

CITY COUNCIL
CITY OF NEW YORK

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TRANSCRIPT OF THE MINUTES

of the

COMMITTEE ON ENVIRONMENTAL PROTECTION

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February 17, 2012

Start: 1:17 p.m.

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HELD AT: Council Chambers
City Hall

B E F O R E: JAMES F. GENNARO
Chairperson

COUNCIL MEMBERS:

Council Member Gale A. Brewer
Council Member G. Oliver Koppell
Council Member Brad S. Lander
Council Member Stephen T. Levin

A P P E A R A N C E S (CONTINUED)

Carter Strickland
Commissioner
Department of Environmental Protection

Kimberlee Kane
Special Assistant for Watershed Protection Programs
and Bureau of Water Supply
Department of Environmental Protection

Al Appleton
Former Commissioner, Department of Environmental
Protection
Senior Fellow, Regional Plan Association

Eric Goldstein
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Natural Resources Defense Council

Kate Hudson
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Wes Gillingham
Program Director
Catskill Mountain Keeper

Jessica Roff
Volunteer
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Megan Ahearn
Program Coordinator
New York Public Interest Research Group

David Braun
Co-Founder and President
United for Action

Deborah Zohn
Representative
United for Action

A P P E A R A N C E S (CONTINUED)

Joe Levine
Environmental Advocate

Michael Lebron
Board Member, Damascus Citizens for Sustainability
Principal, New Yorkers for Sustainable Energy
Solutions Statewide

Buck Moorhead
Architect, Representative
NYH₂O

Mav Moorhead
Co-Chair, Community Board Committee
NYH₂O

Danielle Gerard
President
Three Parks Independent Democrats

Joan Davis
Member
Gray Panthers

Ray Herrera
Concerned citizen

Mary Elizabeth Rupich

CHAIRPERSON GENNARO: Thank you,
everyone. Yep. [pause, background noise] Yeah,
he's fine, it's fine. Okay, we're ready Sergeant?

SERGEANT-AT-ARMS: Yes, sir.

CHAIRPERSON GENNARO: Okay. Good
afternoon. My name is Jim Gennaro, Chair of the
Committee on Environmental Protection for the City
Council. Welcome to today's oversight hearing on
DEP's recently released technical memo that does
an evaluation of the potential risk to the City's
critical drinking water infrastructure from
fracking. For the record, the title of the memo
is, "Geophysical Evaluation of Infrastructure
Risks of Natural Gas Production on the New York
City West of Hudson Water Supply Infrastructure."
Good title. And it was produced for the
Department by the Department's consultants. And I
see the Commissioner and Kim taking their seats,
we welcome them for being here. As, as the title
suggests, the technical memo is particularly
focused on infrastructure that's outside the
watershed, but within areas where fracking could
potentially occur, due to the presence of the
Marcellus Shale, and it talks particularly about

several aqueducts and water tunnels that carry drinking water from the watershed to the City.

This is the Committee's sixth hearing on the potential impacts of fracking on the water supply and on the, and on the environment, which also would include New York City's drinking water supply. First of all, let me thank DEP for being here to testify about their study. I'd also like to praise them for their continued good work on protecting the City's water supply from the dangers of fracking and all dangers for that matter. This study that we'll hear about today is a continuation of the Department's efforts to take a hard scientific look at this issue. We all know that back in 2009, they also made a submission. And by collecting and analyzing all this data about the watershed and areas through which the water infrastructure passes, they have filled a number of critical gaps in the State's environmental review process. And at a bare minimum the State must address the science that DEP has developed. And I believe make amendments to their analysis regarding regulations to adequately protect drinking water of many millions

1 of New York State citizens. And I don't want to
2 steal the Department's thunder by giving away all
3 of their conclusions. And, and the rest of this
4 statement proceeds to do that, so I won't do that.
5 But I, just to kind of speak from the heart for a
6 few minutes, or a few moments, you know, grateful
7 to have this opportunity to talk to DEP, to kind
8 of, you know, put some of their good work on
9 parade, so that folks can really get a sense of
10 what the City, you know, through DEP and through
11 the Bloomberg Administration, is trying to do to
12 make sure that we have necessary protections. I
13 want to thank all the people who have come to our
14 hearings time and again who are, who are very
15 involved in this issue, and very, very committed
16 to it. And you know, we're all doing the best to
17 make sure that we can have sanity prevail. And,
18 and that's what we will try to do here. The topic
19 of the hearing is focused on the DEP's technical
20 memo. I would ask people to kind of--and I just
21 want to remind people that this is a hearing, like
22 on this technical submission, and that's what I
23 want people to speak to. We've heard a lot of,
24 you know, comments, at many, many of our hearings
25

1 and, you know, certainly I'm willing to indulge
2 folks who go a little bit off topic or whatever,
3 but you know, this is a very sort of, you know,
4 laser focus hearing, on the, on, on the memo by,
5 you know, DEP, and that's where I want to keep the
6 focus of the hearing, you know, but certainly also
7 have an interest to hear what people have to say
8 within reason, given the fact that we have many
9 speakers. But I certainly want to get the most
10 out of what people have to say about what DEP has
11 put forward here, and regarding next steps for
12 this Committee, you know, once we have this
13 hearing, we'll hear the presentation by DEP. I'll
14 pose questions, many of you will, you know, bring
15 forward testimony that talks about their
16 submission. And there will be a next step, you
17 know, from this hearing, regarding maybe some kind
18 of additional pronouncement that I, or the
19 Council, has to make, you know, regarding DEP
20 submission, how it may, you know, could be a
21 little different, or maybe some other issues that
22 we want to put in there. You know, we're kind of
23 going to see where that goes. But I certainly
24 thought it was a very good thing to have the good
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work by DEP sort of put forward here, so that we could all have a, you know, real good hard look at it, and I would have a chance to pose questions on it, and people here would have an opportunity to also give testimony on that. So we welcome everyone for being here, and I'd like to thank the staff of the Committee for helping put this hearing together. And without further ado, I'd like to welcome the first panel: Carter Strickland and Kim, I always forget your last name, Kim, I'm sorry.

KIMBERLEE KANE: [off mic] Kane.

Kimberlee Kane.

CHAIRPERSON GENNARO: Kane, okay.

And so, what I'll do at this point is I'll ask the Council to the Committee to swear in the panel, and then at that point, Commissioner, you can state both your names for the record and proceed with your good testimony. I just want to make sure that we have the copies of the testimony, and you know, we do indeed. And with that said, we welcome you once again. We'll do the oath and then we can proceed. I would also ask folks to do as I do and make sure that your phone is set on

silent or vibrate or something, so we don't have these interruptions, and I'd like the Sergeant to make sure that we don't have, you know, too much noise coming in from the hall. People are filming and we want to make sure that every word gets recorded. So, Thanks very much, I'll turn it over to Samara, then we'll proceed.

COUNSEL: Would you please raise
your right hands? Do you swear or affirm to tell
the truth, the whole truth and nothing but the
truth today?

CARTER STRICKLAND: Yes.

KIMBERLEE KANE: Yes.

CHAIRPERSON GENNARO: Thank you.

Thank you, Commissioner; thank you, Kim. We're ready to go here, and we welcome you for, I guess the fifth time, but that's okay, that's great.

CARTER STRICKLAND: Good.

CHAIRPERSON GENNARO: Thank you.

CARTER STRICKLAND: Well, good afternoon, and thank you very much, Chairman Gennaro and Members. I am Carter Strickland, Commissioner of the New York City Department of Environmental Protection. Thank you for the

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2 opportunity to testify today on DEP's comments on
3 the New York State Department of Environmental
4 Conservation's Revised Draft Supplemental Generic
5 Environmental Impact Statement--I might not use
6 all of those in the future in this testimony--on
7 high volume hydraulic fracturing in New York
8 City's drinking water infrastructure. Also want
9 to thank you, Mr. Chairman, for your many years of
10 vigorous advocacy in protecting the invaluable
11 resource, insist on that provide the highest
12 quality drinking water in the nation to New York
13 City every day. I am joined today by Dr.
14 Kimberlee Kane, Special Assistant for Watershed
15 Protection Programs and Bureau of Water Supply.
16 When Deputy Commissioner Paul Rush of the Bureau
17 of Water Supply testified before this Committee
18 last September, DEP was reviewing the draft study
19 it had commissioned, to better understand
20 potential impacts the water supply infrastructure
21 posed by high volume hydraulic fracturing, or high
22 volume hydrofracking. In January 2012, DEP
23 submitted its comment letter on the RDSGEIS to
24 DEC, along with the technical report that is the
25 subject of this hearing. Both the comment letter

1 and the technical report, in addition to this map
2 behind me, are on our website. As Deputy
3 Commissioner Rush testified, we are very pleased
4 that DEC proposed banning high volume
5 hydrofracking in the watershed. Which addressed
6 many of the concerns we raised back in 2009, with
7 our submitted comments then. Again, those
8 comments are available on our website. Given the
9 ban, our January 2012 comments focus on the
10 potential impacts to the City's water supply
11 infrastructure, particularly our dams and tunnels.
12 Protecting that infrastructure is just as critical
13 as protection of the watershed itself. Both are
14 critical elements of the City's water supply.
15 Before I speak about our infrastructure, however,
16 I'd like to comment on one aspect of the ban on
17 drilling within the New York City drinking water
18 watershed. The City strongly supports the
19 proposed ban on high volume hydrofracking, which
20 will prevent industrialization of the watershed
21 that supplies water to nine million New York State
22 residents. The City previously understood the
23 State's environmental review to apply to all
24 horizontal drilling and all hydrofracking. But
25

based on recent conversations with DEC staff, we now understand it to be limited to high volume hydraulic fracturing, both horizontal and vertical, and not to low volume hydraulic fracturing, whether horizontal or vertical. DEC defines high volume hydraulic fracturing based on water usage, and designates high volume as using more than 300,000 gallons per well. DEC position is that low volume hydraulic fracturing, that is using less than 300,000 gallons per well, is already covered under a 1992 Generic Environmental Impact State that applies to essentially all drilling in the State. While DEC has stated that it does not believe that low volume hydraulic fracturing will occur in New York State to any significant degree, DEP does remain concerned that low volume hydraulic fracturing, whilst could provide, prove economically viable along the edges of the watershed, particularly if they can be refracked, because of their close proximity to productive areas outside of the watershed, that may be developed with high volume horizontal wells. Low volume hydraulic fracturing in the watershed, if it were in fact to occur, could have

significant adverse impacts which were not considered in the 1992 Generic Environmental Impact Statement. For those reasons, we have requested that the final Supplemental Generic Environmental Impact Statement commit to further environmental review in the event that there is any indication that low volume hydraulic fracturing may take place beyond occasional isolated incidents in the New York City watershed. Returning to the Revised Draft Supplemental Environmental Impact Statement released by the State in September of 2011, and the issue of water supply infrastructure, in preparation for our comments this January, we hired Hager-Richter Geoscience, as you noted, to evaluate the risk to our infrastructure, review our past recommendations, and assess the protections proposed in the latest version of the Environmental Impact Statement. Hager-Richter is an engineering geophysical services company in the Northeastern United States. They provide a broad range of geophysical services for geotechnical engineering, environmental and water supply projects. We thought that they were the perfect

experts for this, and in fact they proved to be. The major findings of their technical report are, first, that the region around the tunnels is more faulted and fractured than the Revised Draft Supplemental Environmental Impact Statement discloses and analyzes. And some of these faults cross our tunnels. Also, subsurface faults may exist underground without any surface expression. Second, micro-seismicity, defined as less than one on the Richter Scale, from hydrofracking, is not likely a threat to the tunnels. But induced earthquakes, that is earthquakes that will prove to be, we predict, about one to three on the Richter Scale, generated from subsurface migration of fluids, could pose a risk to the tunnels unreinforced concrete liners, potentially causing liner collapse, leaks and less efficient transport; but not catastrophic tunnel collapse. Induced earthquakes from injection wells are well-known phenomenon. However, induced earthquakes directly linked to the hydrofracking have only recently been confirmed in reports from England and Oklahoma. Third, Hager-Richter concurred that the 1,000 foot infrastructure buffer proposed in

the September Revised Environmental Impact Statement was inadequate and is inadequate, and that the previous statistical model that DEP used to develop the seven mile buffer recommendation is in fact a reasonable approach. Hager-Richter-- Fourth, and finally, Hager-Richter did not specify an appropriate infrastructure buffer distance, and stated that what constitutes an acceptable level of risk of damage to the critical water supply infrastructure is a matter of policy, not geophysics. We need to develop protections for critical resources like the City's water supply infrastructure, while balancing the needs for new energy sources and economic growth. Based on our independent expert review of the risks of high volume hydrofracking, and the City's analysis of the potential consequences to our infrastructure, including the time and cost of repairing liner collapse in our tunnels, the City is recommending a hybrid approach that retains our initial seven mile buffer recommendation but with some modifications. I will outline our conclusions regarding buffers around infrastructure first and around dams second. Our comments took into

account both the risks and the potential consequences of impacts from high volume hydrofracking near our infrastructure. In our January 2012 comments, the City recommended the following. First, a seven mile infrastructure exclusion zone where no high volume hydrofracking would be permitted around the Delaware and Catskill Aqueducts, that begin at the Rondout and Ashokan Reservoirs, respectively. These two aqueducts currently carry 100 percent of the water to New York City. Even non-catastrophic leaks or liner collapse, would have significant consequences for DEP's ability to meet in-City and upstate water demand, and would be expensive and time consuming to repair. (And I'll note parenthetically that we are undertaking a ten year, \$2.1 billion project to fix the Delaware Aqueduct to address leaks of about 35 million gallons a day. So, we know that those costs can be significant and timely, time consuming, rather. Secondly, a two mile infrastructure exclusion zone around other tunnels overlying the Marcellus Shale deposits. Those are for us the East Delaware Tunnel, the West Delaware Tunnel, and the

Neversink Tunnel. I note we have another one, Shandaken Tunnel within the watershed that's already covered by the ban in, within the watershed. Because damage to one of these tunnels would affect the City's ability to access water from only a single reservoir. DEP's water supply system has the flexibility to withstand an outage of one of these tunnels during a repair process. Third, an infrastructure enhanced protection zone between two and seven miles around those non-terminal tunnels. All drilling applications within the infrastructure enhanced protection zone should require site specific review of proposed high-volume hydrofracking wells, additional permit conditions, and the City's approval. And I'll note on the last point, the State has agreed to work with us on what those form--that form of City approval would be, but we certainly have not read anything. And fourth, both the infrastructure exclusion zone and the infrastructure enhanced protection zone, should be measured from the tunnel to the tip of the lateral wellbore, rather than from the well pad, which can be a significant difference of 3,000-4,000 feet. This proposal

1 would put an additional 327 square miles off
2 limits to drilling in the Marcellus Shale, in
3 addition to the watershed ban. However, 15
4 percent of this additional area, or 50 square
5 miles, would already be protected by other
6 proposed prohibitions. That is, the area is
7 within State parks or other State land or within,
8 or over a primary aquifer. Meaning that the net
9 impact of our proposal is 277 square miles, or an
10 additional 1.5 percent of the total area of the
11 Marcellus Shale deposits in New York State. With
12 regard to our dams, the SGEIS proposed a 4,000
13 foot no drill buffer measured from a well pad
14 around the City watershed boundary and dams.
15 Essentially, the dams, dams are all at the edge of
16 the watershed. The City completed an assessment
17 of the ability of the dams to withstand seismic
18 events under prior contracts. The potential
19 magnitude of seismic events known to be triggered
20 by high volume hydrofracking, again, magnitude of
21 one to three on the Richter Scale, is well within
22 the ranges that our dams can safely withstand. So
23 we're safe in that respect. However, the City is
24 concerned about potential structural impacts to
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dams in a situation where a drill pad would be outside of the 4,000 foot buffer around the watershed proposed by DEC, but a horizontal section of the well could extend closer or even underneath a dam. In those situations, our concerns include the possibility of a migration of high volumes of fluids nearer dams from directions not anticipated in the design of those dams, and other changes to hydraulic regime. The City is recommending that a site specific review be conducted when the horizontal section of the well comes within the 4,000 foot buffer proposed by DEC around any part of the, a dam. Additional permit conditions within the area should include enhanced subsurface geophysical surveys conducted prior to drilling, and City review and approval of permits. Taken on the whole, if we add up the City's proposal for a no-drill area, including otherwise unprotected lands in the watershed, the 4,000 foot buffer zone around dams, and the two mile buffer zone from tunnels and the seven mile buffer zone from our major aqueducts, only 1,511 square miles of otherwise unprotected land would be taken out of production at this time. This is 8.1 percent

1 of New York State's Marcellus Shale footprint.
2
3 Given the significant risk to the water supply
4 from damage to the City's infrastructure, and the
5 50 percent of the State's residents who depend on
6 our drinking water, the City believes that our
7 proposed measures are reasonable and prudent. We
8 will continue to discuss our concerns with DEC,
9 and work to ensure that the best decisions have
10 been made to protect our water supply and its
11 infrastructure. Thank you for the opportunity to
12 testify. I would be glad to answer any questions,
13 along with K--

14 CHAIRPERSON GENNARO: Thank you,
15 Commissioner. I greatly appreciate your
16 testimony, we certainly, we will have questions.
17 Let me do some good housekeeping here. We're very
18 happy to be joined by members of the Committee:
19 Council Members Koppell, Lander and Levin, and we
20 also have Gale Brewer, who is not a member of this
21 Committee, but has, has taken up this issue with a
22 passion. I very much appreciate, you know, Gale
23 being with us today. And I made some notes during
24 your testimony. I also made some notes of my own
25 on, when I was going through the submission, I

1 have some questions there as well, so I'll, I will
2 proceed. And with regard to the second page of
3 your testimony, where you talked about the low
4 volume fracking, that was actually addressed in
5 your submission to the State. So, it's not like
6 you were made aware of that after, because I
7 noticed that that, that it went through the
8 submission and, and you did speak to that issue,
9 in there. So, I don't want folks who hear your
10 testimony to think that this is something that was
11 not spoken to in the actual submission that went
12 to the State. And but certainly it is of great
13 concern, and we are grateful that you put that in
14 there, and did speak to that issue. And I think
15 wherever we go from here in this part, "we"
16 meaning, you know, me and this Committee and this
17 Council, we're going to have some more to say
18 about low volume fracking. And let me jump to
19 page three of your statement, the last bullet
20 point, about the, about the folks from HR, about
21 the buffer distance, how there was not a, that
22 they didn't specify a particular distance to be a
23 buffer, and indicating that this, that this level
24 of risk was, what was a matter of policy and not,
25

you know, science, basically, and that's kind of where I want to just talk a little bit about. And because previously, there was a seven mile buffer, but when I got through both your submission to the State, and also your comments today, where there was a policy decision made that, you know, regarding the seven mile buffer that'd be retained from the terminal reservoirs to the City, but for the other tunnels, you know, we could do the hybrid approach, that's like the two mile ban, plus the, plus the zone of, help me out here--

CARTER STRICKLAND: Enhanced
protection zone.

CHAIRPERSON GENNARO: Right, right. And the rationale for that, or the, you know, thinking, as you say in your statement today--and I thought I underlined--yeah, that the, that DEP's water supply system has the flexibility to withstand an outage of these tunnels during a repair process. So, that's, so that's, so that's like the policy decision, say that if fracking were to harm or break, or, you know, damage one of our tunnels, that we could, you know, we could eat that, you know, and--but, I think it's an

important consideration that, you know, that maybe the people of New York City, like don't want to eat that. And then that, we should have robust protection for all of our aqueducts, and then, and even in the case where you had a situation that happened, let's say, you know, we had to take the East Delaware out, and then if something happens to the West Delaware, then all of the sudden we got, you know, like that's it. We have nothing--well, I guess like a little bit, just to--but it kind of presume that we hope that any kind of outage or damage will just be sort of like a, you know, it'll just be one tunnel. And but how do we know that? And why don't we--and, why do we want to, want to take that risk in the first place? And so--and um, I think if we're going to err on, on any side, it should be on the side of, you know, giving the most robust protections that we can, you know, possibly, and that we can possibly conceive, and reasonably put forward. And, and I'm, and as the folks from the consulting firm stated, like this is a matter of policy, like how much risk are you willing to take. And, and so, I just want to probe you a little bit for, you know,

1
2 for like the brainwaves that like went into that
3 decision, when we--and I didn't mean that in, in
4 any kind of pejorative way. And so, 'cause I
5 heard of chalk line, and I wasn't, you know,
6 trying to be in any way denigrating. But--

7 CARTER STRICKLAND: Interesting
8 analogy.

9 CHAIRPERSON GENNARO: Right, right,
10 and so--And so, so if we could just talk about it,
11 'cause that really, like is a policy decision, to
12 say that this is what DEP would be willing to live
13 with. And if, you know, one of our tunnels got
14 dinged, we could figure out a way to, you know, to
15 kind of still serve the City, and that's a, you
16 know, pretty big, you know, matzo ball to eat on
17 behalf of like the State's policy, you know,
18 because they want to do this so badly, and we want
19 to kind of work with them, but it just seems that
20 we're being like very accommodating, and if you
21 could sort of help me to get a sense of what led
22 to that policy decision.

23 CARTER STRICKLAND: Sure. I mean,
24 yeah, thank you, and I think it's a, it's a good
25 question. You summed up the crux of our comments

1 very nicely. We did try to take a look at--I will
2 say, I don't want folks to take out of context the
3 statement by Hager-Richter that it's all a matter
4 of policy, the science is not relevant, that's not
5 what they said. If you take a look at their
6 statement, and certainly in something that we've
7 never stood for, in fact we spent quite a bit of
8 time, money and, you know, other resources, staff
9 time, particularly, on trying to develop the
10 science to the best it can be. In everything we
11 do. And so, we don't think that these decisions
12 can be made void of science. And--

14 CHAIRPERSON GENNARO: Right.

15 CARTER STRICKLAND: --you're not
16 suggesting that either, I don't want the general
17 public to--

18 CHAIRPERSON GENNARO: No, I'm
19 certainly not, not.

20 CARTER STRICKLAND: --take that up.
21 So, what we did, you know ,if you look at that,
22 that statement in the context of what Hager-
23 Richter did, they quantified very helpfully, I
24 think, the expected levels of seismic activity, we
25 were able to rule out some things, like extensive

1 damage directly to our dams. We're not able to
2 rule out--we were able to essentially rule out
3 catastrophic tunnel collapse. Liner collapse is
4 another matter, so it really is a question of a
5 less efficient resource to us, so you know, we
6 could in fact, the amount of water we could take
7 form there--we also took into account the fact
8 that 2013, we're going to be turning on the Croton
9 Filtration Plant and we're going to have access to
10 the Croton system, and supplying about 30 percent
11 of the water to the City. So, again, that affects
12 the overall balance of risk overall. But, but
13 again, it was an attempt to really take a hard
14 look at what our, the real consequences were to
15 the risk. I don't know, Kim, if you got anything
16 to add to that.

18 CHAIRPERSON GENNARO: Please, Kim,
19 I wanted to just--you just need to state your name
20 for the record before you start to give testimony.

21 KIMBERLEE KANE: Kimberlee Kane.
22 We did try to look for the best technical
23 justification for distance. And unfortunately,
24 there isn't a good scientific solution. You know,
25 this, part of it is this type of hydrofracking,

1
2 this activity, has only been around for about ten
3 years. We looked high and low to find examples of
4 this activity near this type of tunnel, you know,
5 unreinforced concrete, you know, through a rock
6 tunnel. And we couldn't. So there's no way we
7 could--

8 CHAIRPERSON GENNARO: Right. And
9 what I'll say, because I was just looking at that,
10 as I was going through page 4 of the memo that, of
11 the cover memo that went, the bottom of page 4,
12 "We are unaware," meaning DEP, is "unaware of any
13 deep rock tunnels in other areas of the country or
14 the world where high volume fracking is
15 occurring." So, there was a, that was a big
16 challenge.

17 KIMBERLEE KANE: Right. And
18 there's a lot, you know, unknown subsurface to try
19 and predict, you know, how far away, if the, you
20 know, how far away from this activity would be a
21 safe distance. And basically, we don't know. So,
22 our initial estimate used fracture lengths, you
23 know, because faults and fractures--

24 CHAIRPERSON GENNARO: Right.

25 KIMBERLEE KANE: --are we think of

1
2 greatest concern. And in this area, in the
3 enhanced protection zone, having extra surveys,
4 having more detailed knowledge of the subsurface,
5 having veto power to say, "You know what, you're
6 too close to a fault, and that fault crosses our
7 tunnel, and we're not comfortable with this well,"
8 we felt gave us enough protection. We still may
9 be overestimating how much room we need. We may
10 be underestimating, but we felt given the, the
11 information that's out there, and some information
12 came out as we were doing the study.

13 CHAIRPERSON GENNARO: Right.

14 KIMBERLEE KANE: Which was very
15 helpful. That doesn't always happen. You know,
16 we feel based on the state of the science today,
17 that this was a conservative, you know, protection
18 zone.

19 CHAIRPERSON GENNARO: Right.

20 KIMBERLEE KANE: As Commissioner
21 stated, based on the risk of the different
22 components, and their susceptibility to this
23 activity, as best we can predict.

24 CARTER STRICKLAND: Yeah, so I
25 think it, Chairman, if you take the point ahead of

1
2 the one where they, they talked about a previous
3 statistical model together with the last point,
4 which was, you know, science it going to give you
5 a number--

6 CHAIRPERSON GENNARO: Right.

7 CARTER STRICKLAND: --what that
8 essentially says is you can bound the range of
9 risk by science, and the numbers you're talking
10 about, but you won't come to a number. And
11 that's, you know, our, I think that's a valid
12 statement. But, so we did bring into account the,
13 you know, the fact that as I mentioned, the other
14 water supplies coming on board, what we think we
15 need, over the long term, and the fact that we
16 were able to, for many, you know, for a long time,
17 use parts of the system.

18 CHAIRPERSON GENNARO: Right.

19 CARTER STRICKLAND: So we have in
20 this period following Hurricane Irene, Tropical
21 Storm Lee, we've been turning on and off
22 reservoirs, to try to let turbidity settle down.
23 And so, you know, we know that the system has some
24 redundancy and resiliency built in.

25 CHAIRPERSON GENNARO: Right. And

1 but, any time one is, you know, trying to come up
2 with good guidelines and protections that are
3 based on science, you can only use the science
4 that's at hand, and we don't, and there are, based
5 on my reading of all the literature that's
6 involved here, and how, as you said, Kim, you
7 know, the things are just emerging of what's going
8 on in the U.K., and like what's going on in
9 Oklahoma, and places like Ohio and, and it just
10 seems like there's a--we don't really have a good
11 handle on, on what we don't know, obviously. And,
12 and that's what can come to, you know, bite us, so
13 to speak. And I'm just wondering if it makes
14 sense to try to somehow build in our comment on,
15 you know, science that has not, you know, merged
16 and have that be sort of like a caveat or
17 something, that we just don't know everything.
18 And the, you know, State is going to proceed or do
19 whatever they do. And what, you know, remedy does
20 the City have, you know, down the road, when new,
21 you know, science emerges, and/or fracking starts
22 in the area, and you know, there's, you know,
23 more, you know, subsurface propagation of, you
24 know, various kinds of faults and fractures and so

1 on, and they didn't kind of like do what the
2 models predicted. And then, so, how do we, how do
3 we kind of provide for that, you know, within the
4 context of whatever kind of regulations or--help
5 me out here, just like how do we, how do we deal
6 with that?
7

8 KIMBERLEE KANE: It's always hard
9 to deal, in a regulatory context, with information
10 that you don't have yet, things that may not have
11 happened yet. If there was new information that
12 came to light, perhaps on modeling earthquakes
13 that could happen with hydrofracking, or other
14 information, you could reopen the seeker
15 [phonetic] process, and say there's new
16 information that requires a supplemental analysis
17 of this. And certainly if the City thought that
18 the tunnels were in any way in jeopardy, or the
19 water supply in general, we would, we would push
20 hard to reopen the environmental review.

21 CHAIRPERSON GENNARO: Yeah. Why
22 don't we just talk about that for a second, 'cause
23 that, 'cause I'm, I'm like a science guy, I'm not
24 like a process guy, or like a legal guy or like a
25 SECURE [phonetic] guy, or whatever, but does the

1 City on its own to open up that process, or would,
2 I guess it would have to petition the State to do
3 that, and show cause for that.
4

5 CARTER STRICKLAND: Yes.

6 CHAIRPERSON GENNARO: And, and then
7 could take, you know, legal action in order to try
8 to advance that, is that fair to say?

9 CARTER STRICKLAND: Yes, and I
10 think that's, that's, you know, the State did it
11 on its own. There was a 1992 generic
12 environmental impact statement--

13 CHAIRPERSON GENNARO: Right.

14 CARTER STRICKLAND: --dealt,
15 dealing with sort of standard gas drilling, hydro-
16 -high volume hydrofracking came along as a new
17 technique, hadn't been analyzed before. So the
18 State on its own opened up a supplemental.
19 Certainly, we would have the right to petition the
20 State and if the State disagreed with us, take
21 legal action to, to force that to occur.

22 CHAIRPERSON GENNARO: Right. And
23 so, now the State has, has, this submission has
24 all the submissions and so there's, so that's it,
25 in terms of comments. And so, any further attempt

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2 to kind of supplement this would be in the context
3 of either informal discussions that you may be
4 having, you know, with them, regarding this, or
5 some sort of formal process where it looked like
6 we really have to, you know, go like another step,
7 and we need another bite and this. And I guess,
8 you know, I don't want anyone to speak out of
9 school here, but how's that going, 'cause I know
10 you're probably having ongoing conversations with
11 the State and perhaps, you know, you could--how
12 can I say this kind of tactfully? You know, maybe
13 there's like a, some sort of a coefficient of
14 receptivity? [laughter] You know, if we could
15 come up with that as a--so like, like what's the
16 coefficient of like, you know, receptivity, if,
17 you know, ten is--

18 CARTER STRICKLAND: Science can't
19 give you a number, Jim.

20 CHAIRPERSON GENNARO: Yeah, so,
21 right, okay. [laughs]

22 CARTER STRICKLAND: But, no, I
23 think, I mean, look, let's, let's recognize that
24 the State has been great and very receptive in the
25 past in response to our 2009 comments, in banning-

1 -and based on what they thought was a very valid
2 distinction between surface impacts and subsurface
3 impacts, and surface impacts being very important
4 in unfiltered water systems, so they, it wasn't
5 just the New York City Watershed, it was the
6 Syracuse Watershed, unfiltered system from
7 Skaneateles Lake up there. So, they've been
8 receptive, it's fair to say. We, we just met with
9 them on some other unrelated issues. They haven't
10 gotten back to us, they have a pretty full plate,
11 I think it's reported over 60,000 comments.
12 They're dealing with--

14 CHAIRPERSON GENNARO: 60,000.

15 CARTER STRICKLAND: That's--

16 CHAIRPERSON GENNARO: Okay.

17 CARTER STRICKLAND: What's what was
18 reported, 64,000. Yeah.

19 CHAIRPERSON GENNARO: Okay.

20 CARTER STRICKLAND: So, you know,
21 we'll, we'll give them some breathing room.

22 CHAIRPERSON GENNARO: Right.

23 CARTER STRICKLAND: And you know,
24 they, we did meet with them before we submitted
25 our comments, and had some discussions, and they

1
2 certainly are going to give it some attention. I
3 will say also that, you know, one thing that is
4 happening, is that the EPA sort of on a parallel
5 track, back in November, released--

6 CHAIRPERSON GENNARO: I was just
7 going to ask about, like the EPA, and like, you
8 know, what they're up to. So--

9 CARTER STRICKLAND: Well, I, you
10 know, this, New York, New York can't reach what
11 happens in Pennsylvania, obviously, so you know, I
12 think that there's a strong role for the EPA, and
13 the EPA did announce its final research plan,
14 which relates to water issues, and this was in
15 November. There's always room to, you know,
16 expand that to other issues that come up, but so
17 far they're going to include the full cycle of
18 water in hydraulic fracturing, a number of water
19 issues from the acquisition of water through the
20 mixing of chemicals in fracturing, to the post-
21 fracturing stage, including the management of flow
22 back and produced or used water, and its ultimate
23 treatment and disposal. So, EPA has a fairly
24 robust agenda, we all know there's some tradeoff
25 between a robust agenda and timeliness. So, you

1 know, but that is certainly another avenue.

2 CHAIRPERSON GENNARO: Thank you,
3 let me just--[pause] You know, I have more
4 questions that I was to pose, but I always get
5 very excited when Council Member come and members
6 of the Committee and others, like, you know, Gale
7 Brewer, who are nonmembers of the Committee who
8 want to come and want to participate, and they
9 have very busy schedules, and I want to bring them
10 in on some of the questioning, and then I will
11 come back for sure. I'm going to do it in the
12 order that the Members signed up for questions,
13 and I'm happy to recognize Council Member Brad
14 Lander.
15

16 COUNCIL MEMBER LANDER: Thanks very
17 much, Mr. Chairman, for this hearing, and as
18 always, for your great leadership on the
19 hydrofracking issue, which has done credit to the
20 Council and the City, we really appreciate it.
21 Thank you, Commissioner, as well, I think I noted
22 to you privately that Deputy Commissioner Rush's
23 testimony here in September is the only time in my
24 experience where a member of the administration
25 has received a round of applause [laughter] from

1
2 the audience at a Council hearing, so--and, and I
3 want to say that was great testimony that really
4 helped shape my thinking on the comments that we
5 put out and the comments that a couple of hundred
6 people through our website made, were proud to be
7 part of that 64,000, which I think is not only the
8 most ever, but the most ever by like a factor of
9 four or something, that they've ever received.

10 So, it's, it's a credit. I mean, I don't, I have
11 to confess that like when the City of New York, a
12 careful institution, says, "This is what we need
13 to protect our water infrastructure," the fact
14 that we're still having this conversation with
15 DEC, however helpful they've been, doesn't make
16 any sense to me. There obviously is a broader
17 debate to be had about the statewide issues and
18 the ban, but the notion that we have to be
19 fighting to protect our water infrastructure in
20 the way that you as its stewards says is
21 necessary, I appreciate that you're doing it and
22 that you're taking it very seriously, but I don't
23 understand, you know, why the State hasn't just
24 said, "Fine, we trust the City of New York to
25 manage its infrastructure, and this is what, if

1 this is what you say is necessary, that's what's
2 necessary." So, but I appreciate you, you
3 continuing to push. I guess just two questions.
4 First, I know on the, on the issue, I want to
5 follow up on the issue the Chair mentioned about
6 the EPA, as you and I know from other watersheds
7 in, in Brooklyn, the EPA can be an excellent and
8 zealous steward of, of water quality. That's a
9 Gowanus Canal allusion, for those of you that
10 aren't from Brooklyn. I know there's also the
11 Attorney General of New York brought this suit
12 around the Delaware River Water Commission, and I
13 wonder if you could just help me understand
14 whether any of these things fit together. I mean,
15 is the EPA going to be looking specifically at the
16 issues you raise here, around our water
17 infrastructure, and whether you're correct that
18 not increasing the buffer around the
19 infrastructure poses real risk to the drink? Or
20 you know, it seems to me that that's a, an awfully
21 significant national water quality issue of
22 concern. And, you know, to the extent that there
23 is some disagreement between DEP and DEC on it,
24 I'd, it'd be great if the EPA also took a look and
25

1
2 opined on whether they believe the expanded buffer
3 was necessary to protect the water infrastructure.

4 CARTER STRICKLAND: I don't believe
5 they've looked at the seismic impacts, but I look
6 to Kim. No. We think they left it out as well as
7 some air issues. It's something that we raised.
8 So, there is room for them, certainly, to expand
9 their scope.

10 COUNCIL MEMBER LANDER: And would
11 it be appropriate for the Council to ask them to
12 do so? Okay, so Mr. Chairman, in whatever follow
13 up, whether it's a letter to the EPA, or a
14 resolution or whatever the appropriate form of us
15 to community to them that we would appreciate if
16 they would take a look at these important
17 questions, perhaps we could consider doing that as
18 follow up to the hearing.

19 CHAIRPERSON GENNARO: That'll be
20 fine, because what I was going to do, as I said at
21 the outset, was that we're going to do this
22 hearing and then there would be some, that this
23 Committee or this Council or individual members of
24 the Committee, or whatever, we would figure out,
25 you know, some way to get some of the good

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2 information that was brought out at this hearing,
3 and get it to folks who needed to, are more
4 considerate; and number, number two, just say that
5 a lot of people looking at these particular
6 issues. - - department, sure--

7 COUNCIL MEMBER LANDER: And your
8 leadership has been great here, so I'll leave to
9 you to figure out what pieces of follow up, but it
10 does seem like asking the EPA to look at this
11 particular set of issues--

12 CHAIRPERSON GENNARO: Sure.

13 COUNCIL MEMBER LANDER: --and
14 weight in on, you know, whether they have a point
15 of view on what's necessary in terms of the
16 increased infrastructure buffer in light of the
17 seismic activity, seems like a thing we might want
18 to ask them.

19 CHAIRPERSON GENNARO: This is why
20 we have these hearings, and so we should--

21 COUNCIL MEMBER LANDER: Yes,
22 absolutely, no, believe me, it's a--Did you, I'm
23 sorry, did you--

24 KIMBERLEE KANE: If I may, EPA's
25 study is tightly focused on impacts to water

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2 supplies, which, which we greatly appreciate. Of
3 course there are other avenues we would like them
4 to look at, such as air impacts that we do think
5 impact it. But this risk to infrastructure, the
6 risk from induced earthquakes, is a relatively
7 new--recognized, relatively recently.

8 COUNCIL MEMBER LANDER: Yeah.

9 KIMBERLEE KANE: So, it, while it
10 may not come up in their current scope, it may be
11 something that, I mean, if this is a risk to water
12 supplies, and we've certainly highlighted it as
13 one, they may be looking at--

14 COUNCIL MEMBER LANDER: Absolutely,
15 and I didn't mean it in a critical way, like they
16 should have looked at it, only in that we would
17 like them to look at it, if there do seem to be
18 some differences between the City and the State on
19 this. And you know, the supply is important, but
20 as you point out, if it, if we can't get it, it's--
21 -

22 KIMBERLEE KANE: Right.

23 COUNCIL MEMBER LANDER: --not that
24 helpful.

25 KIMBERLEE KANE: And EPA certainly

1
2 in region two, is well aware of these concerns,
3 and are working with DEC.

4 COUNCIL MEMBER LANDER: Great.

5 CARTER STRICKLAND: You, also, I
6 didn't want to leave unaddressed your question
7 about DRBC, and--Delaware River Basin Commission--
8 interstate body with four states, governs four
9 states, and the Attorney General of New York's
10 action before that body. We have submitted, we've
11 been asked to, essentially as experts, come in and
12 testify to that body, and we've submitted, you
13 know, our comments and explanation of that, to
14 that body. You know, other than that, we don't,
15 we had expressed some concerns earlier on when
16 they had, we thought, a loophole, about some test
17 wells. But they've since looked at, tried to look
18 more intensely at water quality impacts. You
19 know, I think the, the states do essentially
20 control the budget, and the mission of DRBC. And
21 New York City's an interested party, but, but it's
22 really an inner compact between states, Army Corps
23 has a seat. And you know, I think there's
24 certainly some resistance by I think Pennsylvania
25 and other states to DRBC's involvement. So, that,

that is something, we're certainly monitoring it. We don't see a need to get involved at this point, but if affects not all of our watershed but some of it.

CHAIRPERSON GENNARO: And also, Council Member, I just will point out, to folks who may or may not know that last week or two weeks ago, whatever, the Council passed a resolution that the Council would file a brief or, you know, a series of briefs, as necessary in support of the AG's suit. And so, we're, you know, happy for--[scattered applause]--no, please.

CARTER STRICKLAND: [laughs]

CHAIRPERSON GENNARO: And happy for all the members of this Committee and members of the Council, who overwhelmingly, I think, unanimously supported that. And so I'd like to thank the Speaker for that, as well. And so, yeah, so we're active on that front, as well.

CARTER STRICKLAND: One more thing about DRBC is that I think initially there have been some concern about New York State's inability to regulate water withdrawals, but the State DEC went out on its own, and got a state law passed,

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2 so they do regulate withdrawals over 100,000
3 gallons. So, they have recognized that regulatory
4 gap and filled it. So, they do have that power
5 now.

6 COUNCIL MEMBER LANDER: Good. And
7 then, my, my other area of questioning was about
8 these infrastructure enhanced protection zones. I
9 guess just foot help me understand, you know, why
10 I should feel okay, with a two mile ban in some
11 places and then this additional five mile
12 protection zone, and what the thinking is that, I
13 mean, it seems to me to be easier just to say,
14 "Let's just have the seven mile ban around all the
15 infrastructure, but help me understand why you
16 think this infrastructure protection is--"

17 CARTER STRICKLAND: Well, you know,
18 it's, we committed to taking a look at what we
19 really thought we needed, and we did that
20 certainly, and we have this, this map also is on
21 our website, by the way. For everybody. But we
22 have here, this is the, the darker purple is the
23 exclusion zone--

24 CHAIRPERSON GENNARO: Commissioner?
25 That would, if it'd just be possible to kind of

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get the mic a little closer--

CARTER STRICKLAND: Oh, sorry,
sure.

CHAIRPERSON GENNARO: --'cause
otherwise your words won't be recorded and won't
be transcribed.

CARTER STRICKLAND: Okay. So, we
have--

CHAIRPERSON GENNARO: Just look out
for that cup of water, if you got water in there,
okay, yeah. [laughter]

CARTER STRICKLAND: It's fine, it's
empty. The darker purple is the exclusion zone,
you can see the seven miles around the Delaware
Aqueduct, and the Catskill Aqueduct. Remember
when we first built the system, many years ago, we
started with those reservoirs and worked up. So,
you know, at some point in New York's history,
these terminal reservoirs did, you know, hold a
lot, they still do hold a lot of water, 120
billion gallons in Ashokan. So, these two, what
we call, you could call 'em terminal aqueducts,
deeper protection, Shandaken Tunnel comes down
from Schoharie, that's within the watershed,

1 already protected. And then we have this little
2 tiny tunnel here, grazes the, the edge of the
3 watershed, and then East and West Delaware
4 Tunnels, taking water from Pepacton and
5 Cannonsville Reservoir, down to Roundout, and then
6 from Roundout it goes to West Branch. Here, we
7 though, look, you know, one of these tunnels goes
8 down, if this tunnel goes down, it affects this
9 reservoir. If Delaware Aqueduct were to go down
10 and, and remember, when, what Hager-Richter said,
11 was that there would not be, in their view, a
12 catastrophic tunnel collapse. So, there would be
13 a liner collapse which might affect the amount of
14 water we could draw. So, it would be less
15 efficient at transporting water, it's not as
16 though it would go down to zero, in their view.
17 You know ,if this goes, it takes one, two, three,
18 four reservoirs off our system. That's
19 significant. If one of these goes down it takes
20 only one reservoir. That's, you know, essentially
21 the crux of what we could do from a water balanced
22 point of view. So that's why we thought here, if,
23 you know ,the closer you get to a tunnel, the
24 more, the greater the impact, likelihood of an
25

1 impact is, we take a two mile zone there, and what
2 is that based on, it's based on, for example, in
3 Oklahoma, and in England, they measured impacts at
4 the level that might cause some concern, a few
5 kilometers away. So, you know, there's a basis
6 for that two miles, and then the seven miles is
7 based on our original statistical study of the
8 fault length. We said, look, within this zone,
9 maybe, but there's going to be some high hurdles.
10 You're going to have to do extensive geophysical
11 testing, the City would have to have a veto, so,
12 you know, there we said, you know, we're open to
13 the idea that it could occur, but you're really
14 going to have to prove it, and it's going to be a
15 high burden of proof.

17 COUNCIL MEMBER LANDER: And what
18 about maybe perhaps some enhanced like liability
19 or bonding, so if you're going to be in that
20 infrastructure protection zone, you at least have
21 to, you know, sign that you're clearly on the hook
22 for any damage you would do, and put a bond--I
23 mean, it seems to me that the amount you would
24 have to pay could be astronomical, so how you get
25 a bond for it, I'm not entirely sure, but--

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2 CARTER STRICKLAND: No, but, but
3 there's a lot of precedent for that, and so
4 certainly the bonding, bonding requirements could
5 be used to match this, as well. Not something we
6 address directly in our comments, but indirectly
7 in our 2009 comments.

8 COUNCIL MEMBER LANDER: Thank you,
9 Mr. Chairman.

10 CHAIRPERSON GENNARO: Thank you,
11 Council Member Lander. I recognize Council Member
12 Levin.

13 COUNCIL MEMBER LEVIN: Thank you,
14 Mr. Chairman. I have a few questions now, and I
15 may have a couple more later. Thank you,
16 Commissioner. I guess my first question is with
17 the, the tunnels that would be in the two mile
18 infrastructure exclusion zone, so the East
19 Delaware, West Delaware and Neversink Tunnels,
20 what is, what's the type of like routine
21 maintenance that DEP finds--or first off, does DEP
22 own, I mean, does the DEP own these tunnels, is
23 this, is that City property?

24 CARTER STRICKLAND: [off mic] Yes.

25 COUNCIL MEMBER LEVIN: It is City

property.

CARTER STRICKLAND: [off mic] Yes.

COUNCIL MEMBER LEVIN: So, I guess my first question is, is DEP factoring in to their equation, just the damage, not, not that it would take, not just the issue of it taking out a tunnel from usage, but the actual just monetary damage that could come, could result from, from any type of incident, you know, just on a, strictly on a monetary level, with, on City property.

CARTER STRICKLAND: Sure, I mean, I, you know, I guess, we have in terms of we know that the repair we're doing here, two spots, and this tunnel is the Delaware Aqueduct, is going to cost us a few billion dollars, so that's a big, it's a big job, it's going to take ten years or so to, to complete it. But so we did take into account, you know, what it would take to, to repair that. I will say when we, we got indications of leaking in that tunnel, we had to do a lot of surveys using remote vehicles and whatnot to get down in there, it's pretty deep, it's 700 feet deep. And obviously it's full of water under pressure. So, we, you know, it does

1
2 take, the investigative phase does take a while,
3 as well.

4 COUNCIL MEMBER LEVIN: And so, I
5 mean, have you done an assessment, then, of the
6 cost of say liner damage on those three? 'Cause
7 if, you know, like is there an estimate of what
8 the potential--I mean, are we talking in the
9 hundreds of billions of dollars?

10 CARTER STRICKLAND: No, we--no, we
11 didn't. I mean, we, we used sort of a, the
12 Delaware Aqueduct, which we're repairing in two
13 spots, as a sort of a sense of the magnitude. But
14 we didn't look at, you know, probably repair costs
15 for any of the other tunnels.

16 COUNCIL MEMBER LEVIN: With the
17 proposed infrastructure enhanced protection zone,
18 that, the five miles, so, what would happen in the
19 instance that DEC does not, does not agree to the
20 City's retaining of veto power? What happens
21 then? What is the City's position? Has that
22 impacted the City's position?

23 CARTER STRICKLAND: Well, I mean,
24 it's, it's pretty central to our position,
25 obviously. You know, there we think that without

1
2 some effective veto, and last say, that you know,
3 that that's really what gives the protection some
4 teeth. So, if we can't say no, then there's,
5 there's, you know, it really depends on the State.
6 Now, of course the State has been excellent so
7 far. And again, I mentioned filling that
8 regulatory gap, in terms of water withdrawal,
9 protecting the watershed, but we're, but we're
10 talking about things that could happen in the
11 future. So, you know, we are the stewards of, of
12 our water supply. We think we have the strongest
13 interest in protecting it.

14 COUNCIL MEMBER LEVIN: Do we have a
15 sense at this point of--I'm sorry [background
16 comment]

17 KIMBERLEE KANE: Kimberlee Kane. I
18 wanted to expand on that a little bit. One reason
19 we were comfortable proposing this enhanced
20 protection zone, was that there are likely, from a
21 technical point of view, there are likely areas
22 there that are safe to drill, and would not pose
23 any risk to our tunnels. But there are also
24 likely areas that would pose a risk. And because
25 we can't delineate them and put those site

1 specific areas off limits, we said if, when the,
2 when the surveys come back, when the geophysical
3 data comes back, maybe even when they're drilling
4 the well, and the well logs come back with, you
5 know, information saying, "This is a problem," we
6 need the ability to shut it down; otherwise, it's
7 not safe to drill here. So, this was, you know,
8 our--you know, trying to, to look at the big
9 picture, saying, you know, there are areas there
10 that are probably safe to drill. And we proposed
11 the exclusion zone, we keep discussing damage to
12 the tunnels. We proposed the exclusion zone, so
13 we don't expect any damage to the tunnels. But
14 you have to look at the worst case scenario, and
15 what would that mean for the supply? With what we
16 propose, we don't expect any damage to the liners.
17 If that changes, we would, you know, have to
18 reopen things with the State. But within that
19 enhanced protection zone, and the permit
20 requirements and other requirements we'd work out
21 with the State, we expect it to be safe for our
22 supply.
23

24 COUNCIL MEMBER LEVIN: And do we
25 have a sense of how, how many areas of interest

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2 are within that five, in the five mile buffer. I
3 mean, do we have a sense of, is it--or is that
4 just impossible to, to ascertain at this point?

5 CARTER STRICKLAND: It is, it is
6 impossible to ascertain. We did do, in our
7 technical report, you will see a figure showing
8 some, some additional mapping of proposed--you
9 know, likely faults and fractures, many of which
10 cross the, the tunnel. It's noteworthy that the
11 induced earthquakes in England and also in
12 Oklahoma, which are the only two cases studied so
13 far, there will likely be more and we'll get, you
14 know, better handle on this. But the two cases so
15 far, those faults, the earthquakes occurred on
16 faults that were not known, that did not reach the
17 surface, you know, that were a couple of miles
18 away. So, obviously we don't know that
19 information for the entire, you know, region
20 around our tunnels. And that's why, as--as they
21 gathered more information, the City wanted to have
22 access to all of the information that normally we
23 would not receive, so that there's an extra pair
24 of eyes on these well logs, on the, on the
25 drilling reports, to catch problems before they

happen.

CARTER STRICKLAND: I do, just to further add to what Kim just mentioned, I do want to draw one element of our comments, so that everybody can read it, as I mentioned they're on our website, which is that we did study some seismic events, naturally occurring seismic events, in the watershed. And I think that should give folks some comfort that our tunnels and dams, obviously, can withstand some earthquakes, natural earthquakes. So, we had a magnitude 2.0 earthquake, in 2001, so fairly recently. Two miles north of the Pepactin Reservoir. And they're, you know, everything's fine. So, and in fact, when we recently, we had a earthquake this summer, if you recall, right before Hurricane Irene. We went out, surveyed all our dams, and those are fine. So, what was that magnitude, Kim?

One--

KIMBERLEE KANE: By the time it got
up here, yes.

CARTER STRICKLAND: By the time it got up here, I mean, it was down in--

CHAIRPERSON GENNARO: Yeah - -

CARTER STRICKLAND: It was down in Virginia.

CHAIRPERSON GENNARO: It was a 5.9.

CARTER STRICKLAND: 5.9 in Virginia, and by the time it got out here, what would the equivalent be?

CHAIRPERSON GENNARO: Oh, yeah, I'm just saying, it was a 5.9 down there, yeah.

KIMBERLEE KANE: Yeah, it was - - so, I would say in the two range.

CARTER STRICKLAND: Yeah, so--

CHAIRPERSON GENNARO: Right.

CARTER STRICKLAND: --you know, in the two range, and we went out, surveyed everything, we surveyed, you know, in City shafts, I mean, we really went out to make sure everything was fine, and everything's fine. So.

CHAIRPERSON GENNARO: And also, the same day of the 5.9, that was in Mineral, is what I think it was, like Mineral, Virginia, whatever. There was some small quake that day in New York State, and so that, I just remember that there was one there. And they happen with. you know, some frequency. And then, there you have it. Steve,

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you have more?

COUNCIL MEMBER LEVIN: I just have one other question, I guess, at this point, is, you know, we're talking a lot about the actual infrastructure itself. Have you guys looked at the potential damage to the water supply coming through the infrastructure. I mean, is it, you know, so it's not just the damage to the, the tunnels themselves, but, but in terms of like contamination, contamination of the water supply, that's coming--so is that, is that something that's being assessed?

KIMBERLEE KANE: Yes, we did assess that, and look at the potential, if there was infiltration, if say there was a crack, maybe the crack didn't cause transmission problems, but you could get infiltration and what concentrations would need to be in that water to cause a problem. It's all kind of theoretical. You know, there's a lot of water in these tunnels, which helps. It is not likely that we would see fracking chemicals, but you can get a change in the groundwater, so maybe you get saline groundwater that has other, other constituents in it. We have a very, very

1 robust monitoring program. And one of the things
2 we're looking into, the USGS has proposed
3 monitoring wells, you know, if natural gas comes
4 to this area, so you can look for changes in
5 groundwater chemistry before it would be a concern
6 for us. These are high, these are tunnels under
7 pressure, so it would have be a very unusual
8 circumstance for something to get in.

10 COUNCIL MEMBER LEVIN: To get in,
11 right, it's easier to get out, yeah.

12 KIMBERLEE KANE: We're actually,
13 probably, you know, if there's a crack--

14 COUNCIL MEMBER LEVIN: Worried
15 about--

16 KIMBERLEE KANE: --we would be, we
17 would be flowing out.

18 COUNCIL MEMBER LEVIN: Okay.

19 KIMBERLEE KANE: So we don't think
20 contamination is, is a big issue. It would
21 require extraordinary circumstances.

22 CHAIRPERSON GENNARO: You know
23 what, just to kind of build on Steve's question a
24 little bit, if I could, 'cause he's talking about
25 like what can potentially happen to a tunnel, and

1
2 page five of the cover memo, you know, went with
3 the technical memo, the four areas that you speak
4 to are direct penetration, I think you just spoke
5 to that; differential pressures, if you could just
6 help us with that for a minute. And we'll just
7 walk through it, 'cause direct penetration,
8 differential pressures, seismic activity and
9 impacts from migration of fluids and/or gas, are
10 the, are the four areas that--So, do you want to
11 speak to differential pressures a little bit?

12 KIMBERLEE KANE: Certainly. We had
13 tunnel engineers, so when we did the first
14 assessment in '09, as we started looking at this,
15 at the potential impacts, we brought in another
16 subconsultant who's a specialty in tunnel
17 engineering. And gave them the original
18 specifications of the tunnels, so the diameter the
19 concrete, the material characteristics of the
20 tunnel, and had them do a structural analysis.
21 And what they said was, you know, the tunnels are
22 designed for the pressure of the water inside.
23 But they're not designed for external pressures,
24 particular if it's asymmetric. So, if it's only
25 coming from say, say one direction, it's not going

1
2 to be as structurally sound. And based on their
3 analysis, it doesn't take much of a pressure
4 differential across the--

5 CHAIRPERSON GENNARO: Right.

6 KIMBERLEE KANE: --outer part of
7 the tunnel, to potentially cause cracks. I mean,
8 that's, that's what we would be talkin about.
9 Now, whether, what it would take to cause that
10 differential, you know, you--it's a, you couldn't
11 really model right now, or how much distance away.
12 But to put it in context, the fracking pressures
13 that industry is talking about using is in the
14 RDSGEIS, which I can faster than my Commissioner
15 who--

16 CHAIRPERSON GENNARO: [laughs]

17 KIMBERLEE KANE: --said it more
18 times. Fracking pressures are in the range of
19 5,000 to 10,000 pounds per square inch, PSI. The
20 differential pressure around the tunnel that, that
21 could cause problems is 20. So, our concern is if
22 they're fracking in the, you know, some vicinity
23 of our tunnel, and it's unclear what that distance
24 could be, if you have high pressures being
25 transmitted through cracks and factures--

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CHAIRPERSON GENNARO: Right.

KIMBERLEE KANE: --and faults,
that, that kind of pressure on the tunnel could
cause a problem--

CHAIRPERSON GENNARO: Right,
because--

KIMBERLEE KANE: --or even a slip,
you know, seismic slip on a fault, will cause, you
know, pressure against, you know--

CHAIRPERSON GENNARO: Right.

KIMBERLEE KANE: --the outer part
of the tunnel.

CHAIRPERSON GENNARO: And what
you're saying is that the tunnels are kind of
spec'd to this, you know, 20 PSI, and we're
talking about pressures of 5,000 to 10,000.

KIMBERLEE KANE: Right.

CHAIRPERSON GENNARO: And, you
know, orders of magnitude beyond--

KIMBERLEE KANE: But that--right--

CHAIRPERSON GENNARO: --the spec.

KIMBERLEE KANE: --but that
pressure that they're fracking at attenuates very
quickly.

CHAIRPERSON GENNARO: Right, of course, of course, yep, yep, yep.

KIMBERLEE KANE: You know, but it depends on the site specific characteristics, so we can't really predict how, how, you know, how close it would have to be to have a pressure change of 20.

CHAIRPERSON GENNARO: Right. Right. And then, we've spoken about seismic activity, and then the last item, impacts from migration of fluids and/or gas, I guess that's the last--

KIMBERLEE KANE: Right.

CHAIRPERSON GENNARO: --risk to the tunnel, I mean, just walk us through that.

KIMBERLEE KANE: So, some--

CHAIRPERSON GENNARO: And I think some of these, you know, kind of overlap, whatever--

KIMBERLEE KANE: Yeah.

CHAIRPERSON GENNARO: --'cause the migrating fluids produce pressure and I get it, but--

KIMBERLEE KANE: Right.

CHAIRPERSON GENNARO: --just walk us through that last one, so people have a sense of that.

KIMBERLEE KANE: Subsurface migration is movement, you know, of either fluids or the gas through faults, through fractures, through bedding planes in the rocks. They've seen this in, in other areas in Pennsylvania. It may be from the well casing, you know, if the cement job isn't, isn't good, if they actually drill through a fault, which they try not to do, but it happens. You can get escape of, of either the gas or the fluids, from, you know, the well lateral is at great depths. But you have fractured and faulted rocks above it, you have saline ground water above it. So, if you're adding vast quantities of water here, you know, our concern is that you can be forcing migration of fluids at a time--not that this molecule of water gets up here, but that you're changing the hydrologic regime, and you can get, you know, groundwater that, you know, is very salty, that may contain other contaminants. You know, the waters that have, were there when the rocks were formed, you

1 know, contain, you know, certain elements, and--

2 CHAIRPERSON GENNARO: Right.

3 KIMBERLEE KANE: -you know, that--
4 The methane gas, is more likely to go up the well
5 bore, but you can get escape from, from the
6 casings, and that has been seen. So, when we say
7 subsurface migration, we're talking from any
8 direction.
9

10 CHAIRPERSON GENNARO: Right.

11 KIMBERLEE KANE: Which I don't know
12 is, has always been clear.

13 CHAIRPERSON GENNARO: Sure, and I
14 just thought it was, thought it was important for
15 folks to get the sense of, you know, the various
16 risks to the tunnels, and, and our ability, you
17 know, to kind of assess what those risks, what
18 those various risks would be. And thank you for
19 that presentation, it, it's good for us to, to
20 hear that. Anything more, Steve? Sure.

21 COUNCIL MEMBER LEVIN: Thank you, I
22 appreciate the answers. I just would like to say
23 that I'm, you know, just kind of for the record,
24 that I would probably rest a little easier if the
25 City had stuck with just a seven, seven mile

1
2 buffer without any conditions. So, I just wanted,
3 you know, I would kind of urge, urge the
4 Administration to, you know, kind of consider
5 going back to a harder line on that. Thank you.
6 Thank you, Mr. Chair.

7 CHAIRPERSON GENNARO: Thank you.
8 Thank you, Steve, and I'm happy to recognize Gale
9 Brewer.

10 COUNCIL MEMBER BREWER: Thank you
11 very much. Not being on this Committee, I'm not
12 as knowledgeable, but my neighborhood is, that's
13 for sure. And I want to thank the Chair for his
14 leadership. I also want to thank Al Appleton,
15 because when I worked for David Dinkins, he took
16 us off three days into the amazing area that you
17 have oversight over. So I have some sense of, of
18 the watershed. But we don't--

19 COUNCIL MEMBER LEVIN: How come we
20 haven't gotten the special three day trip to the
21 watershed.

22 COUNCIL MEMBER BREWER: You better-
23 -Commissioner? [laughter] Commissioner, it's all
24 on you. And I'd love to go again, so.
25 [background comment] All right, so--

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CARTER STRICKLAND: We'll schedule that.

CHAIRPERSON GENNARO: Right, right.

CARTER STRICKLAND: When nice weather, we'll be, we'll get up there.

CHAIRPERSON GENNARO: Only thing I ever got from the Commissioner was like a water bottle, that's all I ever got, you know?
[laughter] But, you know, I got that, though, right, I'll take it.

COUNCIL MEMBER BREWER: Thank you, Al Appleton. Couple questions. Again, so, what is the total length that's outside of the various protections. Is there a part of our either protected land or aqueduct, anything that's outside of the buffer zone that you've described so far, that you have any concern about? Or is it all included?

CARTER STRICKLAND: Well, it's all included. Let me point out, 'cause you might, I might not have explained why we end--

COUNCIL MEMBER BREWER: Right, that's what I don't understand, yeah.

CARTER STRICKLAND: --right here,

1
2 and that's because that's where the Marcellus
3 Shale ends. So, on this map, there's a gray line,
4 big gray line, is essentially the extent of the
5 Marcellus Shale. So, up to where it is, you know,
6 down here, by Newberg, for example, there's not an
7 issue because there's no Marcellus Shale down
8 there.

9 COUNCIL MEMBER BREWER: Okay.

10 Second question is just piggybacking on what
11 others have said. I mean, we all hope, I have to
12 be honest with you, that this doesn't happen at
13 all, that's sort of beyond you, to a certain
14 extent, 'cause you're thinking about our
15 watershed. People in the audience and others are
16 trying to make sure that doesn't happen. We've
17 all testified to that. But if it does, god
18 forbid, then what, I still don't understand what
19 happens if something does happen, and what's
20 happened in other states? North Dakota,
21 Pennsylvania, and so on, how are some of these
22 issues being addressed? When there is a problem.

23 CARTER STRICKLAND: Well, you know,
24 we're in a somewhat unique situation, because
25 others, as we noted, and you know, I think it's,

1
2 it's fair to say that there's not a great amount
3 of precedent to---

4 COUNCIL MEMBER BREWER: Correct.

5 CARTER STRICKLAND: --to learn
6 from, that there's no deep rock tunnels anywhere
7 else. That, you know, in a shale producing zone.
8 So, it is somewhat unique. Certainly, there are
9 many reports of gas migration elsewhere. The EPA
10 does have its research agenda, and they're going
11 to be drawing upon that information, analyzing it,
12 seeing what gas migration, you know, how serious
13 it is, and it's to some degree site specific. We
14 also know of reports from Pennsylvania. But the
15 specific infrastructure issues that were the
16 subject of the, of the technical memo, really are
17 unique. And so, that's why we had to go out,
18 higher our own experts, essentially develop our
19 own science around this, to help inform that band
20 of risk that we think is real, and the question
21 is, you know, how you quantify it. So, that's,
22 that's where we are. There's, unfortunately, for
23 this aspect of--

24 COUNCIL MEMBER BREWER: Okay.

25 CARTER STRICKLAND: --

hydrofracking, there's not a lot we can learn from other places.

COUNCIL MEMBER BREWER: Okay.

Finally, can you just walk us through, maybe the Chair knows, what's next? In other words, you've made your comments, but is it DEC, is it EPA, is it the law--is it the work of the Attorney General. I mean, you may not know because things can change, but can you just walk us through what you understand to be the next steps?

CARTER STRICKLAND: Well, you know, I guess it's a question of how soon the State can plow through 64,000 comments, and develop--

COUNCIL MEMBER BREWER: We all made them, everybody in this room, plus many others.

CARTER STRICKLAND: I'm sure.

[laughter]

COUNCIL MEMBER BREWER: Yes.

CARTER STRICKLAND: And probably several times, you know, comment early and often. And you know, so, you know, really, the ball's in their court in terms of developing a record. Obviously, a response to comments, they have to take a hard look under SECRA at issues identified,

1 certainly the issues we identified, folks
2 identified many other issues. You know, at the
3 same time, I'm sure, even though the comment
4 period is closed, if something were to come from
5 this Committee, they would, they would take that
6 into account. The EPA's schedule, they say that
7 the initial research results and study findings
8 from their report, will be released to the public
9 in 2012. That's got to be a literature review.

10
11 KIMBERLEE KANE: [off mic] 2012 and
12 2014.

13 CARTER STRICKLAND: Yeah. And
14 then, a final report in 2014. So, there's a,
15 there's a few year gap in there. So those are
16 really the next steps. And with the DRBC, remains
17 to be seen.

18 COUNCIL MEMBER BREWER: Okay, final
19 question.

20 CARTER STRICKLAND: Yeah.

21 COUNCIL MEMBER BREWER: The folks
22 who live in the area, I know that you have been
23 working with them, going to town hall meetings.
24 Every DEP Commissioner has done this for a very
25 long time. It's not a, it's a challenge to work

1
2 with the upstate community, they hate us, we love
3 them, but it's not easy. So the question is, what
4 do they think about your plan? Do they have any
5 comments? Or are you still dealing with the job
6 versus--I mean, how, how does this work in
7 relationship in this particular issue?

8 CARTER STRICKLAND: Every, every
9 issue is unique, so--

10 COUNCIL MEMBER BREWER: I know.

11 CARTER STRICKLAND: --you know, we
12 have, we actually have very good relationships
13 with, in general, with the watershed--

14 COUNCIL MEMBER BREWER: And you
15 work hard at it, you work very hard at it.

16 CARTER STRICKLAND: We, we do, we
17 spend a lot of money in taxes up there, but we
18 also are listening to concerns. For example, just
19 this week, we expanded recreational use on the
20 reservoirs, which is a big deal there, they think
21 is perhaps the centerpiece of an ecotourism. We
22 had to make sure it was done in a way that didn't
23 affect water quality, so we had a pilot study on--

24 COUNCIL MEMBER BREWER: It's great.

25 CARTER STRICKLAND: --Cannonsville,

1 way up there. And we required certified steam
2 cleaners, 'cause we were worried about zebra
3 mussels, all the, you know, invasive species
4 coming into reservoirs. That worked out very
5 well. So, we're expanding that now to other
6 reservoirs. You know, between that, opening up
7 our lands for hunting, other recreation. And also
8 working very closely with the counties, in
9 particular in towns in some cases, everything from
10 sort of more globally on where we buy land, we
11 only buy land from willing sellers, to where we
12 restore streams, work with unstreamed restoration
13 projects. We have a very good relationship with
14 the National Soil Conservation Service, working
15 with towns. So, we in general have a very good
16 relationship. What's interesting here is that
17 we've had some, here, Ulster County, and those
18 county executives have been very explicit in not
19 wanting any fracking in their county. Other
20 counties like Delaware do want fracking, or want
21 some development, and they see a greater need from
22 an economic development point of view. So the
23 receptivity to our approach, you know, varies
24 depending on the positions they've staked out.
25

COUNCIL MEMBER BREWER: Okay.

CARTER STRICKLAND: In general.

So, it's, it's not uniform. I will say that--and you know, it's one of many issues, including our securing of Gilboa Dam, make sure that's safe, the amount of--that's one reason why, as a city, we spent several million dollars in manpower and other resources, going up there and clearing debris, obviously has a benefit to the water system, because it, we hauled a lot out of our reservoirs, we helped clean up towns just upstream of reservoirs. And it benefited the local residents, as well.

COUNCIL MEMBER BREWER: Okay, thank you, Mr. Chair.

CHAIRPERSON GENNARO: Thank you.

Thank you, Council Member Brewer. And I think many of the good questions that I was going to pose were, were posed. And but I was taken with comments by a question by Council Member Lander and I think maybe Steve about who, who pays when things go wrong. And that's I think going to be a feature of, you know, what comes out of this Committee, after -- answer, so it's good to, to

make that, make that point. That's not the only point that we will make. And I, I have some--and while I think it, that what DEP, you know, did back in 2009, you know, putting forward the seven mile, you know, no drill buffer, we did that, and it didn't, it didn't stick, you know. The, regarding prohibition, you know, within the watershed proper, that, that like, that like stuck. And so this is just kind of like an overview thing. Where we, you know, kind of were able to persuade, based on the prohibition within the watershed proper, regarding the critical infrastructure, there was a proposal of seven miles, and their proposal at the time was like nothing. And so, so here we are, and we--so, yeah, so that one, that one didn't stick. And so, I think there's just a tendency among entities, being an agency, being a city agency or any kind of government entity, you know, you have to know like who you're dealing with. And what's the, what's the best possible reasonable thing, based on, you know, the entity that we're dealing with. And I think this is like a big part of it. And I don't, I--you know, and it's hard for people who

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2 are not in a position of being like responsible
3 for an agency, to know when you're going up
4 against the state it's tough going sometimes, you
5 know. And it is what it is. But we will, you
6 know, take your good presentation and the good
7 points that you made, and the good science that
8 you've brought forward, and, you know, try to have
9 our own little value added on that, and, and say
10 some things and push in a certain way that, that
11 maybe we're more at, you know, liberty, you know,
12 to do. I'm not--I'm not regulated by the DEC, and
13 I don't have to deal with them every day, and I
14 think you deal with those guys a lot, probably.
15 You know, and so, I just kind of want to like add
16 that as sort of flavor, and so I think the whole
17 part of doing this hearing is getting the, you
18 know, getting like the greatest hits of, you know,
19 DEP, and you know, adding our own little numbers
20 to that, you know, repertoire. And see what we
21 can do to make more things stick, or you know,
22 make what you put forward stick. You know? And
23 whatever we do, I got to believe can only be
24 helpful, and that's what we want to do. And we,
25 you know, I want to thank you for being here

1 today, and being here personally, Commissioner. I
2 think you, you know, heard that, you know, poll
3 got like an ovation and everything, and you want
4 like a little bit of that action, and you know,
5 whatever. And yeah, you know, okay, we--

6 CARTER STRICKLAND: Paul deserves
7 the appl--

8 CHAIRPERSON GENNARO: He does.

9 CARTER STRICKLAND: Paul deserves
10 the applause. [applause]

11 CHAIRPERSON GENNARO: Okay.

12 CARTER STRICKLAND: I will say, I
13 would've been here in September, I was down in
14 D.C., working to keep costs down for us, so, you
15 know, I was working for you, Jim.

16 CHAIRPERSON GENNARO: Right, right,
17 well, I, I will say that once, you know, we gave
18 Paul that ovation, he did say, "Thank you, thank
19 you very much," you know. [laughter] And so, so
20 he, you know, he kind of hammed it up and liked it
21 quite a bit. So, yes, yes, and so, of course, I
22 mean, that's--so of course, Steve wants to follow
23 that with something. And so, that was supposed to
24 be the last line. You know, but okay.
25

1
2 COUNCIL MEMBER LEVIN: Sorry, my,
3 my staff just texted me a question, and it's I
4 think pertinent. With regard to retrofitting
5 infrastructure, costs that might be associated as
6 preventive costs, or if it's determined, you know,
7 say years down the line, if we're looking at
8 threats that we have assessed and determined are
9 potentials, and so the costs that would be
10 associated with retrofitting our infrastructure,
11 would, I mean, how would that, who, would we be
12 bearing, I mean, is, have we thought about like
13 who's going to be bearing that cost? Is it the
14 City of New York that's going to be bearing those
15 costs? If it's our infrastructure. But we're
16 doing it because some company's wanting to, you
17 know, hydrofrack close to our infrastructure?

18 CARTER STRICKLAND: Well, you know,
19 I think the precedent for that is the bonding
20 requirements we discussed earlier, in some of the,
21 you know, monitoring requirements when they
22 expanded gas drilling, regular gas drilling, to
23 the bed of Lake Eerie, in the late '70s the state
24 legislature put a bonding requirement in. And
25 that was explicitly tied to protecting drinking

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2 water sources. Such cases, there would always be
3 an issue of causation. I think there's another
4 source of funding or resource needs that Kim
5 reminded me of, which is we talked about the
6 enhanced protection zone. The need to take a look
7 at everything from, you know, well borings to, you
8 know, soundings to see where faults are. That's
9 a, a drag on our resources, that wouldn't
10 otherwise have to be borne. So I think there's
11 some, those costs certainly would be directly tied
12 to any proposal to drill in that area. So, those
13 are additional administrative costs that can be
14 significant.

15 COUNCIL MEMBER LEVIN: Okay, thank
16 you.

17 CHAIRPERSON GENNARO: Thank you,
18 thank you. And thank you, Steve, for bringing
19 that out, I thought you were going to be a party
20 pooper, but that was actually was pretty good.
21 [laughter] And so, with that said, that is the
22 last word, and so we greatly appreciate you being
23 here. I know you're going to leave some folks
24 behind to hear some of the good testimony to, to
25 follow. And we appreciate it very much.

CARTER STRICKLAND: Thank you very much.

CHAIRPERSON GENNARO: You bet.
[single applause] And the next panel, what we'll announced the panel to come, and then the panel after that, just to let them know that they'd be up next. Former Commissioner Appleton will be in the next panel; Eric Goldstein, if he's here, is Eric here?

COUNCIL MEMBER BREWER: [off mic]
Yeah, he's here.

CHAIRPERSON GENNARO: He's here?
Okay. Kate Hudson, from Riverkeeper; and oh, he's got two slips.

COUNSEL: Wes Gillingham, yeah.

CHAIRPERSON GENNARO: Yeah, okay, yeah, and Wes Gillingham from Catskill Mountain Keeper. And yeah, he just needs one slip.

COUNSEL: And this is the next - -
he's not in twice.

CHAIRPERSON GENNARO: Yeah, but he's not--[pause] And the panel after this would be Meghan Ahearn [phonetic], I hope I'm saying that right, from NYPIRG; Deborah, I can't read the

1 last name, something letter than O-H-N, maybe
2 Cohn? Whatever. United for Action. So it's, and
3 then, David Braun, United for Action, would be on
4 the next panel. [pause, background noise] Okay,
5 we got a seat for Wes? Okay. [pause, background
6 noise] Oh. [pause, background noise] And if I
7 could direct the sergeants, that as room, as seats
8 open up in the, in the main hearing room, then if
9 people from the overflow area can sort of, you
10 know, get in, so I just want to make sure that
11 that's a tidy process, and that we don't want any
12 more people in the overflow room than need to be
13 there. [pause, background noise] Okay, want to
14 make sure we have all the comments. I have
15 testimony from Riverkeeper and how many other
16 people of the panel have like, have prepared
17 statements? Just one is prepared statement?
18 Okay. So we have--[background comment] Okay.
19 Oh, I just want to make sure that I have the
20 testimony from Commissioner Appleton. Yeah.
21 From--yep. Okay. Who's testimony is from Meyers
22 in Review, Potential Contaminant Pathways?
23 [background comment] Okay, okay, okay.

24 COUNSEL: [off mic] Catskill
25

Mountain Keeper.

CHAIRPERSON GENNARO: All right.

Great, I think we set. And if, we'll have Samara swear in the panel, then I will welcome them. And we'll get going.

COUNSEL: Would you please raise your right hands? And do you swear or affirm to tell the truth, the whole truth and nothing but the truth today?

PANEL: Yes.

CHAIRPERSON GENNARO: Okay. Well, thank you all very much for being here, and here we are again, and very looking forward to the great value added that you're going to add to this proceeding, and anything you can give to us that we could use in our sort of next action or next play or whatever, or you know, whatever kind of resolution, or letter or some kind of communication, that we're going to form, this is what we're looking for. Really appreciate you being here. Without further ado, why don't we start from my left to my right, and--Oh, okay, I was going to do it like an order.

FEMALE VOICE: We were going to

1 defer to the Commissioner.

2 CHAIRPERSON GENNARO: Oh, okay,
3 well, so if it's the sense of the panel that we,
4 we defer to the Commissioner, so we'll have Al go
5 first, and then it'll be from my left to my right.
6 Okay? Grateful to have you here, Al. And all the
7 members of this panel. [background comment] Oh,
8 you got to put the, you got to put the thing on.

9 AL APPLETON: Pleased to be here.
10 Pleased to once again be assisting this Committee,
11 which I think has played an important role in
12 helping to galvanize the City. In terms of moving
13 forward on this issue, I'm going to make some
14 comments about risk, but I would like to make it
15 clear first of all that I really think DEP
16 deserves a lot of commendation for the work it is
17 putting out, particularly its willingness to
18 insist on the final word, in either the permitting
19 in any of these impact zones. I also think that
20 it's very important that we support, at the very
21 minimum, the DEP proposal, because the State of
22 New York's proposals have to me shown almost a
23 casual sense of irresponsibility with respect to
24 this really critical infrastructure resource. So
25

1 level risk. That if we were to lose a major
2 portion of this water system, the public health
3 and the economic consequences for the City would
4 be absolutely horrendous to contemplate. That is
5 this City is not set up to live off half of the
6 available water supply it has. Now, there will be
7 many people who will kind of poo-poo this, you
8 know, worst case as something that can't happen,
9 won't happen. The problem again in these
10 catastrophic events is we never see it coming. No
11 one at Fukushima saw that they would get a tidal
12 wave big enough to overwhelm what they thought
13 were adequate defenses. Nobody in these instances
14 in Britain saw that there was a fault lying around
15 that nobody had mapped yet and picked up. When I
16 was running DEP, I used to talk about this when
17 we'd get four in a row, that is when a combination
18 of unanticipated circumstances comes together, bad
19 things can ha--that's generally when bad things
20 happen. Now, we know from the geology, we know
21 from the presentations that DEP has given, that
22 this is an area that is riddled with faults.
23 Faults that are mapped, faults that are unmapped,
24 with faults from fractures. We know from their
25

own data that at least ten percent of these fractures are larger than seven miles. All of these fractures are pathways for both seismic energy and for fracking liquids, both the liquid and the gas, and gas has pressure. We're only talking about 20 pounds per square inch, it's very easy to contemplate generating over 20 pounds per square inch of methane moves underground. There were problems with methane fires when they were building the Delaware Aqueduct. So that I think we have to be very careful about being sanguine about any kind of risk analysis, even one that I think has been conducted with the care that DEP's has. And we must ask ourselves again, "What level of risk are we under--are we undertaking?" What do we get from accepting this level of risk? However farfetched it may be. We get a little, we get a little economic activity that supposed generates a resource we need, which is natural shale gas. It is important to keep in mind that we, that economic activity comes to us at a cost of landscape disruption. Most of the 61,000 comments you heard are driven by people who've seen the impact on communities in Pennsylvania,

what it has done to farming communities, retirement homes, real estate values. Where's the benefit in this for the people of the State of New York? Where is the benefit in this for the people of the City of New York? We get nothing from undertaking these kinds of risks. Nothing whatsoever. As DEP pointed out, if we take this amount of land out of the equation, it's a very small portion of the land on which we can do gas fracking. Now, whether we should do any gas fracking or not, is a separate question that is being hot--hotly and hopefully carefully debated on a statewide basis. But assuming we were going to do gas fracking, we'd lose a very small portion of that inventory by taking a very protective attitude towards the New York City water system. So that my testimony is not focused on the geological evidence, which I am taking as a given, that it has been established that this is a hydrogeologically dangerous area. Now, let's talk about some of, what are some of the risks from these buffer zones. Nobody is talking, we've talked about the dams, 'cause we're focusing on water infrastructure. What if we actually managed

1 to interfere with the groundwater regimes that
2 play with our reservoirs. You know, you heard
3 Kimberlee talk a little bit about that. These
4 are, these long vertic--horizontal leads have the
5 ability to generate pollution sources that could
6 find their way not only to threaten the dams but
7 to threaten the reservoirs. And it's, while I
8 understand DEP, I basically believe DEP is correct
9 about noncomparables, the Army Corps of Engineers
10 is currently studying with great attention the
11 issue of underground activity next to Army Corps
12 of Engineers dams. They're very worried about
13 this. We know these are seismically active areas.
14 What if we get a seismic event that is al--that
15 attacks a fracture that is stable under normal
16 conditions, with fluid or gas, but essentially the
17 seismic event opens up that source of, you know,
18 pressure and pollution to attack our water
19 facilities? Again, I submit what are we accepting
20 these risks for? What is the benefit to the
21 people of the City of New York, or the benefit to
22 the people of the State of New York, that
23 justifies essentially playing with one of the
24 world's premiere infrastructure assets? It's the
25

asset that made New York City, you know, I like to say that the Brooklyn Bridge is the most beloved 19th Century artifact, but it was the Croton Aqueduct system that made New York City the capital of the United States, and ultimately the world. The water system is absolutely essential to the functioning of this City. It's our greatest economic and infrastructure asset, and again I'm going to sound like a broken record. What is the, why are we accepting any risk to this system? Particularly when we can't measure the risk with the science, when, you know, the best people are candid about the fact that we can't say with any kind of certainty, this risk is off limits. So that is essentially the essence of my testimony, just to raise--that is the manager's question, that is the question Commissioner Strickland has to wrestle with, that is the question Mayor Bloomberg has to wrestle with, that is this question this Committee has to wrestle with, and that is the question, frankly, DEC should be wrestling with. But to be quite candid in this area, it's failed to do so. I agree with DEP that DEC's latest round in EIS is greatly

1 improved in many areas, but there are many areas
2 in which it isn't, including this, this is another
3 hearing about what else is wrong with the SEIS, so
4 I'll pass it. But the truth of the matter is,
5 we're a long way from home. The other thing the
6 City has to calculate in thinking about, you know,
7 protection zones, buffer zones, is the behavior of
8 this industry. I have rarely seen an industry
9 where the institutional culture is so antagonistic
10 to good environmental management. Anyone who does
11 not understand should just essentially look at the
12 home rule, the bill they pushed through in
13 Pennsylvania, gutting home rule, that gives the
14 industry the ability to put shale gas fracking
15 wells intolerably close to streams, communities,
16 community facilities. This is an act of, from my
17 point of view, essentially corporate vandalism.
18 The, I know there are a lot of people who were
19 concerned about, we can't be against a ban on gas
20 fracking, because, well, that would seem
21 unreasonable. You know, as Americans, we always
22 try and find the middle way. But the truth of the
23 matter is, if I was ever to support a ban on gas
24 fracking, it would be because the conduct of this
25

1 industry suggests it will not accept reasonable
2 regulation. And that if an indus--I can tell you
3 from my own experience in running a system, that
4 an industry that will not accept reasonable
5 regulation is an industry you're going to have to
6 bash over the head every day to get anyplace with.
7 And I think in calculating the chance of an
8 unanticipated risk, we have to take into account
9 the record of this industry and its approach to
10 gas fracking. So that I'd like to commend the
11 Council for its Resolution on joining the Attorney
12 General's lawsuit. I believe New York City needs
13 to be there. It is clear we're a huge stakeholder
14 in this, and I'm afraid I must respectfully
15 disagree with Commissioner Strickland's opinion,
16 even given what I have--I know I've had my own
17 dealings with Pennsylvania in the past, I know his
18 concerns there. Nevertheless, we should be in
19 that litigation. We should be supporting the
20 attorney general and the interveners in every way
21 we possibly can. I have to say, too, that I think
22 the financial questions, I always like to make
23 financial requirements, 'cause it flushes out
24 people who give you cheap assurances that are
25

1
2 essentially based in the assumption that you will
3 get to bear the cost. I would finally like to
4 make a point about this risk, to DEC. They're an
5 agency of an administration that has announced
6 that it wants to shut down Indian Point, something
7 I completely concur in, I might add in passing.

8 They want to shut down Indian Point 'cause of the
9 fear of catastrophic failure. [laughter]

10 Rightfully so, as we've seen with Fukushima. But
11 Indian Point at least provides an important social
12 resource: Power. You know, that is a non-
13 greenhouse--if we're, if the State of New York is
14 willing to shut down Indian Point, for the same
15 kinds of risk that this fracking proposes to the
16 City of New York's water system, then I'd like to
17 ask why they are not willing to do this for the
18 City of New York when there is no social benefit
19 to the gas fracking activity. I think I'll stop
20 here. Let the rest of my panel go forward.

21 [applause]

22 CHAIRPERSON GENNARO: Thank you.

23 Thank you. Thank you, Al, and I'll come back for
24 questions and comments. And as I said, we're
25 going to start from, going from my left to my

1
2 right, and that brings up my good friend, Eric
3 Goldstein.

4 ERIC GOLDSTEIN: Thank you, Eric
5 Goldstein, Natural Resources Defense Council.
6 Thank you, Chairman Gennaro, and your dedicated
7 staff, and Council Member Brewer, for being here
8 today, and for your leadership on environmental
9 issues, particularly your longstanding leadership
10 in protecting our most precious capital asset, our
11 public drinking water supply. As NRDC has
12 previously stated, we believe the State's current
13 proposal for fracking in the Marcellus Shale has
14 presented numerous legal, technical and scientific
15 concerns, and the State's environmental study
16 ought to be revised and repropose for public
17 comment before anything else happens. Our brief
18 comments today however are confined to the issue
19 that is immediately before this Committee and for
20 which you have jurisdiction, which is the impacts
21 of any drilling on the City's water supply.
22 Overall, we applaud DEP and Commissioner
23 Strickland for their strong stand in protecting
24 our water supply, and in pressing for a
25 prohibition on the drilling throughout the

Catskill and Delaware Watershed. For all of the reasons they and we and you have stated on previous occasions, it would be completely nuts from an environmental and economic perspective for New York City to risk its filtration avoidance status either from drilling related water pollution or from drilling related industrialization of the watershed lands that surround our reservoirs. We are concerned, however, that the City's most recent submission on the Draft Environmental Study could leave our tunnel infrastructure and dams at unnecessary risk from possible drilling activities. In short, the State's proposal for 1,000 buffer from infrastructure tunnels and 4,000 foot watershed buffer, are wholly inadequate. In 2009, based on an in-depth study prepared for the City by Hazen and Sawyer, DEP proposed a seven mile no-drill buffer around the water supply infrastructure. In its 2012 comments, however, DEP has backtracked, requesting a two mile buffer and a five mile review zone, before build--review before building zone, with respect to some of these tunnels, the East and West Delaware River Aqueducts. The City

1
2 relies for this new recommendation on a new
3 technical memorandum prepared by Hager and
4 Richter. In that memo, the consultants reaffirm
5 the major risks that were identified in the 2009
6 Hazen and Sawyer analysis, including the
7 underlying subsurface formations that are much
8 more complex, complexly jointed and faulted than
9 the State has concluded, including the conclusion
10 that the literature shows that tunnels can be
11 damaged by seismic events of magnitudes less than
12 four, and including the Hazen and Sawyer
13 conclusion that recently released research raises
14 at least the possibility that high volume
15 hydraulic fracturing drilling wells can induce one
16 or more earthquakes. But the new analysis
17 retreats from the seven mile buffer originally
18 recommended by the Hazen and Sawyer study. Why?
19 Not because of any new scientific information, but
20 as far as we could tell because DEP is attempting
21 to balance in this instance the needs for new
22 energy and presumed economic growth, with the
23 protection of public health and safeguarding New
24 York City's most valuable capital asset. This is
25 reflected in DEP's 2012 January comments in which

1
2 it is stated, "Hager-Richter's analysis does not
3 identify a single specific buffer that would
4 simultaneously provide adequate protection of the
5 infrastructure and also maximize the potential for
6 drilling in its vicinity. But with all due
7 respect, we submit that it is not the job of the
8 City Department of Environmental Protection to
9 balance its preeminent water quality and
10 infrastructure protection mission against the
11 possibility or potential for some theoretical
12 economic development from fracking. DEP's role is
13 clear: this agency is the guardian and protector
14 of the nation's largest municipal drinking water
15 supply. If others in State government feel that
16 it's their job to balance public health and basic
17 infrastructure protection against private economic
18 gain, that's one thing. But it certainly isn't
19 the job of the City's Department of environmental
20 Protection to assume that role. In the event that
21 DEC ends up rejecting the recommendations of many
22 of us in this room and this Committee and I know
23 your personal recommendations, Mr. Chairman, by
24 ultimately authorizing drilling within the seven
25 mile zone, it would be helpful for DEP prior to

1 that happening to specifically identify the amount
2 of additional funds it would require to perform
3 the range of site-by-site specific reviews that
4 would take place within that enhanced protection
5 zone. It would also be helpful for DEP to make
6 specific recommendations on bonding requirements
7 and on other costs that might be associated with
8 the protection of this enhanced protection zone
9 area. So that those costs can be determined in
10 advance and factored into the whole conversation.
11 It'd be useful for you to ask the Commissioner if
12 he could provide that information or prepare that
13 information, we think that would be very useful in
14 the public policy debates before decisions are
15 made.
16

17 CHAIRPERSON GENNARO: Thank you,
18 yeah. I agree.

19 ERIC GOLDSTEIN: And finally, with
20 respect to dams, we're not certain whether DEP is
21 backing away from its earlier position that the
22 4,000 foot buffer from dams should be measured
23 from the tip of the horizontal section of the
24 drill, not from the well pad. But if that's DEP's
25 new position, we're concerned. Instead of a site

specific review of any such proposed drilling that were to occur within 4,000 feet of a dam, there should simply be a flat prohibition on drilling at least within that 4,000 foot buffer area when you're talking about infrastructure as fragile, and in many cases, as antiquated as some of our upstate City dams are. Finally, DEP's role as operator, guardian and protector of our drinking water supply is one of the most fundamental responsibilities of City government. We thank the Department for all it has been doing on this front, and we urge the Commissioner and his dedicated staff to hang tough and always remember that the decisions that they make and the positions that they take will have impacts that extend for 100 years and beyond, and therefore the precautionary principle ought to be their touchstone. Thank you. [applause]

CHAIRPERSON GENNARO: Thank you, thank you.

AL APPLETON: Good job, Eric.

CHAIRPERSON GENNARO: And I'll come back to you, as well, Eric, thank you for your presentation. Kate Hudson.

1
2 KATE HUDSON: Thank you, Mr.
3 Chairman.

4 CHAIRPERSON GENNARO: And I have
5 your statement here, okay, right.

6 KATE HUDSON: Kate Hudson,
7 Watershed Program Director for Riverkeeper.
8 Again, I would like to thank you, Mr. Chairman,
9 and your Committee, for continuing to serve a very
10 important role in this extremely volatile issue
11 and giving us an opportunity to testify today. As
12 you know, the comment period is closed and as we
13 heard earlier, DEC is currently reviewing more
14 than 60,000 comments, an unprecedented number.
15 Riverkeeper submitted, along with NRDC, detailed
16 technical and legal comments, many of which
17 specifically addressed threats to the New York
18 City's watershed and water supply. DEP likewise
19 submitted comments which propose added protections
20 to DEC's regulatory scheme. We do commend DEP for
21 the strong recommendation it has made, and I would
22 echo what Mr. Appleton has said, that any
23 criticisms that we might have about their not
24 going far enough are not intended to undercut the,
25 the congratulations and for the strong position

1 that they have already taken. We do, we do remain
2 concerned, though, that the positions that they
3 have taken do not go far enough, and fail to fully
4 address some significant threats to the water
5 supply. Despite the volume of comments that DEC
6 has received, it has, within the last few days,
7 made it clear that it plans to finalize the SGEIS
8 this spring. It is therefore crucial for the City
9 Council, for DEP, and for us all to continue to
10 urge DEC now to make significant changes to the
11 SGEIS and regulations so the SGEIS is sufficiently
12 protective of the New York City watershed. And I
13 know that's why you convened this hearing today.
14 Thank you. Our biggest concern is that DEP's
15 revised recommendations fail to fully mitigate the
16 risks that hydrofracking poses for both New York
17 City's drinking water and its filtration avoidance
18 determination. As I think we all know, the
19 Catskill Delaware system is critical, it is only
20 one of five urban systems in New York, in America,
21 that has a filtration avoidance determination.
22 Avoiding filtration saves New York City billions
23 of dollars. New York City's FAD is currently
24 undergoing midterm review by the Department of
25

1 Health and EPA. An unacceptable level of risk
2 posed by high volume hydrofracking could lead DOH
3 and EPA to withdraw the City's filtration waiver.
4 In its 2011 comments to DEC, DEP identifies just
5 such a risk: "Even with a robust regulatory
6 program in place and a diligent high volume
7 hydrofracking operator, failures due to human
8 error or natural disaster are inevitable." As
9 part of its deliberations concerning what comments
10 and recommendations to make to DEC, DEP should
11 have, we would've hoped that they would have,
12 consulted with DOH and EPA, given the risks
13 associated with DEC's fracking proposal, to
14 determine whether its comments, its revised
15 recommendations, might pose a threat to its
16 filtration waiver. However, it does not appear,
17 at least based on their comments, that that
18 consultation took place. Instead, as Eric has
19 pointed out, it appears that DEP based its revised
20 recommendations on an attempt to balance providing
21 adequate protection with attempting to not unduly
22 limit the potential for drilling in the vicinity
23 of the watershed and it's infrastructure. Based
24 on that balancing, even though it concluded that a
25

uniform width buffer would be a reasonable approach, DEP decided to narrow the seven mile buffer around its infrastructure to two miles, for all but two of its aqueducts and tunnels, because DEP's water supply system has the flexibility to withstand an outage of these tunnels. Why should the agency charged with the responsibility for protecting the invaluable resource of New York City's drinking water for nine million people choose to put it at risk in order to not unduly restrict drilling by a few oil and gas companies. It would see that DEP's responsibility to protect as well as to avoid undue risk that might threaten the FAD, would mandate a precautionary rather than a balancing approach. Such a precautionary approach would provide a firm basis for its seven mile, uniform width buffer, until more information was available that would prove that a smaller buffer would be sufficiently safe. Riverkeeper urges this Committee and DEP, we urge DEP to revisit its recommendations, take a precautionary approach. To adequately protect New York City's drinking water supply, New York City should not back off of its original recommendation of a seven

1 mile buffer. DEP's willingness to take on a
2 certain level risk in the absence of critical
3 information, its attempt to balance maximizing the
4 potential for drilling against adequate
5 protection, and its effort to justify the
6 sacrifice of nonterminal tunnels as an acceptable
7 level of risk, potentially threatens the City's
8 filtration waiver. By modifying its previous well
9 founded recommendations, DEP is shirking its duty
10 to its customers, to serve the interests of the
11 gas, of the gas industry. I think that the
12 specific comments that are covered in my testimony
13 have probably been well covered by others. I do
14 want to echo the concerns that people have raised
15 about high volume hydrofracking underneath the
16 watershed, even though DEP continues to talk about
17 a ban on hydrofracking in the watershed. In
18 reality, this is only a ban on surface
19 disturbance. And the watershed is still
20 vulnerable to drilling underneath the watershed
21 itself, and under critical watershed
22 infrastructure. The only change DEC's surface
23 drilling, to DEC's surface drilling plan that DEP
24 proposed was to recommend a heightened review
25

whenever a horizontal well bore comes within 4,000, the 4,000 foot buffer. Riverkeeper urges instead that both DEP and the City Council advocate for a true high volume, hydrofracking ban, in and within 4,000 feet of the watershed, measured from the end of the closest horizontal well bore to the resource in question, in order to protect the watershed and its fragile infrastructure. We are also equally concerned about low volume hydrofracking within the watershed, which this SGEIS does not address at all, and would be permitted under the current regime. That is three, under 300,000 gallons of water, low volume hydrofracking uses the same chemicals and processes as high volume hydrofracking and poses similar risks to the watershed. DEP in its comments to DEC on this point, only requests that DEC make a commitment to "consider whether further environmental review is necessary to prevent contamination." Riverkeeper urges the City Council to advocate instead for a ban on all hydrofracking, regardless of volume, used within or near the watershed. And finally, there has been significant discussion already of

the risk to the New York City water supply's infrastructure. And again, we are very concerned that DEP has compromised its earlier recommendation and proposed the hybrid approach that has been discussed. DEP noted in its comments that the close proximity of drilling could cause catastrophic damage to infrastructure, due to direct penetration, differential pressure, seismic activity and impacts from migration of fluids and/or gas. DEP admits in its comments that there are no examples of deep rock tunnels in other areas of the country or world where high volume hydrofracturing is occurring, and there is no current science adequate to determine the necessary buffers around the infrastructure. Despite this, despite this absence of information, DEP indefensibly backs off the seven mile buffer zone it previously recommended, while at the same time admitting that it does not have "the expertise or staffing to review the tremendous quantities of technical data that will be included in well applications." New York State should not become the testing ground for hydrofracking near our watershed infrastructure. Our water is too

important. Riverkeeper continues to advocate for the seven mile buffer that DEP originally called for in all areas, and for maintaining that buffer until more data is collected and additional studies are completed, that demonstrate that a smaller buffer would provide sufficient protection. We reiterate that protecting the New York City watershed from hydrofracking is vital. Merely the threat of contamination could cause EPA and DOH to annul the FAD, costing the City and in turn the New York City ratepayers, billions of dollars. We urge the City Council and this Committee to join us in advocating for full protection of the New York City watershed by urging DEC to prohibit any hydrofracking in or underneath this area, or within seven miles of its infrastructure, surface drilling or subsurface drilling. Thank you for allowing us to present on this important point and thank you for the important role that you continue to play.

CHAIRPERSON GENNARO: Thank you. Thank you, Ms. Hudson. [applause] And it's been great to work with you and great to work with Riverkeeper for all these many years. And I made

notes in your testimony, I'll be coming back to you as well.

KATE HUDSON: Thank you.

CHAIRPERSON GENNARO: Wes, you're up. Yeah.

WES GILLINGHAM: Again, thank you--

CHAIRPERSON GENNARO: Sure.

WES GILLINGHAM: --Councilman Gennaro, again, for attempting to get past the politics on this issue. And using this Council to gather important science and technical data to enable appropriate agencies to make educated decisions. I'd also like to commend the DEP for--

CHAIRPERSON GENNARO: Wes, I just need you to state your name for the record. Yeah.

WES GILLINGHAM: Okay.

CHAIRPERSON GENNARO: Yeah.

WES GILLINGHAM: Wes Gillingham, I'm the Program Director for Catskill Mountain Keeper. [background comments] Wes Gillingham, I'm the Program Director for Catskill Mountain Keeper. Okay. So, thank you.

CHAIRPERSON GENNARO: Sure.

WES GILLINGHAM: And I would also

1
2 like to commend the DEP for the work that they've
3 put into this issue. I'm concerned about a couple
4 of things that came up in the testimony this
5 morning. Kate just referenced that. They looked
6 at, or tried to find other examples where this was
7 happening, did not find it. And what we have here
8 is a situation where you have great research, a
9 lot of theories being looked at, and looked at,
10 possible situations. Well, I'm here to testify on
11 real, on the ground situations that exist, that
12 are not theories, that are actually horrific
13 potentials to happen, because of the situations
14 that's out there and because of the situation that
15 we are undergoing under the proposed regulations
16 and SGEIS permit conditions. I'm going to get to
17 the on-the-ground situation in a moment. But
18 first, the first thing I want to address is the
19 part of the testimony that said the, the
20 occasional low volume hydraulic fracturing. Well,
21 we have a really serious situation; although past
22 versions of the SGEIS suggest that hydraulic
23 fracturing using between 80,000 and 300,000
24 gallons may be considered high volume, New York
25 State DEC excludes such wells from consideration

1
2 under the new R--or the SGEIS, and its proposed
3 regulations. This provides no justification for
4 this change. Or its implicit conclusion that the
5 impacts of such drilling have been adequately
6 evaluated and appropriate mitigation implemented
7 through the 1992 GEIS and existing regulations.
8 Because the purpose of this new document is to
9 consider the potential impacts of high volume
10 hydraulic fracturing, they did not address what
11 exists in the old GEIS concerning low volume.
12 Now, we have a situation in New York State, in
13 Oswego County, where there were vertical wells
14 that were hydrofracked into the Marcellus Shale
15 and the Utica Shale, and we have a situation where
16 the company, Gastem, segmented their operations,
17 so that they could use more than the 80,000
18 gallons, which was the condition at that point, to
19 up the ante. That's why I believe they have now
20 changed that volume ratio up to 300,000, because
21 the company has pressured them to allow that,
22 because they are intending to do high volume
23 vertical wells. I will call them high volume
24 vertical wells for the purpose of this hearing.
25 So, that's a serious situation that none of, of

1 what we're talking about here with this buffer,
2 really applies to. And I concur with the other
3 statements about expecting the DEP to then go
4 evaluate individual permits, that seems quite
5 ludicrous to me at this point. :So, let's get to
6 the documents I handed to you. What you have in
7 front of you is a prepublication copy of the
8 potential contaminant pathways from hydraulically
9 fractured shale to aquifers. This was an appendix
10 to our joint comments that NRDC, Riverkeeper, and
11 Delaware Riverkeeper and Earth Justice submitted,
12 along with Mountain Keeper. And this will be,
13 make for wonderful weekend reading, you can read
14 all about how this stuff can migrate. And I bring
15 it up here, we're talking about seismic activity,
16 but when we're talking about seismic activity,
17 we're talking about taking those pathways that
18 exist, and potentially making them much more
19 efficient pathways. Now, basically what Tom
20 Meyers talks about in his study is the, you know,
21 there's quite an extensive explanation of what the
22 Marcellus Shale is. Technically, it's considered
23 a leaky aquitard. It's considered an aquitard
24 because it prevents its very low, it's low
25

1 porosity, so liquids do not move through it very
2 well. It's considered leaky because there are
3 substantial places where there are fractures and
4 natural faults that allow fluids to move through
5 it. And if you look at the map that I handed you,
6 I'm going to go over a couple places. But first
7 thing you notice on that map is all those red
8 lines all over the place. Those are actual faults
9 that have been document. And this came from a
10 layer of information from New York State Museum.
11 So, one of the issues that Tom talks about in
12 terms of these faults and transport of chemicals,
13 you have the existence of these fault, but then
14 you also have a situation where across the
15 landscape, as industry goes in and goes after the
16 Marcellus Shale, which is considered a source
17 rock, and everybody understands these are real
18 tiny pores and little places where this gas is
19 trapped, and the formation gets hydrofracked and
20 broken apart to allow those to be released. As
21 you go through the formation, and you do a grid
22 work across the formation, and they are, that's
23 why they want to do high volume hydrofracking, to
24 do a complete grid work across the formation,
25

1 which by the New York City watershed also fits if
2 you look at their maps of what the industry calls
3 the fairway, the place where most of the gas is
4 and it's most attractive for them to go after; the
5 western part of the New York City watershed lies
6 right there. So, it's very attractive to them.
7 And these places after you have hydrofracked the
8 entire formation, you have now created a situation
9 where the chemicals and the pollutants in the
10 formation cannot just migrate up, but migrate
11 horizontally, throughout the formation. Now, if
12 you take a look at the map, and I apologize, I did
13 not, I was not able to put circles and arrows on
14 this map.

16 CHAIRPERSON GENNARO: Wes, I need
17 you to kind of like--

18 WES GILLINGHAM: Yeah, [crosstalk]
19 this is the important part.

20 CHAIRPERSON GENNARO: --can you get
21 to something that I can do directly from my thing?

22 WES GILLINGHAM: Yeah.

23 CHAIRPERSON GENNARO: You know, I
24 need to, I need a nexus to what I'm going to do.

25 WES GILLINGHAM: Okay. So, the

1 first thing I would like you to look at,
2 considering all the information that we've heard
3 so far, is look at the map, and look at the fault
4 line that runs basically from where the
5 Pennsylvania border becomes straight, where it
6 leaves the Delaware River. And if you look
7 straight north, you will see a red line that runs
8 straight up to the Cannonsville Reservoir. And
9 then if you travel three, four faults over, you
10 will also see an extremely long fault that runs
11 across the area, outside of this two mile buffer,
12 and crosses New York City's water tunnel. And
13 then if you go farther down, follow that blue line
14 that runs from the Cannonsville across and through
15 the town of Rockland, you get down to a place
16 directly above the town of Callicoon, do you see
17 that?
18

19 CHAIRPERSON GENNARO: Yeah, I got
20 it.

21 WES GILLINGHAM: There is an
22 extremely long fault line that runs up into the
23 town of Rockland, down into the town of Callicoon.
24 That is clearly out of the two mile buffer, it is
25 clearly out of a five mile buffer, and

1 potentially, I haven't done the map work to show
2 whether that fault line exceeds a seven mile
3 buffer, but that line, where that fault line ends
4 is right near, very close to where one of the few
5 Marcellus wells were drilled in New York State,
6 back in 1972. It was drilled by Gulf. It was
7 when they were exploring the Marcellus and they
8 drilled that well, they successfully--it was 7,200
9 feet deep, or thereabouts, and successfully
10 reached the Marcellus, but because they did not
11 have hydraulic fracturing technology perfect at
12 that time, they capped the well. But I'm going to
13 tell this Committee how they capped that well.

14
15 CHAIRPERSON GENNARO: I don't think
16 you are. [laughter] I got to--you know, help me
17 out here, Wes, I got, I got like--

18 WES GILLINGHAM: You--

19 CHAIRPERSON GENNARO: I got a lot
20 of people here, and I got to--

21 WES GILLINGHAM: Okay, this is a
22 ground--

23 CHAIRPERSON GENNARO: Yeah, I see
24 it.

25 WES GILLINGHAM: This is an on the

ground situation, and I will finish up--

CHAIRPERSON GENNARO: I, I just
can't do disserta--

WES GILLINGHAM: --I will tell it
really quick.

CHAIRPERSON GENNARO: I just, I
just can't do dissertations today. [background
comments] Excuse me, I will not take any, I don't
know the comments in the gallery, I just, I just
got a lot of freight to move today. You know, and
so, all right, so, but you know, yeah, just try to
summarize a little bit, 'cause I just, I just got
to--

WES GILLINGHAM: Okay. They pulled
5,000 feet of casing out of the ground and dropped
dynamite down the hole, right near where that
fault exists. That is an on the ground situation
and about a mile from there, there's another well
that was drilled around that same time period by a
private well, which isn't even on New York State
records. This is a serious situation to
completely create a dangerous situation with New
York City's infrastructure. And I will finish by
saying it is ludicrous to change the fight that

1
2 you've been pushing for with this buffer zone, and
3 back, back away from that. And this is not a
4 situation, the economic gain, which is
5 questionable, is not worth the risk to New York
6 City's watershed, and I would put forward it's not
7 worth it to anyone's watershed in the entire
8 state. [applause]

9 CHAIRPERSON GENNARO: Thank you.

10 So. Thank you, Wes. Let me kind of start with
11 you and work backwards. You know, I think it's
12 clear that, you know, the case that I need to be
13 making, and you know, try to persuade my
14 colleagues in the Council, and like the leadership
15 of the Council, to make is why we, you know, need
16 to, you know, not do any backtracking and I think
17 that what you've provided here regarding this, you
18 know, prepublication pathway study, will be, you
19 know, critical to what I need to say. And I need
20 you to work with Bill on this, to figure out who
21 we, you know, how we kind of weave that into what
22 we're saying. Because I want to, you know,
23 provide as much, you know, robust scientific
24 documentation as I can, along with, you know,
25 your, your knowledge of the history of what took

1
2 place in the area like 30 years ago. And I think
3 that's, that's, you know, critical. And I didn't
4 mean to cut you off, but I just, I just need to,
5 you know, but I--

6 WES GILLINGHAM: I didn't take it
7 personally, so--

8 CHAIRPERSON GENNARO: Yeah, okay,
9 I--I think that's where I need to do this. And
10 thank you for that. And great. And, Kate, where
11 are we, I have your testimony here. With regard
12 to ... with regard to the FAD, and this midterm
13 review that's going on now, and, and how we sort
14 of, you know, weave the FAD into our strategy on
15 how we proceed. And I think it's fine to comment
16 that, you know, DEP should've talked to DOH, but I
17 think DEC should've talked to DOH. And I don't
18 know, like, did that every happen? I mean, and
19 this is, you know, part of my concern here, in
20 that the, you know, the same state government
21 that, you know, wants to advance fracking, I
22 don't, I just can't see like another part of state
23 government sort of, you know, trying to trip of
24 the state when they want to do this. And so, but
25 I think, I think your point, perhaps, is that it

1 was up to DEP perhaps to sort of like put DOH on
2 the spot a little bit, right? To, I think that's
3 like where you were going, and where, and I think
4 the question, you know, that I want to pose here,
5 does it, to what extent does it make sense for,
6 you know, someone like me to put DOH on the spot.
7 And I don't know that DOH is going to be
8 particularly forthcoming. You know, just by
9 virtue of kind of they're part of state
10 government, state government like wants to advance
11 this, and you know, to what extent am I or anyone
12 else in a position to put EPA on the spot to ask
13 them to opine on whether they believe, you know,
14 that it's EPA believes that, you know, this could
15 place the FAD at risk, and I don't know how
16 forthcoming EPA would be, but then, but then this
17 body would be in a position--and again, I'm like a
18 science guy, not like a process guy or like a
19 legal guy, to say, "Okay, it should, if we're
20 potentially, you know, putting the FAD at risk,
21 then who's going to pay if the FAD goes south?" I
22 just don't know how I work that or do that. And
23 I'd be happy to work with, you know, this panel to
24 figure out how I sort of play the FAD angle, you
25

1 know, to the best, in the best way that I can. I
2 just wonder like what your views were on that, and
3 anyone else on the panel, on how I could sort of
4 dangle the FAD and make something of that.

5
6 KATE HUDSON: I think, I certainly
7 didn't mean to imply that this issue was on the
8 table right now, in terms of the negotiations that
9 are going on, the discussions that are going on,
10 between DOH and EPA, and in fact indeed another
11 division with DEC sits in those negotiations and
12 discussions, with respect to the FAD revisions.
13 What I am suggesting is that if the potential for
14 putting the FAD at risk is not considered now, we
15 could find ourselves in a situation five years
16 from now when something has happened, that the FAD
17 will be at risk. And do we want to make that
18 commitment without taking a more precautionary
19 approach? I don't think we are going to get EPA
20 or DOH to opine on something that might happen in
21 the future. It was more meant to be a caution to
22 DEP, and to DEC, I agree.

23 CHAIRPERSON GENNARO: Yeah, I mean,
24 but I'm just kind of, you know, looking for
25 running room here, is what I'm trying to do. And

1
2 I, 'cause my whole idea, and you know, having this
3 hearing is not just to have a good time and learn
4 things, but you know, to figure out where, you
5 know, where I could, where there's a break in the
6 line and I can move the ball forward. You know,
7 so, Eric, you look like you want to say something.

8 ERIC GOLDSTEIN: I--we think it's
9 an excellent idea for you, and perhaps the
10 leadership of the Council, to send an inquiry to
11 DOH, at the State level, and EPA, and perhaps at
12 the Army Corps of Engineers, as well. They are
13 doing an analysis on dam safety - -

14 CHAIRPERSON GENNARO: [interposing]
15 Right, as a matter of fact, that was something
16 that was referenced in DEP's submission.

17 ERIC GOLDSTEIN: Right.

18 CHAIRPERSON GENNARO: That I, and
19 they did make reference to that.

20 ERIC GOLDSTEIN: No guarantees, but
21 perhaps a letter from the Council leadership could
22 draw out some helpful information. So, we would
23 support that and be happy to assist in any way we
24 could.

25 CHAIRPERSON GENNARO: Okay, sure,

so just a note from the Chair to the staff that we should, you know, follow up on that and see how we do that. And with regard to, you know, I think just getting back to your testimony, Kate, DEP 2009 makes the case, does the seven miles, does Hayes and Sawyer, and you know, the State says, "Go jump in the reservoir," is really what they said, you know. And so, and I guess, I don't want to speak for DEP, I guess they felt that they had to be in a position to, you know, kind of negotiate kind of against themselves, and say, "Okay, well, how about this?" And, and you know, while it kind of, I guess they believe for whatever reason that if they made the, made the same submission again, and also I wrote to the State about this, and they had sent me information indicating that they didn't think that, you know, DEP's science was valid, when they, you know, asked for seven miles, and they sent me a bunch of technical information about it. So, I guess DEP believed that they had to, you know, kind of negotiate it, kind of against themselves, and you know, do this. And I just, I don't think that they, you know, relish the whole role of being an

1
2 entity that was doing this like balancing. I
3 just, perhaps they believed that that was the
4 place for them to go, it would show the Governor's
5 folks that, okay, like they get it, but they still
6 want all these, you know, boundaries and things.
7 I just, I have to believe that they thought that
8 they believed they were doing, you know, the best
9 they could. But I'm curious to find out what, you
10 know, you all think about that. And, and how I
11 can, you know, play some role in saying, "Yeah, I
12 like that it was all well and good for like the
13 DEP to kind of get a little warm and fuzzy with
14 fracking, hoping that it would buy 'em some points
15 that they could, you know, get at least, you know,
16 some kind of regulations, but you know, we and the
17 Council, or half of City government, we just don't
18 believe that. And we think that DEP in their
19 heart of hearts, is still in, you know, 2009, and
20 they want the seven mile buffer, and they're, you
21 know, willing to kind of like be reasonable, and
22 we're not quite so risk friendly. You know, on
23 this side of City Hall. But go ahead.

24 AL APPLETON: I think, my view of
25 this, of this life is that this is a battle about

public opinion. And I'm a great believer in the old strate--in the old scriptural saying, "Who will answer the call to battle when the trumpeter sounds and insert a note?" I think it's extremely important for leaders of public opinion, like the Council, to continue to insist that any risk to this asset is unthinkable. I mean, it just kind of, you know, we're looking at a, we're looking at a public that is completely alienated from the political system, for making these kinds of choices. And I think it's a, it's incumbent upon the leadership of New York City to continue to insist that anything that puts this enormously valuable resource at risk, much less before we consider the miniscule, at best, benefits that supposedly come from it. I mean, I'm actually, I think Gary made the right point, the mission of the Department of Environmental Protection is not economic development. The mission of the Environmental Protection is to protect the public health and welfare of the people of the City of New York. End of story. The, and we cannot, it's a mistake, I think, to treat something that DEC has put out, that is this irrational and

unreasonable, as something that needs any kind of, you know, measured response. I think, quite frankly, I would like to see the City state very clearly that if we do not get an adequate buffer we will sue their brains out. Because the truth of the matter is, if we were to win such a lawsuit, the pressure point it would reflect on the whole regulatory process, would be decisive. And I think, you know, in this kind, you know, you're talking, you know, we're talking a lot among practitioners about the practical--

CHAIRPERSON GENNARO: Right.

AL APPLETON: --politics of these relationships. The practical politics of this relationship is if there's anybody in the upstate administration that has any kind of knowledge whatsoever, they would realize that they are totally vulnerable on this issue, 'cause they have no scientific basis for it whatsoever. And the City's been very candid about its basis. And that, you know, the standard of, for an Article 78, of you know, reasonable and rational basis, there is no reasonable and rational basis for the State's proposal. If the State were to lose that

1
2 issue, in a court, it would undermine the
3 legitimacy of the whole, you know, their whole
4 SDEIS regulatory process. So we have a lot of
5 leverage, in my view.

6 CHAIRPERSON GENNARO: Hm.

7 AL APPLETON: If we, if we take a
8 very firm position, shall we say.

9 CHAIRPERSON GENNARO: And also
10 just, just looking at the, you know, DEP
11 submission, I think the submission on its face,
12 you know, states the risk and its willingness to
13 accept it, and so it's not like we have to kind of
14 intimate that there is risk there. They've
15 recognized it, and they said that like "We're
16 willing to do this." And so, it's not like have
17 to prove it, we just have to say that, you know,
18 "You said this and we just don't agree with it.
19 And for whatever reason you felt you, you know,
20 you need to backtrack a little bit." The risk
21 that, you know, you yourselves have stated is not
22 something that the, you know, City should, you
23 know, reasonably subject itself to. And so, I
24 think the way they've written it in a way sort of
25 helps us make a counterargument, I guess.

AL APPLETON: I think, well, I think that's right, I think it's also important to realize when it comes to the watershed, the City of New York is a State agency. That is, you know, I'm often asked this question of where did we get the legal authority we have, in the watershed. And the truth of the matter is with respect to the watershed, the City just sites in the place of the State. And you know, under the public, under the 1905 Water--you know, Supply Act, it's very critical in my, I understand where DEP is coming from, there's a lot of kind of rhetoric everyone throws out when they're trying to be reasonable on this issue, that we understand America's energy needs. Frankly, America's energy need is to get to green energy as fast as we possibly can. But [applause] the, the truth of the matter is, you know, we might as--that rhetoric will not hurt us in any litigation, it will show that we are the people who are doing balance. The comment record is full of the kind of geological information that Wes is putting forward here, and Kate and Eric have put forward here, and I have just skipped over it, it's obvious. There's no reasonable

basis for DEC not to have a, an adequate protective buffer. If these people have any understanding of this policy at all, they will realize that if we sue them, it will be a disaster for their whole regulatory process. If they need that as a wake-up call, we should give it to them.

KATE HUDSON: I think there's one additional point, which is that DEP has negotiated a deal, a compromise, that it doesn't have either the legal authority or the resources to carry out. It doesn't have the legal authority to veto permits, unless DEC decides to give it to them. And we heard Carter say that without that, the deal just doesn't happen.

CHAIRPERSON GENNARO: Right.

KATE HUDSON: And they also don't have the financial resources to do all the things that they said they were going to do, if they were, if it was done on a case-by-case basis within this five mile enhanced zone. They don't have the staff, they don't have the resources, to do the things that they will say will generate the protectiveness of that zone. And so, I think it calls into question the, the merits of the whole

1 deal that they have struck. It's just infeasible.

2 AL APPLETON: The one thing I would
3 like to add, and it is an amplification of Kate's
4 comment. If I were stuck in the situation she
5 just described, my only recourse would be to sue
6 every permit person who was trying to invade the
7 danger zone. So that would in some sense be much
8 more expensive for me and much more expensive for
9 the State, and much more disastrous in terms of
10 upstate. But we have to make it clear that we are
11 prepared to do these measures, if necessary, you
12 know, to protect the watershed. And to protect
13 our water infra--I want to make one other comment
14 on the buffer zone that I meant to make in my
15 testimony, if you wouldn't mind.

16 CHAIRPERSON GENNARO: Sure.

17 AL APPLETON: 4,000 feet with a
18 vertical drive, from the dams, is also 4,000 feet
19 and change from the reservoir. So that we're not,
20 what we need to be thinking about is whether or
21 not this underground frac--system of fractures, if
22 liquid or methane is put into it under pressure.
23 This thing is going to wind up, you know,
24 infiltrating through the rock, you know, the
25

basement of our reservoirs, and into the water supply there. 'Cause this stuff is going to want to go up--the methane--

CHAIRPERSON GENNARO: Right.

AL APPLETON: --is going to want to go up. And the fracking fluid's going to be pulled up by capillary action. So that when we talk about 4,000 feet, and particularly Eric's point is really one we can never lose sight of, is it 4,000 feet from what? If it's not 4,000 feet from the tip of the lateral, then we could have laterals right underneath, and all they'd have to do is hit some kind of underground fracture that had come into hydraulic balance with the watershed. You know, to start bubbling things up. So, this is not just a dam safety measure, it's a water safety measure for the reservoirs, as well. I, personally, if I had to, if somebody asked me to pick a boundary, I'd pick 25 miles. But the, you know, I, you know, we are fiduciaries for the people of the City of New York when we run these systems, and we have no, we have--I don't necessarily agree with--I think Kate is right, we have no, you know, we have no authority to ban in

1 this fiduciary obligation. I don't think
2 acceptable risk is a concept we should be talking
3 about, when we're talking about the drinking water
4 of eight million people.
5

6 CHAIRPERSON GENNARO: Yeah--

7 AL APPLETON: And I think it's very
8 important, Jim, for the Council to continue to
9 hammer that point, that it is--what, that any kind
10 of risk is unthinkable. Logical people just don't
11 think in those terms.

12 CHAIRPERSON GENNARO: And I think
13 that DEP, perhaps in their heart of hearts
14 doesn't, you know, they, you know, think like we
15 do, also, but circumstances have led them to, you
16 know, stake out a certain posture, and I will tell
17 you that they, however, very much welcome this
18 hearing. And so that to me sort of, you know,
19 signals that they--

20 AL APPLETON: We're among friends,
21 I agree.

22 CHAIRPERSON GENNARO: Yeah. And
23 so, I think we want to go, we just have to build
24 the case that our, half of City Hall wants to be a
25 little more, you know, true to the 2009 concept

1 that was put forward, and we're going to be
2 working with you to figure out, you know,
3 precisely how we do and say that, and buttress
4 that with some of the, you know, good comments
5 that were made here today, that I didn't make full
6 notes of, but you know, Bill and we also have
7 Samara here, who's going to help us with that.
8 Let me just ask Eric to clarify his point about
9 the dams and like to backtrack, 'cause I went
10 through all the technical materials and I didn't
11 sort of catch the whole thing about the dams that
12 you made, Eric.

14 ERIC GOLDSTEIN: Well, in, in the
15 latest submission, it seemed as if what DEP was
16 requesting was the right for a case-by-case review
17 should there be any incursion into this 4,000 foot
18 buffer zone. And separate and apart from--

19 CHAIRPERSON GENNARO: 4,000 foot
20 buffer--

21 ERIC GOLDSTEIN: Around the dams,
22 around the watershed itself.

23 CHAIRPERSON GENNARO: Around the
24 perimeter.

25 ERIC GOLDSTEIN: And separate and

1
2 apart from the big question about whether 4,000
3 feet is in and of itself adequate, there is
4 concern that initially, at least, we had read
5 DEP's initial round of comments as saying that
6 4,000 buffer should be measured from the tip of
7 the--

8 CHAIRPERSON GENNARO: Right.

9 ERIC GOLDSTEIN: --closest
10 horizontal well head. And now--

11 CHAIRPERSON GENNARO: That's in
12 2009, you mean.

13 ERIC GOLDSTEIN: Right.

14 CHAIRPERSON GENNARO: Right.

15 ERIC GOLDSTEIN: And now there's
16 some--and now there's some question about either
17 where they're measuring from, or going from a
18 prohibition to a case-by-case. Let me--

19 CHAIRPERSON GENNARO: Oh, I see.

20 ERIC GOLDSTEIN: --try it one last
21 time.

22 CHAIRPERSON GENNARO: Yeah.

23 ERIC GOLDSTEIN: In 2009, we
24 believe they said the 4,000 foot buffer should be
25 inviolate around dams, and should be measured from

the tip--

CHAIRPERSON GENNARO: Right.

ERIC GOLDSTEIN: --of the horizontal drill that's closest--

CHAIRPERSON GENNARO: Right.

ERIC GOLDSTEIN: --to the watershed. In their most recent comments, they are suggesting a case-by-case review for any horizontal well that goes within that 4,000 foot buffer.

CHAIRPERSON GENNARO: Right.

ERIC GOLDSTEIN: If, if we're understanding that correctly, that is a further--

CHAIRPERSON GENNARO: Okay.

ERIC GOLDSTEIN: --back step from what is already a weak buffer for the reasons that Commissioner Appleton just stated.

CHAIRPERSON GENNARO: Right. And I think what's working here for us is that DEP did not do science back in 2009 and then, you know, in 2011/2012, sort of challenged that science, so they didn't do anything in this submission to say that the science we did in 2009 was, was wrong, we're just kind of looking at it differently, and

1
2 we're willing to take more risk on. And that's
3 really like what it is. And so--

4 ERIC GOLDSTEIN: Exactly, the, the
5 science in the 2009 Hazen and Sawyer study--

6 CHAIRPERSON GENNARO: Right.

7 ERIC GOLDSTEIN: --has not been
8 challenged, and in fact in the new study, there
9 was nothing in there that contradicted that--

10 CHAIRPERSON GENNARO: Right, right.

11 ERIC GOLDSTEIN: --it was just some
12 different policy choices.

13 CHAIRPERSON GENNARO: So, I mean,
14 we can , I don't want to say like use their own
15 science against them, but like you know what I
16 mean. And so, it wasn't like a scientific shift,
17 it was like a policy shift, and a policy shift
18 meant that, you know, that the City was willing to
19 take on risk. And we can say that, you know, that
20 we just don't believe that that's what you should
21 be doing.

22 ERIC GOLDSTEIN: We appreciate--

23 CHAIRPERSON GENNARO: Yeah.

24 ERIC GOLDSTEIN: --the scientific
25 work that they've done--

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CHAIRPERSON GENNARO: Right.

ERIC GOLDSTEIN: --we just want to see it factored into the decision making process in Albany.

CHAIRPERSON GENNARO: Hear, hear.

WES GILLINGHAM: Absolutely, you said, you mentioned that, you know, they've changed their posture a little bit. And I think it is up to this Council to help them with their posture. [laughter]

CHAIRPERSON GENNARO: Yeah, and I-- and--

AL APPLETON: Start running a gym for Commissioners.

CHAIRPERSON GENNARO: Yes, yes.

WES GILLINGHAM: And just on that last tidbit, I mean, if you look at that map I submitted, there's multiple faults all the way around the, the reservoir that exceed that 4,000 foot buffer, and cross into the, into the watershed.

CHAIRPERSON GENNARO: Yeah, so, and it's, normally it's the case where people are bringing like, where people are brining my faults

1
2 to my attention, but to have these other faults
3 brought to my attention [laughter] that are not
4 mine are a welcome change from what I normally
5 get, you know. And Kate wants the last word.

6 KATE HUDSON: I think there's one
7 other point, which is that I think DEP had a much
8 stronger bargaining position than it thought it
9 did. Because it has science on its side. And DEC
10 does not have any science. There is no science
11 underneath that 1,000 foot or 4,000 feet.

12 CHAIRPERSON GENNARO: Right. But
13 we're talking, you know, City government versus
14 State government, and you know what I mean, it's
15 just, I think it could be like a little
16 intimidating sometimes. And so, you know, what do
17 I know, but I--

18 AL APPLETON: Hey, you're, you're a
19 good Catholic, "Take not council with your fears,"
20 as the scripture says. [laughter]

21 CHAIRPERSON GENNARO: Hallelujah,
22 you know [laughter] and so. And so, yeah, so--

23 WES GILLINGHAM: I mean, we're all
24 dealing with a situation here where we have a
25 Governor saying we're going to look at the

1
2 science, and it's not, and not make a political
3 decision. And clearly the reason that Andrew
4 Cuomo is saying that is because he's making
5 political decisions not based on science.

6 CHAIRPERSON GENNARO: I think
7 there's a, you know, quite a bit of that going
8 around, and so we just want to do our part to--I'm
9 just, to, you know, to kind of push back against
10 that, and I'm grateful that, you know, DEP has put
11 themselves in a position where they didn't say
12 like "What we did back in 2009 was wrong and we
13 have new information that makes us look - - "
14 it's, we can do this. We can do this, because we
15 don't have to prove that there's some risk, it's
16 written right into the DEP submission. And so we
17 could just say that, you know, "We don't like
18 that, and we shouldn't be doing that, and we don't
19 want to pay for it," and you know, so I think
20 there's a good case to be made. And so, with your
21 help, we'll make that case.

22 AL APPLETON: Thanks very much.

23 KATE HUDSON: Thank you.

24 CHAIRPERSON GENNARO: Praise the
25 lord, this is--this was a great panel.

[applauses] Okay.

KATE HUDSON: Thank you.

CHAIRPERSON GENNARO: And the next panel, we have Megan O'Hearn or Ahearn, with NYPIRG, Deborah Cohn or Zone, Zahn, Zahn, Z-O-H-N? Okay. United for Action. And David Braun, United for Action. And the following panel--how many people are on this panel?

COUNSEL: It's the same group, H₂O and, and Food in Action. That's it.

CHAIRPERSON GENNARO: Okay. Well, why don't we take one more person and put it on this one?

COUNSEL: Okay, let's--

CHAIRPERSON GENNARO: Oh, no, okay, no, hang on. [pause, background noise] We're going to be adding a fourth person to this panel, Jessica--[background noise] We're going to be adding a fourth person to this panel, Jessica Roff of Food and Water Watch. So, this ... give me the slips here. So, I'm sorry. So, Mr. Braun, Ms. Zohn, Ms. Ahearn and Ms. Roff will be on this panel. And then the panel after this, my good friend Joe Levine, Mav Moorhead, Michael Lebron,

and Buck Moorhead. Okay. So that'll be ... Okay.

[pause, background noise] Okay, if we could have a little, a little order. And people can take seats, have a little order. We have this panel set up, and the next panel, as I said, Buck Moorhead, Mav Moorhead, Joe Levine, Michael Lebron. [background comment] And the panel after that would be representatives of Board One and Board Two, among others. But we got to, we got to get this going. Okay? So, if we could have a little [gavel] have a little order, please, and if the Counsel can deliver the, the oath?

COUNSEL: Can you please raise your right hands? Do you swear or affirm to tell the truth, the whole truth and nothing but the truth today?

CHAIRPERSON GENNARO: Okay. Okay, hang on to these slips. Okay. Thank you all for coming. And, and I have a, I have David Braun, I have Deborah Zohn, other--? Oh, and I have NYPIRG and Jessica. Okay, I got, I got 'em all, okay. So, this panel we're going to start from my right and work to my left. And so we'll do it that way. Okay? And so, thank you all for coming, if you

could state your name for the record and proceed with your statement.

JESSICA ROFF: My name is Jessica Roff, I'm a volunteer with Food and Water Watch and Act--United for Action, and Brooklyn Food Coalition. But I'm here just to read predominately the statement that Food and Water Watch gave me. Food and Water Watch is a nonprofit organization whose mission is to ensure that our food and water is safe, accessible and sustainably produced. We want to thank you, Chairman Gennaro, for, and the whole Committee, for holding this hearing. We're grateful for your persistent and diligent attention to this issue. In particular, we greatly appreciate your calling attention to the continued threats to New York City posed by Governor's Cuomo's plans to open the State to fracking. As you are aware, the Department of Environmental Conservation's SGEIS proposes to confine drilling and fracking operations to outside of a buffer around the watersheds that provide New York City with its famously high quality of drinking water, so high quality in fact that filtration is not required.

But New York City's water, air and food would still be put at great risk if the City is opened up to fracking for shale gas. New York City should support a ban on fracking in New York. First, New York City's water would still be at risk despite the proposed buffer because the shale gas wells can be drilled horizontally, and fracking would still technically be allowed beneath our watershed. Much of the toxic fracking fluid and waste water remains underground indefinitely. How far and how fast it might move is difficult to predict and cannot be controlled. Then there are the millions of gallons of fracking waste water that does come out of each well, which contains toxic chemicals used in fracking fluids, as well as naturally occurring contaminants from deep underground, such as radium 226. There's no plan for managing this waste water, and if inadequately treated fracking waste water were to contaminate New York City's watershed, the City would be forced to filter its supply of water and this would cost over \$10 billion. Second, New York City's air quality is likely to be harmed by the fracking in New York State. Fracking emits

large quantities of dangerous air pollutants such as benzene, volatile organic compounds and particulate matter, which can travel long distances and contribute to smog problems implicated in asthma, cancer and heart disease. Third, fracking is a threat to the safety of our food. Much of the Marcellus region is active farmland and fracking fluids, waste water and air pollution pose a risk to the water and soil that our state's large agricultural sector rely upon. Finally, drilling and fracking for shale gas releases large amounts of methane, a powerful greenhouse gas. Several recent scientific studies have suggested that widespread shale gas development will actually accelerate climate change in the coming decades. This means that New York City will have to adapt even more rapidly to the threats that climate change poses, including rising sea level, increased frequency and intensity of droughts and floods, and increased ferocity of storms. In our comments to the DEC, Food and Water Watch documented three critical flaws in the SGEIS. First, the DEC enormously exaggerated so-called "benefits of fracking,

particularly the number of jobs it would create for New Yorkers. Second, the DEC underestimated and in some instances completely ignored tremendous public costs of fracking, including to public health, public infrastructure, and economic sectors, such as agriculture and tourism. Most fundamentally, though, we maintain that fracking is inherently dangerous and beyond our capacity to safely regulate. In the final analysis, there are safer alternatives to natural gas, but there are no alternatives to water. We urge New York City Council to join other local elected bodies across the State in supporting a statewide ban on fracking. That's the end of that, sir. I just want to add, for the record, that I do also, I'm also a member of the Brooklyn Food Coalition, which is an organization that works for, you know, a just and sustainable food system in Brooklyn, access to healthy and sustainable and good food, and safe and healthy working conditions for food workers. And clearly, we are also joining in all of these kinds of comments, and working in this fight, because every single part of our whole mission is at risk if there is fracking involved,

1
2 so.

3 CHAIRPERSON GENNARO: Thank you.

4 JESSICA ROFF: Yes.

5 CHAIRPERSON GENNARO: Thank you,
6 Ms. Roff.

7 JESSICA ROFF: Definitely.

8 CHAIRPERSON GENNARO: And--

9 JESSICA ROFF: I'm not good
10 reading, I'm much better speaking. [laughs]

11 CHAIRPERSON GENNARO: And the next
12 speaker, I'm sorry, I don't--

13 MEGAN AHEARN: Megan.

14 CHAIRPERSON GENNARO: Megan, okay,
15 great. Okay.

16 MEGAN AHEARN: Hello, my name--

17 CHAIRPERSON GENNARO: Let me just
18 get your statement here.

19 MEGAN AHEARN: Okay, sure. It's--

20 CHAIRPERSON GENNARO: Yep, got it.

21 MEGAN AHEARN: It'll say Cathleen,
22 actually.

23 CHAIRPERSON GENNARO: Yep, got it,
24 okay. Got it. Oh, and you're reading this for
25 Cathleen, right?

MEGAN AHEARN: Right.

CHAIRPERSON GENNARO: Okay, great.

MEGAN AHEARN: So, hello, my name is Megan Ahearn, I'm the Program Coordinator for NYPIRG, and I'm here on behalf of Cathleen Breen, the Watershed Protection Coordinator for the New York Public Interest Research Group, more simply NYPIRG. We commend the City Council for holding a hearing on this important issue and for being a staunch advocate for the protection of the City's drinking water supply, and drinking water. NYPIRG has a long, active, has been long active in protecting New York City's drinking water supply and is a signatory to the 1997 Watershed Memorandum of Agreement, MOA. The MOA represented a comprehensive effort to protect and preserve New York City's high quality water supply, while preserving and enhancing the economic vitality and social character of the communities within the watershed. This City's \$1.5 billion investment to date and comprehensive watershed protection efforts has paid off. New York City continues to qualify for a filtration waiver on--or filtration avoidance determination, FAD, from the EPA.

1
2 However, if this City fails to demonstrate that it
3 can successfully protect the system from
4 pollution, City officials will be ordered to build
5 a filtration plant, which is estimated to cost
6 between \$10 billion and \$20 billion; not to
7 mention the operation costs. The practical
8 consequences of that decision will be that water
9 rates would rise, threatening tens of thousands of
10 housing units in the City's poorest neighborhoods,
11 and the funds will be drained from police,
12 infrastructure, healthcare, culture,
13 transportation, fire, sewage and other City
14 services. Worst of all, there's no guarantee that
15 the filtration plant will preserve public health
16 to begin with. The MOA and FAD do not guarantee
17 that our water would remain safe; rather it'd
18 begin years of hard work and vigilance that we
19 believe have been essential to protecting our
20 drinking water. Granted, that there have been
21 threats over years that have challenged the City's
22 ability to continue to meet the FOA requirements,
23 and its ability to deliver safely water to more
24 than nine million New Yorkers; however, never
25 before has there been such a threat to the

integrity of our water supply, and delivery system as the threat of natural gas drilling, an intensely industrial activity. We believe that fracking, the process that you well know about, involving millions of gallons of water and toxic chemicals, carries a huge environmental, environmental price tag. The DEC, the agency charged with overseeing gas drilling, has not provided New Yorkers with a plan that shows that drilling will not harm the public and the environment. The RDSGEIS also do not fulfill requirements of Executive Order 41, which was ordered issued in December of 2010, by Governor Patterson, and confirmed by Cuomo. Specifically, Executive Order 41 instructed DEC to make such revisions to the draft SGEIS that are necessary to analyze comprehensively the environmental impacts associated with high volume hydraulic fracturing, combined with horizontal drilling, ensure that such impacts are appropriately avoided or mitigated, consistent with the SECRA, other provisions of the environmental conservation law and other laws, and ensures that adequate regulatory measures are identified to protect

public health and the environment. One of the many deficiencies of the RDSGEIS is that while it calls for a fracking ban in New York City watershed, it leaves New York City's already fragile water infrastructure vulnerable.

Unfortunately, New York City DEP has softened its position on how much protection is needed to safeguard the water infrastructure. In 2009, comments to the DEC on the first draft SGEIS, DEP proposed a seven mile zone around all water infrastructure due to concerns of small earthquakes triggered by fracking could cause cracks in concrete linings of the tunnels. They noted in their comments, the DEP noted in their comments, the unrefined linings of the City water tunnels were designed to keep water in, not to withstand external pressures. Fracking raises the distinct possibility that the unreinforced tunnel linings will be exposed to pressures in excess of their design strength. But now, DEP has discontinued their call for a seven mile buffer for all water infrastructures, and instead putting--instead put forth a hybrid protection scheme, whereby some tunnels would be given less

1 protection, as was outlined earlier today, the
2 seven mile infrastructure exclusion zone, and the
3 two mile infrastructure exclusion zone, plus the
4 infrastructure enhanced protection zone. Given
5 the uncertainty of the impacts from injection
6 induced seismic events, we believe that this is
7 shortsighted. According to DEP's geophysical
8 consultant's report, recently released research
9 has shown that fracking--HVHF, high volume
10 hydraulic fracturing, stimulation of the gas
11 shale, shale gas well, triggered low magnitude
12 earthquakes in the U.K. and possibly did so in
13 Oklahoma, as well, in 2011. The newly released
14 research demonstrates the possibility that
15 fracking treatment of horizontal drill holes in
16 the vicinity of west of the Hudson and NWI, could
17 induce one or more earthquakes that unreinforced
18 concrete lined water supply tunnels would not
19 experience otherwise. So, rather than weakening
20 safeguards, DEP should be leading the charge for
21 the strongest possible protections for New York
22 City's water supply. They're going in the wrong
23 direction. The proposed lower buffer distances
24 are not identified in the consultant's report,
25

1 which states analysis does not identify a single
2 specific buffer distance. For New York City, the
3 sensitive water infrastructure is at risk and
4 there's much to lose if the City's water supply is
5 compromised. DEP must put the health and safety
6 of our water consumers first. In consideration of
7 the aforementioned, we believe DEC should rescind
8 this DSGEIS and instead fulfill the requirements
9 of Executive Order 41. We believe that these
10 risks are unacceptable. Everyone deserves to have
11 safe, clean drinking water, and we must make sure
12 all New Yorkers are protected from the dangers of
13 fracking. Thank you with providing me with the
14 opportunity to testify before you today.

16 CHAIRPERSON GENNARO: Thank you.
17 Thank you, Megan, appreciate it very much. And
18 I'll be, everyone just, once you've made your
19 statements stay, 'cause I'll have questions or
20 comments when we're finished. David, you're up.

21 DAVID BRAUN: Yeah, thanks.

22 CHAIRPERSON GENNARO: Nice to see
23 you.

24 DAVID BRAUN: Nice to see you.

25 CHAIRPERSON GENNARO: Okay.

DAVID BRAUN: So, thank you,
Chairman--

CHAIRPERSON GENNARO: Sure, sure.

DAVID BRAUN: --for having this
today, this is a very critical and important--

CHAIRPERSON GENNARO: Thank you for
being here, yeah.

DAVID BRAUN: --forum for us to--
Oh, it's my, my pleasure, we were very happy to be
a part of this. I would just like to start out
by--I'm going to deviate a little bit from the
comments that you have in front of you. But I
would like to start out just by echoing a
statement that was made previously by Al Appleton,
the former DEP Commissioner, that I think it's
certainly one that we should heavily consider.
And that phrase was, "Logical people just don't
think in these terms." And I think that's kind of
the, my, my general feeling, and I think a good
portion of the membership of United for Action.
So I'm David--I'm sorry, I'm David Braun,
President of Untied for Action, which is actually
not title whatsoever because we're a very
democratic group, and they all kick me around

1 quite a bit. [laughter] But I wouldn't have it
2 any other way. So, but I think that what I'm
3 saying is I think that that's kind of our general
4 sense. Is that we're for a ban on this, and we
5 just don't see that this is a--that, you know,
6 essentially what we're doing here is we're
7 negotiating levels on Dante's Inferno [laughter]
8 you know, in trying to decide whether we're going
9 to settle on Level 4, Level 5 or Level 8. And you
10 know, and I honestly, we just shouldn't be heading
11 through this gate at all. And we're, we're
12 grateful for our champions in this. But I think
13 we could all say that the best scientific solution
14 to all this, because a lot of scientific solutions
15 have been discussed today, the best scientific
16 solution to all of this would be not to do it at
17 all. Fracking is a whole--essentially a wholesale
18 destruction of a substantial portion of the
19 Earth's crust, completely obliterating, utilizing
20 a dirty bomb, and only yields a relatively small
21 amount of energy. According to the economist
22 Deborah Rogers, 80 percent of all wells are not
23 even profitable. Meaning that the amount of gas
24 extracted doesn't even pay for the cost associated
25

1 with the drilling. That doesn't seem like our
2 energy future to me. The New York City's own DEP
3 reports that approximately 350,000 to 400,000
4 pounds of toxic cancer causing - - Hazen and
5 Sawyer report--chemicals are put into the ground
6 in each well. That's what we're looking at having
7 migrate through these fault lines. Notably,
8 though, I want to point out though that one of the
9 points that Wes made, about this 80 percent of all
10 wells that are not even profitable. Wes made a
11 point about the sweet spot being in--

12
13 CHAIRPERSON GENNARO: Right.

14 DAVID BRAUN: --our watershed.

15 That is of great concern, and it's essential that
16 we make sure that the, you know, the DEC expands
17 that. And that, and I think the thing that Eric
18 was talking about, about the point, the point of
19 the drill bit. According to the New York City
20 DEP's letter to New York State DEC, 100 percent of
21 New York City's demand is currently served from
22 our aquifers, underlain by the Marcellus
23 formation. The damage due to mishaps or
24 triggering of uncharted faults to water
25 infrastructure would be irrevocable, permanent.

1 The same applies for upstate counties, there's
2 just too much at stake, development of gas fields
3 through fracking cannot be allowed to happen. And
4 one of the things I want to just mention, as well,
5 is reference to a lot of this fault discussion
6 that we've been hearing, is that we know that
7 communication exists, right, so we know that
8 communication is a term that they've used in
9 drilling, and this has been shown, I think, it was
10 in Alberta, where you drill one well, and you do
11 the fracking there, and then you watch the fluids
12 come up out of another well head. And this is
13 what we're looking to have happen with this amount
14 of pressure, with these fault lines. So, again,
15 just back to the idea of logical people just don't
16 think in these terms. Studies of injection
17 induced earthquakes have recently got started, I
18 know this has been chimed quite a bit today, but
19 we know that, and a link has been found between
20 fracked vertical wells and earthquakes in Oklahoma
21 and the U.K. So much so that the U.K. put the
22 brakes on it. Why are we even considering
23 investigating--I'm sorry, why are we even
24 considering investing further in destructive,
25

dirty, short term solutions like gas, oil and coal, when we should be investing in the production and delivery of sustainable energy.

The bottom line being, if we all know that we need to get to renewable energy, and let's say renewable energy is Boston, even though we don't have a map, I know--let's say I didn't have a map, I know that I need, that I need to head north.

What we're essentially doing by allowing fracking to occur in our state, and by building out these pipelines and all of this infrastructure, is by allowing basically the oil and gas industry to tell us that we get to Boston via Florida, and then maybe Texas, and then maybe Los Angeles, and then maybe Guam, and we'll take a diversion into France or something. But it certainly isn't going north, and we can't allow this to proceed. So, besides opposing the development of gas fields, we should also just stop the construction of the explosive pipelines that bring gas to market, one of those coming in on the west side of Manhattan. So, I'd like to clearly go on the public record saying that, considering all of this, this is completely unnecessary. And should not be done.

1 And I'm sure that history will smile probably on
2 my words. Unfortunately, it won't be smiling
3 because there will be, if this is actually allowed
4 to go through, there'll be intense damage that is
5 done at, and I think serious consequences. So, I,
6 again, would like to thank you for your
7 leadership. And I would like to strongly
8 encourage you to continue your good work. And
9 urge you to step up even further, I think, this
10 kind of awareness campaign that's going on,
11 because some of the language that's been used here
12 today I think is incredibly effective for the
13 people of New York, you know, things like
14 downsides to the health and wellbeing of all the
15 citizenry. And only downsides. No benefit. I
16 think that New York is a very strong City, filled
17 with very strong people, who will support people
18 that are advocating for their best interests. And
19 I think New York City residents also reward their
20 champions. So, I thank you again for, for hosting
21 this, and thank you for allowing me to testify.

23 CHAIRPERSON GENARO: Thank you,
24 David, you're very gracious, I appreciate that.
25 Thank you.

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DEBORAH ZOHN: Hi, my name is--

CHAIRPERSON GENNARO: Yes.

DEBORAH ZOHN: --Oh, Deborah Zohn.

CHAIRPERSON GENNARO: Deborah, yes,
got you right here, I got your statement.

DEBORAH ZOHN: You got my--okay.

Now--

CHAIRPERSON GENNARO: And--

DEBORAH ZOHN: I'm with United for
Action, so I have to apologize for any redundant
remarks that I make, that David's already made.
And I'm going to keep it short. It's incredible
to me that gas companies are allowed to risk the
vital infrastructure and water supplies of every
resident of New York City and upstate New York,
for a finite and backward looking, destructive
energy source. All of the aquifers serving New
York City's and upstate counties, the water demand
is underlain by the Marcellus Formation. All
mishaps or triggering of uncharted faults to the
water infrastructure would be irrevocable. There
is too much at stake for the development of gas
fields through fracking to be allowed to happen.
New York State DEC dismisses the risk of injection

1 induced seismic events because injection wells are
2 separately permitted. Hydraulic fracturing is an
3 injection process. Fracking fluids and seismic
4 events are not going to honor New York City DEC's
5 dysfunctional bureaucratic limitations. Studies
6 of injection induced earthquakes are just, they've
7 just gotten started. And already a link has been
8 found between fracked vertical wells and
9 earthquakes in Oklahoma and the U.K. High volume,
10 horizontal fracturing, is more aggressive than
11 fractured vertical wells, so it makes sense that
12 greater seismic risk can be expected. All
13 counties and municipalities of New York State
14 should seek injunctive relief from irrevocable
15 harm that hydraulic fracturing will cause if it's
16 allowed to proceed. Why are we even considering
17 investing further in destructive, dirty, short
18 term solutions like gas, oil and coal, when we
19 should be investing in the production and delivery
20 of sustainable energy? Would medical device and
21 drug companies be allowed to put their products on
22 the market without thorough testing? The FDA
23 wouldn't allow it. Environmental regulatory
24 agencies, who allow gas companies to drill by
25

1
2 hydraulic fracturing, how can they be allowed
3 without proper testing? That's it.

4 CHAIRPERSON GENNARO: Thank you.
5 Thank you for being here. And, you know, thank
6 you for your perspective. And thank god your
7 perspective is one that's being given great voice.
8 Because this is sadly the world that we live in
9 now. No less than the President of the United
10 States in his State of the Union message has
11 proclaimed frack gas as like the pillar of his job
12 creation strategy, of his economic revitalization
13 strategy, of his energy independence strategy.
14 Smart man, but you know, but yet this is not just-
15 -not everything in the world gets mentioned, like
16 in the State of the Union, like the big ticket
17 items get mentioned in the State of the Union, and
18 those items that are, get to be central to the
19 State of the Union, that are pillars of three
20 different major initiatives going forward, this is
21 what we have. And this is a technology that we
22 all know would not be profitable at all but for
23 its subsidy--it's only profitable if it's, you
24 know, subsidized by the water resources, land
25 resources, air resources, like the pollution has

1
2 to go someplace. And if the people doing fracking
3 had to bear the full cost of bringing this
4 product, you know, to the marketplace, they could
5 never make a penny. It's only economic if like
6 our lungs and our land and our water and our air
7 sort of pay to bring their product to the
8 marketplace. This is, this is just known.

9 However, you know, notwithstanding the President,
10 governors throughout the country, have bought into
11 this in a, you know, very, very big way. And last
12 line of your statement, how could environmental
13 regulatory agencies allow gas companies, they
14 don't just allow it, they foster it.

15 DEBORAH ZOHAN: Oh, right.

16 CHAIRPERSON GENNARO: I mean, this
17 is, you know, they, they promote it. And to the
18 point that, that you know, well respected
19 environmental agencies like DEP at some point feel
20 that they have to, you know, play ball, you know.
21 And these are good people who are looking for ...
22 the best that they can bring the City of New York,
23 and protect our water supply, and--but it is the,
24 it is the pressure of the milieu in which they
25 find themselves, that they believe that this is,

1
2 you know, the, you know, course of action that
3 they have to take. And the, you know, DEP in a
4 way, perhaps reminds me of me, you know, who is
5 trying to ply a cautious and, you know, practical
6 course, that will yield, you know, the best
7 results. But, but god bless the ultimate true
8 believers and true articulators and--and you do
9 your city and your state and your country a great
10 service by, you know, delivering the message that
11 you're--[panel: thank you]--delivering. So I
12 think there is a, there is a, you know, in this
13 discussion there are all, you know, there are all,
14 there's a lot of strata, like, you know, in this
15 discussion for, you know, those who would say, you
16 know, "Thank god we're doing fracking." And, you
17 know, just one of the presidential candidates just
18 said that, they like about it's, about his home
19 state. You know, "Thank god," you know, "for
20 fracking." He talks about God a lot, by the way
21 [laughter] I'll just, you know, and okay. You
22 know. And so there is this, you know, there is
23 this, there is this zeitgeist out there that is,
24 you know, compelling the country like lemmings to
25 sort of like go over the cliff with this. And I'm

unhappy about it, I'm trying to do the best I can.
We're all trying to do the best I can. We're all
trying to do the best we can. But god bless the
noncompromisers, who just speak truth to power and
that's this panel. [laughter]

DEBORAH ZOHAN: Okay, thank you.

CHAIRPERSON GENNARO: So, thank you
for that. I appreciate your being here today.

DAVID BRAUN: And god bless you.

CHAIRPERSON GENNARO: Thank you,
thank you. Okay. And I see Ray Herrera out
there, my friend. Ray, how are you? Okay, good
seeing you. [pause, background noise] I tell you
what we're going to do. Sergeant, what I'm going
to do is just--Oh, no, no. Ooh, whoa-whoa-whoa-
whoa. No. I just have to step out for 30
seconds, but so I just want the panel sworn, but
like no testimony to be given until I get back,
you know. And so, and I think Joe needs some
water.

COUNSEL: Can I find out who's
left?

CHAIRPERSON GENNARO: Yes, you can
do that. Okay.

COUNSEL: Okay. I'm going to call names, on the next panel, and if you're here, please remain because you're next. Joan Davis, Gray Panthers; Robin Thompson Fresh, Royal Society of Arts in the U.S.; Frieda Badlow [phonetic], Community Board Two; John Cass, CALW; and Danielle Gerard, Three Parks Democrats. If you're here remain, you'll be on the next panel. And the final panel, anybody who remains, even if you don't represent a group, if you remain, the Council will hear your comments. I have a number of individuals who signed in and they can certainly offer their comments if they stay. Jennifer Jagen [phonetic], Elizabeth Cohen, Beth Ke--she left, Kelly; Beta Lason [phonetic], she left; Andrew Lawrence; Raymond Iera [phonetic]; and Mary Rupich [phonetic]. If you're still here, you will be on the last panel. [background comment] Okay. Oh, dear. Wow, somebody wrote a book here.

[pause, background noise]

CHAIRPERSON GENARO: [background comment] Yeah, it's just, yeah, he just, he didn't know. Okay. Let me have the slips for

this panel, please. [pause, background noise]

Okay, yeah, if we could have some order. Thank you, thank you. And, oh they're all, they're all, they're all duly sworn, right? Okay. And do we have, we have the same, did you swear them?

COUNSEL: Oh, I didn't swear them.

CHAIRPERSON GENNARO: Okay.

COUNSEL: Would you please raise your right hand? Do you swear or affirm to tell the truth, the whole truth and nothing but the truth today?

PANEL: [assent]

CHAIRPERSON GENNARO: Okay. Great, thanks for all being here, you're all frequent flyers on this, you know, Committee [laughter] and glad that you, you know, got your upgrade to four hours into the hearing. You know what I mean? Just lucky you guys. [background noises] Yeah. And so, yeah, long, long flight. Yeah. And yeah, so folks thanks for being here, and so always a pleasure to be with you. And yeah, so why don't we, why don't we start with Joe, okay?

JOE LEVINE: Thank you.

CHAIRPERSON GENNARO: Sure.

JOE LEVINE: For the, for holding the hearing. And the opportunity, and all your great work.

CHAIRPERSON GENNARO: Thank you.

JOE LEVINE: Attached I submitted that large volume of reports that I submitted to the SGEIS.

CHAIRPERSON GENNARO: Right, this is--

JOE LEVINE: --in January.

CHAIRPERSON GENNARO: This here one, right? Yeah.

JOE LEVINE: That's right.

CHAIRPERSON GENNARO: Okay.

JOE LEVINE: Because those are actually--

CHAIRPERSON GENNARO: Oh, and then you have this other document here.

JOE LEVINE: Yeah, that, too.

CHAIRPERSON GENNARO: Okay.

JOE LEVINE: Yeah.

CHAIRPERSON GENNARO: Okay.

JOE LEVINE: Those are all the reports that back up these statements.

CHAIRPERSON GENNARO: Fine.

JOE LEVINE: And they're relevant to the seismic, seismicity issues. So, 'cause actually I was just interested in that issue, so this is all about that. Seis--so, seismic and migration issues are intrinsically intertwined as they both are inherently related to joints, faults, fractures and liniments, as the Hager-Richter Geoscience Report states. The system of joints and faults, fractures, that make up the structural geology of the Marcellus Shale are considered critical to the understanding, to understanding the tectonic setting. Further comments in the report, I extract below, and this to make the following point. And this is from Hager-Richter. There's no specific safe setback distance that Hager-Richter can recommend, even though the prior phase of the New York State, New York City DEP suggests a seven mile buffer. This information combined with the Robert Jacobi paper that's in their basement faults and seismicity in the Appalachian Basin, correlates seismic activity and migration to the same fault and fracture geology, would mean that migration distances of

1
2 toxic fluids released as a result of fracking
3 through migration pathways, such as faults, joints
4 and induced and naturally occurring fractures,
5 also cannot be predicted. This is certainly
6 suggested by the USGS paper, which has in there,
7 that's documented migration exceeding 50 miles
8 horizontally. There's also the Pavilion, Wyoming
9 report that document plume traveling--

10 CHAIRPERSON GENNARO: Right.

11 JOE LEVINE: --more than 28 miles,
12 etc. So there's documentation of these migration
13 patterns. And Jacobi matches migration with
14 seismicity. Because it all happens in the joints.
15 So if you have active seismic condition, you have
16 active migration patterns. So, they're all
17 intertwined. So when you talk about a distance
18 that might--seismic event can travel, that
19 distance is exceeded by what fluids and gases are
20 able to travel through the same fault and fracture
21 pattern.

22 CHAIRPERSON GENNARO: Right.

23 JOE LEVINE: So, actually, you
24 know, when they talk about this seven mile
25 setback, it's actually totally insignificant, it's

irrelevant, and that's why Richter says, and I quote, "Richter--Hager Richter does not recommend a specific--"

CHAIRPERSON GENNARO: Where are you, Joe, in your, in your thing here?

JOE LEVINE: The last paragraph, on the first page. Of what I just--

CHAIRPERSON GENNARO: Okay, go ahead, go ahead.

JOE LEVINE: Hager-Richter states, "Hager-Richter does not--"

CHAIRPERSON GENNARO: Okay. I'm s--I'm like reading the wrong thing, sorry. Okay, go ahead.

JOE LEVINE: "Hager-Richter does not recommend a specific setback distance herein because one, there are too many uncertainties about site specific, subsurface geological and geophysical conditions in the vicinity in the west of Hudson watershed infrastructure; and two, the condition of the unreinforced concrete line water supply tunnels is unknown. The need for extra caution in the vicinity of the west of Hudson infrastructure is obvious but what constitutes an

1 acceptable level of risk damage to the critical
2 water supply infrastructure is more a matter of
3 policy than geophysics." When the Commissioner
4 answered to that statement made, he, I think he
5 kind of danced around it. As, as a licensed
6 professional, I understand what that, what Hager
7 and Richter are saying, it's not predictable.
8 Seven miles, you know, I can't stand--

10 CHAIRPERSON GENNARO: Right.

11 JOE LEVINE: --behind seven miles
12 being--

13 CHAIRPERSON GENNARO: Right.

14 JOE LEVINE: --a limitation to
15 anything. So, this whole conversation about seven
16 miles or 4,000 feet it's--and when Mr. Appleton
17 left, he said, "25 miles would be something that I
18 would think is more realistic," he's referring to
19 this. You know, that migration happens to those
20 extents, and if migration does happen to those
21 extents, it's into the aquifers and it's into the
22 water supply system. And if you get a seismic
23 event that actually does manage to crack a tunnel
24 lining, the Commissioner's--Caroline, Catherine
25 Kane? I'm sorry.

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CHAIRPERSON GENNARO: Oh, Kim.

JOE LEVINE: Kim.

CHAIRPERSON GENNARO: Kim?

JOE LEVINE: Kim? Kim, I'm sorry.

She--

CHAIRPERSON GENNARO: Yeah.

JOE LEVINE: She said that, you

know--

CHAIRPERSON GENNARO: The

geologist, yeah.

JOE LEVINE: I'm sorry?

CHAIRPERSON GENNARO: Yeah, Kim,

right? Right, Rick, it's Kim. [background noise]

JOE LEVINE: Kimberlee Kane, right.

She said that, you know, if there was a crack and fluids were able to migrate, the quantities would be so minute that it probably really wouldn't be able to do anything. But if you have a seismic event, fluid and gases are traveling in that seismic event. As we see what happens when there are earthquakes and events that are shown on sci-fi movies. So--

CHAIRPERSON GENNARO: Right.

JOE LEVINE: --everything's

traveling with those, and they, and also if you, the recent report in Germany about migration of benzene from methane pipes was seeping out of the pipes, just through osmosis. So, you--and concrete isn't waterproof.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: And it's a wet environment down there. So, it's all fluids, and you're going to have migration of fluids that are just going to go right into the water pipes. Okay.

CHAIRPERSON GENNARO: And what-- what's kind of interesting, and ordinarily I, I kind of wait till the whole panel goes for it, but I'm kind of changing my pattern here a little bit. But Hager-Richter, I mean, one way to look at Hager-Richter would've been to go more restrictive, right, 'cause they're just, 'cause I think what Hager-Richter said is that, "Okay, you know, you had this model where you did the seven miles, which is based on like the length of fractures and fissures, where 90 percent were more than, were like less than seven miles. And I think Hager and Richter is like, "Okay, like we're

not saying that that's invalid, if that's what you want to do, then that's what you want to do.

JOE LEVINE: Hager-Richter makes it clear that--

CHAIRPERSON GENNARO: Right.

JOE LEVINE: --the joint venture said, came up with the number of seven miles. If you read through this whole Hager-Richter thing.

CHAIRPERSON GENNARO: Right. But I think what Hager--Hager-Richter is also saying is that, you know, we don't ... right, they were, we're not going to back you up on seven miles, because there's just like too many unknown here.

JOE LEVINE: It's unpredictable.

CHAIRPERSON GENNARO: Yea, and so it--

JOE LEVINE: You can't say seven miles is okay.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: We could just say that the, the maximum that you think is okay is the political solution.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: The geosciences

solution is another story, and that's not going to be dealt with over here.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: That's what that paragraph says, and I think the whole report doesn't mean anything anymore. If Hager-Richter, who's doing the geosciences on it, isn't willing to stand behind a particular setback. And the reason is because geologists won't stand behind that, and Jacobi, who's done all of those faults and the maps--

CHAIRPERSON GENNARO: Right.

JOE LEVINE: --everybody shows you are done by Robert Jacobi. He talks about migration and seismic events. In fact, his report in there is called "Seismicity and Migration."

CHAIRPERSON GENNARO: Jacobi, where--

JOE LEVINE: Robert Jacobi, it's--

CHAIRPERSON GENNARO: Yeah.

JOE LEVINE: --in the--it's--

CHAIRPERSON GENNARO: He's in your package, right?

JOE LEVINE: It's in my package,

yes.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: So, and there's quotes from Robert Jacobi that's, sound like things like-
-

CHAIRPERSON GENNARO: How does he enter the picture, if I can make a, you know, parade my ignorance here. How did--so he's, his study came from where? Like--

JOE LEVINE: He did, Robert Jacobi's study was done for NYSERDA, for the DEC, for--

CHAIRPERSON GENNARO: Oh, I see.

JOE LEVINE: It was New York State commissioned study, and it was the largest, most significant study done on faulting. He's the, he's the grandfather of the geology--

CHAIRPERSON GENNARO: Oh, okay.

JOE LEVINE: --in the Appalachian Basin and New York.

CHAIRPERSON GENNARO: Okay.

JOE LEVINE: And he's saying that, you know--

CHAIRPERSON GENNARO: That's the

2002 study that's, that's not related to fracking, he just, it's just like a fault study.

JOE LEVINE: That's correct.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: That's correct. It's not related, it's only a geological study.

CHAIRPERSON GENNARO: Right, right, right.

JOE LEVINE: And, you know, if you call him up and want to speak to him, he doesn't really want to talk about fracking. He's staying out of that political conversation, but he'll talk about, you know, migration, and seismic activity.

CHAIRPERSON GENNARO: Yeah, but his work gets fun, you got to be on the big stage, man, you got to like, you know--

JOE LEVINE: He's, he's the guy, somebody should bring him in. But they, they-- everybody paid, the State paid, the DEC paid, NYSERDA paid, they all paid for his study. His study says that it's seismically active all over New York State.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: And in the basin. And

1
2 fault, the fault lines are more extensive
3 condition.

4 CHAIRPERSON GENNARO: Okay, thank
5 you, Jim.

6 JOE LEVINE: Hager-Richter also
7 says in this report, there's not enough
8 geophysical information available to recommend a
9 specific setback distance from the infrastructure,
10 along a fault mapped in the infrastructure in
11 which horizontal drilling and high volume
12 hydraulic fracturing should be barred. Far--
13 that's the last paragraph on the back page.

14 CHAIRPERSON GENNARO: Mm-hmm.

15 JOE LEVINE: I'm just trying to
16 help you move things along here.

17 CHAIRPERSON GENNARO: Right.

18 JOE LEVINE: Horizontal drilling is
19 proposed in the facility, vicinity of the one of
20 the faults across water supply tunnels. Hager-
21 Richter recommends that the detailed site
22 characterization of the proposed drilling site in
23 the area between that location and the west of
24 Hudson watershed be required to demonstrate that
25 faults are not present and the results provided by

1
2 the New York State DEC, and DEP, prior to issuing
3 a permit. So, he's saying that a study has to be
4 done every place where there actually is going to
5 be any drilling, because things are going to
6 migrate and faults and fractures create, also are,
7 have induced seismic activity--

8 CHAIRPERSON GENNARO: Right.

9 JOE LEVINE: --because of hydraulic
10 fracturing.

11 CHAIRPERSON GENNARO: Right.

12 JOE LEVINE: I could go like on and
13 on with these, but I would like--and the, once
14 again, it's documented the, the USGS, 50 miles of
15 migration is documented, and it's documented in a
16 lot of scientific journals. The industry also
17 knows about it. And also, Jacobi says that, "The
18 high concentration of gas in the faults is
19 consistent with why drillers seek out the faults,
20 because this is where hydrocarbons exist in
21 greatest concentrations because the faults provide
22 both a pathway and a collection zone." So, right,
23 this is a void, it's, it's actually doing what
24 they say they're well bore is going to do. They
25 expect everything to run up this well bore. Well,

you know, only 20 percent at maximum is running up that well bore. It's 20 percent recovery from, from an aquifer, from, you know, a reservoir. So, everything else, the other 80 percent, is going everywhere. Now, it's not all released at once, they, the geologists know that as well. It's released over--

CHAIRPERSON GENNARO: Right.

JOE LEVINE: --decades to eons.

However, there's an, there's an explosion, the shale is being shattered. And by the way, whether it's low volume, low volume only means less water, it doesn't mean that it's less--

CHAIRPERSON GENNARO: Right.

JOE LEVINE: --impact.

CHAIRPERSON GENNARO: Mm-hmm.

JOE LEVINE: So they're still setting off the same patterns of migration. And I like to focus on migration, because actually it's the only thing that there isn't an answer for. They could make up stories about whether well bores and casings work--

CHAIRPERSON GENNARO: Right.

JOE LEVINE: --and whether they

1
2 could control the air pollution and all that. The
3 migration that happens when they fracture the
4 shale is uncontrollable, and it's predictably
5 uncontrolled.

6 CHAIRPERSON GENNARO: Right.

7 JOE LEVINE: And you cannot tell
8 where it's going to go, except if you really knew
9 the faults and fractures and migration pathways
10 really well. That's what this stuff says, all of
11 those reports.

12 CHAIRPERSON GENNARO: Right.

13 JOE LEVINE: And they're really
14 like, you know, serious scientists.

15 CHAIRPERSON GENNARO: Sure, sure.

16 JOE LEVINE: And the State knows
17 those guys. You know, so, this whole--

18 CHAIRPERSON GENNARO: But that fact
19 notwithstanding--

20 JOE LEVINE: With that now
21 standing, we're onto a political solution.

22 CHAIRPERSON GENNARO: Right, right,
23 right.

24 JOE LEVINE: We're not into the
25 real sciences. So, if they really want the

sciences, then, you know, there's the science.

CHAIRPERSON GENNARO: Right.

JOE LEVINE: That's my, that's my statement.

CHAIRPERSON GENNARO: Joe, thank you.

JOE LEVINE: You're welcome.

CHAIRPERSON GENNARO: I appreciate that.

JOE LEVINE: You're welcome.

CHAIRPERSON GENNARO: Michael. You have a statement, too, right?

MICHAEL LEBRON: Yes. [pause, background noise] So, good afternoon, Councilman.

CHAIRPERSON GENNARO: Wait, wait, I got your, I got your thing here.

MICHAEL LEBRON: And again thank you for all of your hard and dedicated work on this issue and the work of your staff. And also, thank you to the DEP to help keep New York City's water safe.

CHAIRPERSON GENNARO: Yeah, well, we actually get paid for what we do. Unlike you guys, so--

MICHAEL LEBRON: Don't rub it in.

[laughs]

CHAIRPERSON GENNARO: Yes, I--I have a lot of admiration for you, 'cause I get, I get paid for being here.

MICHAEL LEBRON: All right, for the record, my name is, my name is Michael Lebron, I'm a Board Member of Damascus Citizens for Sustainability, and a Principal of New Yorkers for Sustainable Energy Solutions Statewide. The first paragraph on page 29, of the Hager-Richter technical memorandum, states that there's no geophysical documentation to indicate that the faults mapped and the work supply tones [phonetic] do not extend to the depths of the Marcellus Shale, and similar faulting has been described in the Marcellus and Pennsylvania. While the focus of the technical memorandum is concerned with seismic activity, the same faults, joints and fractures that transverse contiguous geological strata, and that can lead to earthquakes, also serve as transmission routes for migratory contamination. The New York City DEP comments and the Hager-Richter memorandum upon which they rely,

1 concern themselves with what may happen if high
2 volume hydraulic fracturing is to be introduced
3 into the New York City watershed area. But in
4 increasing larger portions Pennsylvania, we don't
5 have to speculate. In Bradford County, multi-mile
6 migration is not an academic fear, it is a
7 reality. Anecdotal evidence continues to
8 accumulate. So I'm going to bring out this map
9 now that you've seen before, and I'm going to ask
10 my neighbor here to do his best Vanna White.
11

12 CHAIRPERSON GENNARO: Yeah.

13 MICHAEL LEBRON: So--

14 CHAIRPERSON GENNARO: Just try to
15 speak into the mic--

16 MICHAEL LEBRON: Okay.

17 CHAIRPERSON GENNARO: --otherwise,
18 so you're recorded.

19 MICHAEL LEBRON: So this is a map
20 that I created over a year ago, and I've been
21 updating at regular intervals since, most recently
22 on Wednesday of this week. And the reason I
23 created this map, private wells have been
24 contaminated by gas mining activity in Bradford
25 County, is because the - - office of the

Pennsylvania DEP told me it did not keep systematic records of that information, that landowners and gas companies did not have to report it. [pause, background noise] So, I just want to refer to two examples, and ... the Pennsylvania DEP has not been able to explain why group of ten water wells near Burlington, which is here, have not been contaminated by within the nearest gas wells five miles away. All right, but the Pennsylvania DEP has stated that a group of gas wells by Chesapeake on the well's property in Tarrytownship [phonetic] are responsible for contamination of nearby water wells, and of the source of methane bubbling from the riverbed of the Susquehanna. The migratory pathway distance from the nearest well to the point of contamination of the riverbed is about two miles. And may be responsible for another point six miles in the other direction. The contaminated water well of a private residence that sits about 500 high on top of a mountain is about three miles out. When I visited that site in the early spring of last year, I saw bubbles coming up through the wet snow that I was standing on. I spoke to Scott

Perry, Director of Mineral Resources in the Pennsylvania DEP in September about remedial action. He said that Chesapeake had been ordered to do a squeeze job and if that failed they would do a wash over. To date, the water wells in the vicinity remain contaminated and are likely included in the federally mandated EPS study that is due to be completed in a couple of years. When asked, Scott Perry would not say whether or not the drilling activity could have stimulated fractures, joints or faults in a way that created migratory pathways autonomous to those well bores. Chesapeake claims they were following the new Pennsylvania regulations to the letter on these wells, yet still had a failure. And I think it's also important to note that many of the problems that they've experienced in Bradford County are, occur before fracking is initiated. Drilling activity in Bradford County is beginning to force many residents to abandon their homes. There is serious talk of creating refugee camps for families and animals. Imagine that. Refugee camps in the United States of America. The problem of course is where would these camps be

located in the face of unrestrained gas drilling. People also continue to become ill. I have been told that most recently there are over 30 in the Rome area, mostly women and children. And recently Carl Stiles [phonetic] passed away. Carl shared his little American dream high on that hill overlooking the - - with his wife and stepdaughter, and were ordered by the doctor to abandon their home one-and-a-half years ago or face likely death from leukemia. Newspaper accounts said Carl died of intestinal cancer. The reality was that Carl took his own life because the acute, chronic head pain was too much for him to continue to bear. Now, I am not a scientist, an engineer, or a doctor. Yes, these health effects are difficult to prove. The numbers are arguably anecdotal. But shouldn't the public ask what standards should be applied so we can somehow identify when the accumulation of anecdotal events represents the beginning of an epidemic? Since industries' own data say that 60 percent of all gas wells fail within 30 years, and since the State of Pennsylvania seems to insist on looking the other way, is it a hyperbole to assert that we

are witnessing a corporate state policy whose net effect is now becoming genocidal in nature? Thank you. Oh, and if I could make two recommendations, actually. One, I would second what other people have said, with regard to at least a ten mile buffer zone from the tip of the well bores; and then also, I would suggest that the City finance its own study in Bradford County to see what's going on. Thank you.

CHAIRPERSON GENNARO: Thank you, thank you, Michael. Buck, just hang on one second. [pause, background noise] Okay. Sorry, I was, was waiting for something, and I didn't know where someone had went or gone. Now, I, now I know.

BUCK MOORHEAD: We want to make sure you're thirst is quenched.

CHAIRPERSON GENNARO: Everything is good. Okay. Okay. Cheers.

BUCK MOORHEAD: Thank you. Buck Moorhead with NYH₂O. Thank you at, very much for everything that you've--

CHAIRPERSON GENNARO: Sure.

BUCK MOORHEAD: --you've been

doing. I want to say I know we're going to, I'm going to make two very specific points, one broad and one--

CHAIRPERSON GENNARO: Do you have a statement, Buck? Do you have a, did you hand in a statement?

BUCK MOORHEAD: It's, it's here.

CHAIRPERSON GENNARO: Oh, fine, okay, no, great, I'll just [crosstalk]

BUCK MOORHEAD: --I figure out where the gaps are--

CHAIRPERSON GENNARO: Yep, good for you.

BUCK MOORHEAD: --from what people-- or tried to.

CHAIRPERSON GENNARO: It's like Eric Goldstein, he does the same thing. Yeah.

BUCK MOORHEAD: Or I was just completely unprepared - - [laughter] In any case, I want to say, I'm going to talk specifically about the City, New York City, but--

CHAIRPERSON GENNARO: Please.

BUCK MOORHEAD: --I want to make it clear that NYH₂O was formed in 2009, was the first

1
2 New York City based citizens group formed solely
3 around hydraulic fracturing, and it was. Specific
4 mission was to, for a statewide ban on hydraulic
5 fracturing. And that, we along with a growing
6 number of groups, still fully support a statewide
7 ban.

8 CHAIRPERSON GENNARO: Right, and,
9 and you heard my comments to the previous panel.

10 BUCK MOORHEAD: Yes.

11 CHAIRPERSON GENNARO: Right.

12 BUCK MOORHEAD: Yes. Understood.

13 CHAIRPERSON GENNARO: Right.

14 BUCK MOORHEAD: So, it's, I have to
15 say it's, it's such a pleasure talking right after
16 Joe and Mike here. Yeah, Joe here is going for a
17 doctorate, I think, in fracturing now. He's got
18 like this book of [laughs] I mean, he's, it's
19 amazing, and Michael's got this on--on-the-ground
20 case study going for a year, year-and-a-half now?

21 MICHAEL LEBRON: Year-and-a-half,
22 yeah.

23 BUCK MOORHEAD: Year-and-a-half in
24 Bradford County. It's not, he's the guy doing it,
25 not, not the county government or the State

1
2 government, is not doing what he's doing. So this
3 is great information. And they're both related to
4 one--

5 CHAIRPERSON GENNARO: We've seen
6 instances like this at, you know, to just get a
7 little parochial, down in Jamaica Bay there was
8 all kinds of professionals doing all kinds of
9 stuff about this, that and the other thing. And
10 nitrogen and da-da-da-da-da. And, and then they
11 had a, there was a, like a local community group
12 that, you know, did all kinds of science like on
13 their own, and, and they, and the professionals
14 were like, you know, taken aback by like the depth
15 and scope of their work and, and their findings
16 were correct and they got all these accolades even
17 though they weren't like professionals. You know,
18 but, they got the job done and they did the right
19 analysis and they did the right research and they
20 had great conclusions. And so, this is not the
21 first time that this is, you know, people just
22 took something upon themselves and, you know,
23 brought forth all kinds of good information at the
24 end of the day. People just had to listen because
25 there it was.

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BUCK MOORHEAD: Yeah.

CHAIRPERSON GENNARO: And so, this is what I wish for you guys.

BUCK MOORHEAD: Yeah, but--

CHAIRPERSON GENNARO: But please, continue.

BUCK MOORHEAD: --listen, one, one follow up, this may have been in Joe's comments, but he, he explained this to me for the DEC was that, that Jacobi study, it's quote throughout the SGEIS, but there's the frac--the map of the existing fractures is not from Jacobi in 2002, it's from 1973. And it's blank. And that's what's in the current, unless I don't think they've changed that yet, right?

FEMALE VOICE: No, they haven't.

JOE LEVINE: Still have not.

BUCK MOORHEAD: Yeah, so I, I owe that to Joe.

CHAIRPERSON GENNARO: Oh, I see, yeah, that's--

BUCK MOORHEAD: You know what I'm saying?

CHAIRPERSON GENNARO: Right, right,

right.

BUCK MOORHEAD: They pulled everything from that study, but that one which was like a smoking gun kind of page, they didn't use that one. 1973 or '75 or something. See, I--I figured Joe would, I figured it might be somewhere in his, his stuff, but--

CHAIRPERSON GENNARO: Sure. Okay, well, I, well, you know, look, yeah--

BUCK MOORHEAD: Okay, so, anyway, I digress, though. So, my two points--and they're related to this issue, and it's, it's related to the, this unpredictable quality that's come up all afternoon with respect to the New York City's water system. There's a science of complexity that is a developed science, and it compares complex systems to simple systems. In simple systems, if you have a small input to that system, you'll get a small output or impact on the system. It's a predictable small--it's proportional. If you have a large input into a simple system, you have a large, predictable impact on that system. Complex, complex systems, such as the City's, this, what a term I heard today for the first time

[pause]

CHAIRPERSON GENNARO: Yeah, it's, you know, the Wall Street Journal wants a quote, I'm like, "I'm sorry, I don't have time," you know.

BUCK MOORHEAD: Anyway.

CHAIRPERSON GENNARO: About something else. You know.

BUCK MOORHEAD: Okay, so, in a complex system, such as a hydraulic, hydrologic regime, which is a term I heard for the first time, in a complex system, you can have very small inputs can have enormous unpredicted outcomes, impacts, on that system. And that's what everyone's been talking about today. This is a complex system, and that's why those folks couldn't predict that seven miles was good or eight miles was good, because they don't know. You can have the smallest input into a complex, ecological system, or a water system, and have an enormous, unpredicted, or as Al Appleton said, catastrophic outcome to that input. And that's why, you know, that's why this, you know, it shouldn't happen, it shouldn't happen. So, that's

1 science of complexity. The second point that I
2 want to make is that, and this, I just heard
3 Commissioner Strickland, he was setting an Eastern
4 boundary on his map, and he was referring to the
5 Marcellus Shale, and he may have made a mis-
6 misspoken, but this DEC report is for all shale.
7 It's Utica, it's everything. If he's looking only
8 at the Marcellus Shale boundary, that's a mistake.
9 'Cause the Utica Shale, it extends eastward into
10 New Jersey, like New Jersey, just in the northwest
11 portion of the Delaware River. So it's east, it's
12 east of the Marcellus, in New Jersey, and I don't
13 know where it goes directly going into New York,
14 but I think it tends to track eastward, so very
15 clearly he should be addressing his comments to
16 the mapping of all shales and his boundaries and
17 such shouldn't have any limit to the Marcellus
18 Shale.

19
20 CHAIRPERSON GENNARO: Well, I mean,
21 they should have the proper delineations, whatever
22 they are, of whatever shale formations that are
23 relevant. I mean, I think there has to be limits.
24 I mean, we have to, have to play as, here's where
25 it is, and that's where it is. If there are

other, you know, shale formations that have to be referenced, and I think they should be, so I--

BUCK MOORHEAD: I don't think they're, I don't think people are thinking like that.

CHAIRPERSON GENNARO: Yeah, I--I just can't speak with authority on like where the Utica goes, 'cause I, I don't know.

BUCK MOORHEAD: It's a, it's a broader--

JOE LEVINE: It's bigger, yes.

BUCK MOORHEAD: It does way north, and--Yeah, anyway, that's--

JOE LEVINE: Buck is correct, the-- that map doesn't reflect the Utica, only Marcellus.

BUCK MOORHEAD: So that would be a mistake in the map.

CHAIRPERSON GENNARO: Okay.

BUCK MOORHEAD: Because they're not going to reregulate this, New York State, they're not going to go back and do this again.

CHAIRPERSON GENNARO: Right, right, right.

BUCK MOORHEAD: For Utica. They're going to rely on this document.

CHAIRPERSON GENNARO: I'm, that's why I'm glad I have these hearings, I always learn a lot, you know. Particularly from you guys, you know.

BUCK MOORHEAD: Thank you.

CHAIRPERSON GENNARO: Okay, thank you, Buck. Mav.

MAV MOORHEAD: Hi. Well, so much--

CHAIRPERSON GENNARO: And Mav, you got to talk right up to the mic. And you have to state your name for the, for the record.

MAV MOORHEAD: Okay. I'm Mav Moorhead, I'm with NYH₂O. And here again talking about radiation. [laughs] If you're ready to hear some more about radiation. I, basically, I've basically gone over radiation at the last hearing, and at the risk of--

CHAIRPERSON GENNARO: The radon.

MAV MOORHEAD: --the radon--

CHAIRPERSON GENNARO: Right.

MAV MOORHEAD: --222 at the risk of being, you know, boring--

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CHAIRPERSON GENNARO: Mm-hmm.

MAV MOORHEAD: --I'm going to go over it again. But only slightly, because we've already gone through it, but let me just re--

CHAIRPERSON GENNARO: Right.

MAV MOORHEAD: The DEP's environmental review dated January 11th of 2012 details many specifics regarding the migration, induced seismic activity, risk to the water supply structure, differential pressure, additional fracture and fault data in the New York City water supply regions and tunnel damage from earthquakes, to name many issues covered. However--

CHAIRPERSON GENNARO: Which is naturally what they would cover, 'cause like that's their thing.

MAV MOORHEAD: That's what they--

CHAIRPERSON GENNARO: You know, it's not their thing to worry about, you know--

MAV MOORHEAD: They don't want to worry about--

CHAIRPERSON GENNARO: -- radioactivity in people's kitchens, you know--

MAV MOORHEAD: Right, but this is,

1
2 yeah--

3 CHAIRPERSON GENNARO: --that's not
4 their deal.

5 MAV MOORHEAD: However, it doesn't
6 address the issue of Radon 222, that is present in
7 highly accelerated level in the Marcellus Shale,
8 which would be distributed to the New York City
9 residents if permits were to be issued in the
10 Marcellus Shale for HVHF. Dr. Marvin Resnikoff of
11 Waste Water Management Services released a study
12 one day before the DEP letter to the DEC was
13 released, on January 10, 2012. His study details
14 the substantial scientific cause and effect of the
15 presence of radon in the gas distributions from
16 the Marcellus Shale. This study was sent to the
17 Commissioner, his study, Dr. Marvin Resnikoff's
18 study, was sent to the Commissioner Strickland on
19 January 24th, well after their letter went to the
20 DEC. This, this particular issue should
21 absolutely be addressed, it's not something that,
22 that can be shoved under the carpet, you know.
23 This extremely relevant issue regarding the
24 Marcellus Shale cannot be dismissed as the
25 Marcellus Shale has two to 32 times the level of

radioactivity of other shales in the United States, relevant to both the DEP and DEC, for their potential findings. Included here, there, I have provided Dr. Resnikoff's study again, along with the Canadian Association, Association of Petroleum Producers Study on Naturally Occurring Radioactive Material, better known as NORM, which discusses the issue of lung cancer associated with radon. There have been a number of studies associating radon and lung cancer, one of which, well upon request I can send to you a copy of Dr. Resnikoff's PowerPoint presentation which details specifically in very good detail as to exactly what that is all about in terms of the radon and hot pipes and all that associated with the radioactivity, that would, we would have to deal with, if this were to go forward. He presented this PowerPoint to the DEC hearing in Binghamton. As well, as well I could send to you the EPA study by Johnson, it's a 1973 study, again addressing the issue of radon in relation to lung cancer, as well as the Department of Energy Study by Gogolak, that was done in 1980. All these studies link radon to lung cancer, a very potent issue. And

1
2 it's an issue that cannot be ignored. And
3 although we're all, we're focusing on what this
4 letter from Commissioner Strickland to the DEC
5 Commissioner Martens, we're focusing on the
6 details that it has focused on. We have not
7 focused on the idea of hot pipes, radiation and
8 the deleterious effects that it could affect all
9 of, let's just say we're talking about New York
10 City, we're in a New York City realm right now.
11 If you think about what could happen with small
12 apartment kitchens, radon coming in, at a rate of
13 two to 32 times the actual level of any other
14 shale, we would all be at risk of lung cancer.
15 And how about, his study focuses mainly on
16 residential units, which would be an average of
17 2.2 persons per unit. He doesn't focus, and I've
18 spoken with him personally, he doesn't focus on
19 the commercial aspect--schools, hospitals,
20 restaurants, you know, where the gas is coming up
21 constantly--he's not focusing on that, he's only,
22 his only focus was on the residential aspect of
23 it. And he stated to me, "Well, basically, in a
24 commercial atmosphere there would be venting, that
25 would pull all the radon out." Okay, so, if the

venting is faulty, it's not inspected properly by the Department of Buildings, if, if, if, if, there's workers working around this all the time. How about the people cleaning pipes that are hot pipes? There's a, there are so many, you know, there's so many issues connected with radon. If you, if you want to say there's going to be more jobs created because of fracking, well how about the people that are going to be cleaning these, these pipes that are hot pipes, we'll give you a job for five years until you die of lung cancer, somehow that doesn't seem to be a good tradeoff. There's a whole issue of, of a health aspect that has to be front and center somewhere in this debate here, because it is such a big one. And if we're trading, you know, the number four and the number six heating oil, for example, which is what Mayor Bloomberg--

CHAIRPERSON GENNARO: Right.

MAV MOORHEAD: If we're trading that--

CHAIRPERSON GENNARO: And me.

MAV MOORHEAD: --for, yeah--

CHAIRPERSON GENNARO: I was part of

that, too.

MAV MOORHEAD: It's, well, if we're trading that, for getting, you know, Marcellus Shale gas, we'd like to know, one thing I'm trying to--

CHAIRPERSON GENNARO: Oh, I was, well, I wasn't, I was part of the four and six and two fuel oil thing, and adding bio-component to it. I'm not telling people to use gas, I just--

MAV MOORHEAD: Yeah.

CHAIRPERSON GENNARO: --knew we had to get rid of foreign, well we had to like get rid of six, and we have to make four cleaner, and two cleaner, which is what we did.

MAV MOORHEAD: Exactly, yeah.

CHAIRPERSON GENNARO: Yeah.

MAV MOORHEAD: But to trade it off for the gas, using that as, you know, the trade--

CHAIRPERSON GENNARO: I wasn't saying that.

MAV MOORHEAD: Oh, I know.

CHAIRPERSON GENNARO: I wasn't saying that. I'm just saying.

MAV MOORHEAD: I know, I wouldn't

1
2 accuse you of that. But it, but that's a, that' a
3 very potent argument that has to be made, and it,
4 the argument has to be front and center, it has to
5 be something that Mayor Bloomberg's off--I've sent
6 this, these studies out to a lot of different
7 offices, different agencies, citywide, statewide,
8 everybody has, like everybody, all the legislators
9 have this.

10 CHAIRPERSON GENNARO: Right, yeah,
11 yeah.

12 MAV MOORHEAD: Everybody has these
13 studies now, but it has to be a talking point at
14 this point.

15 CHAIRPERSON GENNARO: The DEC
16 certainly is aware of the radio issue, it's a
17 question of whether or not they're--

18 MAV MOORHEAD: Going to act on it.

19 CHAIRPERSON GENNARO: --inclined
20 to, to act on it, or--And you know, not, you know,
21 quite the topic of, you know, today's hearing, but
22 very important, and I'm glad you made the point,
23 'cause we're, you know, I'm trying to, you know,
24 stay focused on what I can do regarding like the
25 City's submission regarding the, you know, water

1 supply infrastructure. But, but the whole
2 fracking issue is much bigger than just that, than
3 what we're focusing on today, but it's good to
4 hear that just to remind us of how big this really
5 is. And--yeah. And how weird it was to hear the
6 President in the State of the Union, that was--
7 that was pretty wild. But thank you, Mav. Do you
8 have more on that? Did you want to--

10 MAV MOORHEAD: That's basically it.

11 CHAIRPERSON GENNARO: Okay, okay.

12 So, now, okay, regarding, yeah, and we have all of
13 Joe's stuff here, right, with the Jacobi study and
14 all that. This is, we--and also the point you
15 made, Joe, about Hager-Richter, you know, not
16 doing that recommended setback distance thing.
17 You know, I just looked at it in like a slightly
18 different way, based on what you just said, and I
19 think that this, you know, really creates an
20 opportunity for us to, you know, to use Hager-
21 Richter as a way of being more conservative, and
22 not, and not less conservative. And DEP took that
23 as an opportunity to be like a little, you know,
24 less conservative, saying it's like, you know,
25 Hager-Richter says, "It's about choosing," and so,

you're going to make policy decisions on what kind of risk you're, you know, willing to, willing to take on, and god bless you, you know, but--

JOE LEVINE: I was stunned when I read that.

CHAIRPERSON GENNARO: Yeah. And so, this, this creates a, well we're talking a lot about pathways today, so I think this creates a pathway for us to making a case that, that the level of risk that's, that's, you know, laid out, in the DEP submission, is not the level of risk that the people of the City of New York should be, you know, willing to embrace.

JOE LEVINE: By the way, Hager Richter does represent, refer to the Jacobi reports, as well. In, in this, in this report, in their geo--

CHAIRPERSON GENNARO: I see.

JOE LEVINE: --report.

CHAIRPERSON GENNARO: Okay. good, folks, thanks so much, I really appreciate your coming in today, thank--

MICHAEL LEBRON: And speaking of Pathways, there's one other thing I wanted to

bring to the Council Persons'--

CHAIRPERSON GENNARO: Okay, mm-hmm.

MICHAEL LEBRON: --attention. I know how much of an avid bicyclist you are, and this summer was--

CHAIRPERSON GENNARO: I was, back like, like 40 pounds ago. Yes.

MICHAEL LEBRON: Well, I would like you to invite you to this summer's--

CHAIRPERSON GENNARO: Now, I swim, which is what happens when middle aged guys, like when they gain weight, they all, they all end up in the pool, right, that's where it goes.

[laughter] I see guys my age, and I'm like, "He was probably thin, he was probably thin," I'm like, "You guys are all in the pool," you know, and so, it's great exercise, we're all very buoyant. We, I swim three quarter of a mile like it's nothing, couple times a week, and it's good exercise for me, but yeah.

MICHAEL LEBRON: Well, this is your chance to get back into the swing of things, we're kicking off the first annual Tour de Frac, in the middle of the summer, five days and 350 miles. If

you'd like, I can sign you up.

CHAIRPERSON GENNARO: 350 miles in five days? Oh, pff.

MICHAEL LEBRON: I think so.

CHAIRPERSON GENNARO: I could do that like falling off a log, it's like nothing.

MICHAEL LEBRON: There you go.

CHAIRPERSON GENNARO: Yeah, okay.

Thank you, appreciate that. [laughter] Okay.

Thank you, Michael. And thanks to this panel.

See you at the pool. Okay. [laughter] [pause, background noise] Okay, we have the, has this panel been called yet?

COUNSEL: No.

CHAIRPERSON GENNARO: Okay.

Danielle Gerard, Three Parks Independent

[background comment] Dem--Okay, yeah, Three Parks

Independent Democrats; I can't make out the first

name, but last name Kass, K-A-S-S; Frieda Bradlow

of Board Two; Robin Thompson, Robin Thompson, I

can't make out the last name, Royal Society of

Arts in the U.S. Interesting. Joan Davis of the

Gray Panthers. Okay. [pause, background noise]

Oh, okay, I didn't know you were going to testify.

Let me call Ray Herrera, I'm sorry, I didn't know you were going to testify, sometimes you--you want to testify, you filled out a slip. Okay, where, come on up. Come on up, Ray Herrera. Marian Rupich [phonetic], please come forward, yeah. And, okay, so then, so that'll be this panel. And, and these other folks could make up the last panel, let's just see if people are here.

Jennifer I guess Jaeger or Jagger, Jaeger?

Elizabeth Cohen, Andrew Lawrence? No? Okay. So this will be the, this will be the last panel.

I'm sorry, thank you. And so, you know, we're going to--okay, fine, so we're not going to take any more testimony after this, this will be the last panel. We're going to not swear in this panel, I've just made that decision, I'm the Chairman, I can do whatever I want. And so--

FEMALE VOICE: I swear anyway.

CHAIRPERSON GENNARO: Yeah. Thank you for being here. Thank you for your patience. And I'm grateful to, to hear your testimony. We'll start from my left to my right, and we'll start with this young lady. And just state your name for the record, and proceed with your

statement.

DANIELLE GERARD: My name's
Danielle ...

[background comment]

CHAIRPERSON GENNARO: Oh, okay.
Did you provide a prepared statement?

DANIELLE GERARD: Yes.

CHAIRPERSON GENNARO: Okay. Do we
have the statement?

COUNSEL: Right here.

CHAIRPERSON GENNARO: Okay, great.

DANIELLE GERARD: My name's Dan--

CHAIRPERSON GENNARO: Please
proceed.

DANIELLE GERARD: My name's
Danielle Gerard, I'm the President of Three Parks
Independent Democrats, we're an Upper West Side
Political Club, covering 96th to 110th from
Riverside to Central Park West. Mr. Chairman,
Madam Council, thank you for this opportunity for
Three Parks to comment on the DEP's study of the
DEC Revised Draft Supplemental Generic
Environmental Impact Statement, and in favor of a
statewide ban on fracking. It is out position

that by exempting the New York City and Syracuse watersheds, state lands and other primary aquifers from gas drilling by hydraulic fracturing, the RDS GEIS admits fracking cannot be done safely anywhere in New York. And it's not even much of an exemption, horizontal drilling could still reach areas adjacent to the watershed, and affect tunnels and other infrastructure as the DEP contracted study amply demonstrates. Moreover, the RDS GEIS does not fully cover the hazards of fracking. For example, the DEP study underscores the absence of "detailed, site specific geophysical data," and RDS GEIS statements that are "not consistent with recent evidence of HVHF induced seismic events." Three Parks has specific comments regarding DEP's study and the cover letter. Number one, in December 2011, we met with Governor Cuomo's staff who told us that the State had not conducted any studies to determine how long New York City might have to go without water under various scenarios, including pipes being broken by blasting or seismic activity, water being poisoned or filtration plants becoming necessary. Staff also told us that there was no

financial guarantee that a polluter could pay to cover any damages if contamination occurred to New York City water or any other water supply in the State. Number two, but you'll note that Commissioner Strickland's letter clearly states, "Given the fact that almost half the population of New York State relies on New York City's unfiltered water supply, nobody, including the drilling company, the State or other responsible entity, could provide an alternate supply of potable water while the contamination was addressed." Has the State now studied the question of how many people might be left without water and for how long. How much insurance a driller will be required to have. We hope you asked the Governor's representatives these questions, because we need look no further than Dimock, Pennsylvania, where deliveries of potable water to eleven families were halted in November after three years. In January 2012, the EPA began to provide water but may stop, depending on the results of its own testing. And this begs another question, does the Governor believe there is a number of people that it would be acceptable to

poison in the name of extracting gas from the Marcellus Shale? Number three, the Governor's Office also told us there was an advisory panel set up to review staffing needs of the DEC and other agencies that would have responsibilities regarding fracking. We asked if permitting could begin without the monitors being in place, and we were told there was no way to comment on the advisory panel. But in 2008, that's the last year for which we have statistics, the DEC had 19 staff people to police over 13,000 existing conventional gas wells. How could the DEC possibly adequately monitor these and the proposed thousands of fracking wells? And although the Governor's staff told us that the DEC would issue regulations sufficient to protect New York State from "realistic" accidents, he had no sense of what realistic risk would entail. Number four, the DEP study before you today does not recommend a specific revised setback from the infrastructure beyond the buffer zone in which horizontal drilling and high volume hydraulic fracturing should be barred. Instead, it clearly states, as you've heard before, "What constitutes an

acceptable level of risk of damage to the critical water supply infrastructure is more a matter of policy, not geophysics." Three Parks asks the Chairman and this Committee to urge Governor Cuomo to determine policy by keeping his campaign promise to "not support any drilling that would threaten the State's major sources of drinking water." That should mean all sources of drinking water. It would violate plain common sense for the Governor to approve fracking, or for any legislator to vote in favor of it. In closing, Three Parks would like to remind this Committee that we are not the policy people, but Democratic Party volunteers who stand on street corners and its subway stops, handing out leaflets when Democrats run for office. As the 2000 letters submitted with our November 2011 DEC testimony show, and copies of most of which have been submitted to this Committee on previous occasions, Governor Cuomo's constituents clearly want him to ban fracking now. And I just want to add on a, on a personal note, that I'd like to thank you, Member Gennaro, for your leadership on this issue. Because there are a lot of problems in the world,

2 and sometimes we wake up in the morning and we
3 don't know if we want to save the children from
4 abuse or if we want to close Indian Point or if we
5 want to save social security or if we want to ban
6 fracking in New York State. And a whole host of
7 other issues, and to have you working so hard on
8 this one, this is the third time that I've come
9 before this Committee. It's a pleasure to have
10 your leadership and we're counting on you to make
11 the rest of our voices heard.

12 CHAIRPERSON GENNARO: Thank you,
13 thank you, I'll certainly do my best. I think the
14 Governor cares more about what you say than what I
15 say, but I'm one person, but you know, so many
16 people coming for--but we will--I'm trying to do
17 my best to, you know, within challenging
18 circumstances, to make a real difference and have
19 sanity prevail. And I hope I'm successful in
20 doing that.

21 DANIELLE GERARD: We hope so, too.

22 CHAIRPERSON GENNARO: Okay, thank
23 you, thank you. Ms. Davis. Yeah, just please--

24 JOAN DAVIS: Thank you.

25 CHAIRPERSON GENNARO: Say your name

for the record and commence.

JOAN DAVIS: My name is Joan Davis, and I'm with the Gray Panthers. And you, on previous occasions, one of your constituents, Shu Ho Lin [phonetic] has provided testimony--

CHAIRPERSON GENNARO: Oh, yes.

JOAN DAVIS: --and my--and so she's in your district, she sends regards. I am not going to give evidence, other people have done it and I have gotten more than an education this afternoon in hearing other people speak. And I intend to listen very carefully on it. I want to represent the opposition, what the people, what some people think. I'll read it. "Gray Panthers are here today to protest the blatant disregard for facts by those who wish to approve the practice of hydrofracking in the State of New York. Millions of years have gone by, gone into the making of the land on which we as a species have developed and thrived. And in the few short years since the beginning of the industrial revolution, we have polluted, upset ecosystem and ruined the health of our planet and the people on it. The proposed drilling would have us measure

1 success in life in terms of money, instead of in
2 terms of health and wellbeing. It is stupid and
3 misguided. No amount of manipulated arithmetic
4 can overcome the facts, and we heard some of that
5 this afternoon. And enough facts have been
6 presented to indicate that hydraulic fracturing is
7 unsafe; therefore, the proposed gas drilling
8 should not be allowed to go forward. We are
9 worried about shortsighted business persons
10 getting a go ahead at the expense of the public.
11 This is unacceptable. Our modern technology is
12 sophisticated enough to harness the sun's power
13 and wind and thermal, as well. Alternate energy
14 other nations have proved that, that alternative
15 energy is the way of the future. Our government,
16 our government has been subsidizing the fossil
17 fuel industry for too long. It's become a very
18 bad habit. Instead of this foolishness, we need
19 to subsidize renewable energy. Even in the short
20 term, this would prove financially stable. Modern
21 technology could create enough jobs and prosperity
22 to take us out of the current economic malaise.
23 Then we would not have to listen to the lies of
24 the fossil fuel industry. We need not throw away
25

precious water and agricultural land for a technology which, which indeed, which gas drilling will soon be, which will soon be seen as insufficient; indeed, gas drilling will soon deplete the land and has, and will be seen as prehistoric. The Gray Panthers say unequivocally: gas drilling is untenable. And we thank you for listening to this and we thank you for your work from the bottom of our hearts, because we cannot lose this, if we lose it we're cooked. [laughter] Oh, I mean, I didn't plan a pun, but that's it.

CHAIRPERSON GENNARO: Right, right, no, thank you. Thank you, Joan. That's well said, well said, thank you. Mr. Herrera.

RAY HERRERA: Jim, first I want to commend you for your, your tenacity on staying on this, on this issue. You're doing a hell of a job and--

CHAIRPERSON GENNARO: Well, you know--

RAY HERRERA: --we all appreciate it.

CHAIRPERSON GENNARO: We don't win until the ball's in the end zone, you know, and

1 just--

2 RAY HERRERA: Well, we got to get
3 the fat lady to sing or something.

4 CHAIRPERSON GENNARO: I'm, you
5 know, until the ball's in the end zone, it's like,
6 because they don't pay off on effort, they pay off
7 on results, right? It's just like, it's a common
8 misconception of government, it just--

9 RAY HERRERA: Well, I'm convinced
10 that if you keep on--

11 CHAIRPERSON GENNARO: --you know,
12 look at all the effort that we're doing. Well,
13 effort doesn't matter, it's just--

14 RAY HERRERA: Well, I don't--

15 CHAIRPERSON GENNARO: --results
16 matter. And so--

17 RAY HERRERA: --you keep that, you
18 keep that effort up, I think we're going to be in
19 the end zone, so.

20 CHAIRPERSON GENNARO: Yeah, so,
21 that's what I hope, too, Ray.

22 RAY HERRERA: I, I'm here as an
23 individual citizen, I'm not representing any
24 organization, but I, I hope I'm representative of
25

1
2 thousands of other individual citizens, ordinary
3 citizens, with an ordinary amount of common sense.
4 I'd like to just read you my remarks, and--

5 CHAIRPERSON GENNARO: Please.

6 RAY HERRERA: Commentary regarding
7 hydrofracking has typically become fraught with
8 hedge words, like risks, potential dangers and so
9 on, that simply dilutes and diminishes the reality
10 resulting from this most invasive and destructive
11 practice. Simply put, there are well beyond mere
12 risks, inevitable consequences, that will result,
13 in fact, from hydrofracking. It was reported in
14 the winter 2009 edition of the magazine of a great
15 conservation organization called Trout, Unlimited,
16 that three to nine million gallons of water per
17 well are required to release the gas from the
18 shale. Considering that thousands of wells have
19 been contemplated, even if hydrofracking is
20 prohibited within the New York City watershed
21 itself, this requirement is bound to decimate
22 water sources well beyond and outside of New York
23 City's Catskill Watershed. Water resources must
24 be recognized as the result of networks of
25 countless springs, aquifers, freshettes

[phonetic], streams, brooks and rivulets, that do not observe manmade boundaries of watersheds or even state parks, as they converge into larger and more visible and more accessible rivers and waterways. The Catskills' water resources will be decimated. That's on the takeout side.

Notwithstanding the most rigorous amount of environmental regulation, the volume of discharge of contaminated water from the fracking process, on the scale contemplated, cannot effectively be treated or contained. Cannot. Even if such regulations are followed to the letter, which is at least questionable, and will return to the myriad aquifers, wells and streams from which drinking water had heretofore been drawn, as poisonous and inflammable liquid, as evidenced in the documentary film, "Gasland," in which ordinary tap water was easily able to be ignited by a single match, held to a homeowner's kitchen faucet. With the decimation of the water supply and the inevitable pollution of land and water resources, will come serious health issues to the populace, as has been clearly mentioned here many times before. As well as the degradation of the

Catskill Mountains' ecosystem at large. As has happened in Pennsylvania and elsewhere, again as documented in "Gasland." And more recently, in the 11/20/11 New York Times Magazine article, "Situation Normal, All Fracked Up." The wells, the detention pits, and the makeshift roadways that will be carved into the landscape to access the wells will be ruinous to an area that has been the historic domain for agriculture, woodlands, flora, fish and fauna, that have been the essence of the Catskill region. The above are the inevitable dire consequences that experience has shown will result from the effort to extract an enormous amount of energy resource from under the Catskill region. Which effort has become a virulent, intensely lobbied juggernaut, in pursuit of great wealth. Problem is, that the juggernaut notwithstanding, the New York Times reported in its June 26, 2011 edition that some energy company executives themselves, even while touting their bullishness on the riches of natural gas exploration and other extractions will create, are internally expressing reservations and doubts about the vaunted huge returns fracking will

bring, as wells expire quicker than anticipated, among other concerns. And as they expire, who will clean up the mess that energy companies will leave when their return on investment fails to materialize as planned. And those companies may indeed just declare bankruptcy and go away. And then who will pay for the cleanup? You know who will pay for the cleanup. The message to the Department of Environmental Conservation, the City Council, the State Legislature and the Governor should be clear and unmistakable. The creation of short term, purported economic gain notwithstanding, until such time as alternative, nontoxic procedures are developed for the extraction of natural gas, do not permit hydrofracking anywhere in the Catskill region, in the State at all. In the meantime, until that nontoxic technology should come into being, we can live without the gas. We can't live without water. Thank you for the opportunity to say this.

CHAIRPERSON GENNARO: Hear, hear, Ray, well, well said. It's like, it's like poetry, thank you. You know, it's--god bless. Okay. But you guys, stay there, I'm going to have

2 questions for the panel. And so, [crosstalk]
3 Marian, you have the--Oh, right, Mary Elizabeth.

4 MARY ELIZABETH: M.E.

5 CHAIRPERSON GENNARO: M.E., yes.

6 [background comments] Nice to see you again,
7 Mary.

8 MARY ELIZABETH RUPICH: Wonderful
9 to see you.

10 CHAIRPERSON GENNARO: Welcome to
11 have you back here--

12 MARY ELIZABETH RUPICH: Thank you.

13 CHAIRPERSON GENNARO: --and you
14 have the last word. And so--

15 MARY ELIZABETH RUPICH: Oh, my
16 goodness.

17 CHAIRPERSON GENNARO: --yeah, you
18 have the last word.

19 MARY ELIZABETH RUPICH: It's a
20 great privilege, thank you. Thank you for your
21 patience.

22 CHAIRPERSON GENNARO: So please
23 state your name--yeah, so please state your name
24 for the record and proceed with your good
25 statement.

MARY ELIZABETH RUPICH: My name is Mary Elizabeth Rupich, and I thank the panel and your wonderful work and your tireless efforts. And Bill, I know you're working really hard, too. And thank you, everyone, just listening to me. I'd just like to start with a testimony I witnessed recently. I was visiting my family in Wheeling, West Virginia, for the holidays. And the house seemed to shake a little bit. And we looked up at the Christmas tree and the angel on top of the tree was going back and forth. And the next morning, we realized that there was an earthquake, and it was told to us that it was caused by the gas drilling. It was confirmed. And that was, that was in Youngstown, Ohio, you probably heard of that.

CHAIRPERSON GENNARO: Right.

MARY ELIZABETH RUPICH: And that we felt it all the way in Wheeling, West Virginia. So, I can testify to that personally. And also, Governor Cuomo, if you can hear me, I respectfully submit to you today, I wish to present to you the ghost of drilling and mining past, drilling and mining present, and future. I present to you the

1 people, the people of Ohio, Pennsylvania, and my
2 home state, West Virginia. Yes, we remember a
3 time when we could still drink from our springs,
4 we remember the day we, they came to town offering
5 safe and effective mining methods, and there soon
6 after the day our stream turned to copper.

7 Currently, our neighbors and families and friends
8 who experienced all that you see, and it was
9 presented here with "Gasland" and all the
10 testimonies, we're living it. And that can be
11 your future. And it's my belief that such methods
12 as hydrofracking are just a fast track to complete
13 impoverishment. We in New York City hold
14 tremendous wealth. How many major metropolitan
15 cities have a water source such as ours? Our
16 watershed is the ultimate trust fund, which is
17 ever increasing in value. And if you look from a
18 world view, so goes the water, so goes the
19 civilization. Isn't that true? And by extracting
20 one resource only to desecrate another, so
21 corrupts our health and wealth, will we allow the
22 incremental corrupting of our words of law that
23 protect us? Bending the legislation, suffering a
24 virtual death by definition. Yes, the ghosts are
25

1
2 whispering to you, "Remember Matewan, Remember
3 Matewan." Meanwhile, back in Ohio, the headlines
4 ring "Gas Drilling Causes Gold Rush Atmosphere,
5 Gas Drilling Exempt from Federal Acts, Marcellus
6 Shale May Hold Less Gas Than Thought, Gas Well
7 Causes Earthquake in Youngstown." And currently
8 in Marshall County, West Virginia, a gas well fire
9 probed, as Consol Energy presents a charitable
10 donation to the local fire department. January 16,
11 2012, "Water customers may see rate hikes," as a
12 local editor exclaims, "Leave those drilling rules
13 alone." So what I'm displaying to you and I see
14 the tremendous work, especially Riverkeeper, I
15 commend them, the science is there. The science
16 is there. So, why, you know, the task at hand
17 that you have, and I mean, every time I go home,
18 these, I have a whole bag full of newspaper
19 clippings, people come to me, "Please, please show
20 us this to New York," because they look to New
21 York. And what can we do? And I say, "Let's look
22 at it sort of analogically, ontologically, so they
23 mention Dante, they've mentioned Shakespeare, like
24 all the world's a stage, definitely in politics.
25 But let's bring it about in a way that we can move

1 the people now, and show them, and one area, and
2 we look, you know, talking about theater, we look
3 at, there's always a motivation before the action.
4 And I say, you know, you follow the money trail,
5 but what about the patent trail? I'd like, I
6 would urge you to maybe investigate some of the
7 patents held by these companies, and you could
8 probably predict their motivations. And maybe
9 that can explore a new way for you, to bring about
10 new thoughts, because I believe, you know, you've
11 mentioned before the paradigm of thought. I think
12 that's, that's the issue here, too, for you. And
13 usually, in theater, the paradigm of thought
14 shifts only through tragedy and comedy. And I see
15 both here, it's comical, these headlines, but also
16 very tragic. So, so goes the water along the
17 stream, the same just, stream that my 91 year old
18 grandmother defended way back then. She still
19 resides today along the end of a long row of
20 homes, and all those homes, out of all of them,
21 she remains the last holdout. She refuses to sign
22 with the hydrofrackers. So I applaud her today.

24 CHAIRPERSON GENNARO: Good for her.

25 MARY ELIZABETH RUPICH: Grandma, we

1 love you. And she sends her regards. And she
2 sits in the kitchen, and she's cut out many of
3 these articles that I would like to bring to your
4 attention today. And just about, around the bend,
5 there is another voice, and the voice said, we can
6 barely hear, because it's the voice of the poor,
7 and that's usually where they dump all the toxic
8 waste. And the children, yes, they're getting
9 very ill. And you know, it's poor, it's
10 Appalachian poor, and I really hope that New York
11 does not suffer the same fate. There are many of
12 those who look to New York as the Empire State,
13 for leadership. And let us set a new precedent,
14 and I urge you to move forward strongly, and
15 boldly. And so goes the water, so goes the
16 empire. Thank you.

18 CHAIRPERSON GENNARO: Thank you.
19 Thank you, Mary Elizabeth, and thank you to this
20 panel. This is, this is sort of like the panel of
21 inspiration, let's say. And every panel has its
22 special quality. And we certainly appreciate
23 everyone being here. And also giving me and
24 giving this panel, giving this City Council
25 Committee, giving us ideas that we can, you know,

1
2 use to, to take our next step. Which would then--
3 and we talked about a little bit about that today.
4 And so we will be doing something from the
5 Council. Whether it's the Council as a body or
6 from me as Chairman, or whatever, but we're going
7 to figure out a way that we can try to see if we
8 can make a, you know, certain characterization of
9 DEP's document about how we, we don't want to see
10 the backtracking, and we're going to use some of
11 the science, as we put forward today, to argue for
12 something stronger. I think it's very important
13 for the, you know, people in state government to
14 know how deeply committed the people of the City
15 of New York are to this issue. And, and we'll
16 continue to speak out and I would like to use this
17 Committee and this Council as like a, as a forum
18 for people to be able to speak and for, you know,
19 we as members of this Committee and this Council
20 to, you know, formulate, you know, some kind of
21 communication, some sort of statement. We've done
22 statements, we've done resolutions, we've done
23 comments, we've done--but certainly we're going to
24 stay in the arena, and in the information we put
25 forward, will be put forward by all the witnesses

1
2 that came forward in good faith today. And I can
3 only hope that it'll make a difference. You know,
4 I can only hope so. So, there's good people at
5 DEP, we want to help them. You know. Help them
6 make the good case that needs to be made and I
7 certainly sympathize with, with, you know, the
8 place that they find themselves in, you know, kind
9 of like under the thumb of government, under the
10 thumb of state government. And, and we're going
11 to try to do the best we can. And I'm, and as we
12 get into the fifth hour of the hearing, I'm losing
13 my ability to speak in coherent sentences, you
14 know. Which is, which I'm not too good at like
15 even at my best. But I'm, but I want to thank the
16 staff of the Council and all the witnesses,
17 particularly those that stayed like late in the
18 game, you know, to bring forward good information.
19 And I promise you that all of your effort that
20 went into you being here today will not be in
21 vain. We've done some pretty good things so far,
22 and we're going to--Yep.

23 JOAN DAVIS: Keep working.

24 CHAIRPERSON GENNARO: We're going
25 to keep pushing. And, and thank you very much for

being here. So, with that said, at this late hour of, you know, dinner time, whatever, this hearing is adjourned.

[gavel]

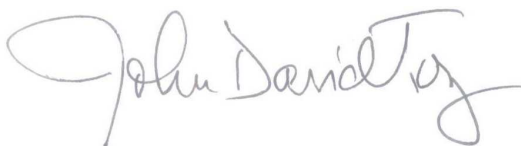
[Part 3, background noise]

COUNSEL: Now? Okay, for--also submitted for the record from Community Board Two, the Chair Jason Mansfield submitted comments; from Community Board One, Catherine McVeigh, Chairperson of Community Board One submitted comments; Elizabeth Kelly submitted comments for Coalition for a Livable Westside; Bakja Litun [phonetic] submitted comments for the Women's City Club of New York. We received comments from Arden Down [phonetic].

C E R T I F I C A T E

I, JOHN DAVID TONG certify that the foregoing transcript is a true and accurate record of the proceedings. I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

Signature

A handwritten signature in cursive script that reads "John David Tong". The signature is written in dark ink and is positioned above the date line.

Date February 13, 2012