
8 enter, because the ramifications can last  
9 a hundred years.

10 So what we are going to do is  
11 take what we've learned today, digest it  
12 and produce a report with  
13 recommendations. My colleagues and I are  
14 going to take seriously and look at a  
15 resolution that may call for two things.  
16 One, that the Governor consider the  
17 moratorium until at least after the  
18 study. And in my capacity as a  
19 Philadelphia Gas Commissioner, I want to  
20 present a resolution calling for the  
21 moratorium of non-use of Marcellus Shale  
22 drilled gas to stop the fracturing at all  
23 costs.

24 (Applause.)

25 COUNCILMAN JONES: And with

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2 that, this Committee is recessed to the  
3 call of the Chair.

4 Thank you for your patience.

5 (Applause.)

6 (Joint Committees on  
7 Transportation and Public Utilities and  
8 the Environment concluded at 3:55 p.m.)

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CERTIFICATE

I HEREBY CERTIFY that the proceedings, evidence and objections are contained fully and accurately in the stenographic notes taken by me upon the foregoing matter on September 28, 2010, and that this is a true and correct transcript of same.

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MICHELE L. MURPHY  
RPR-Notary Public

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