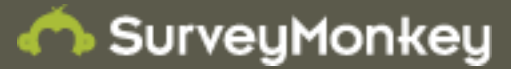


# Nov. 19th GSPH Shale Gas Conference Evaluation



## 1. We'd like to have your opinion about the aspects of the University of Pittsburgh Graduate School of Public Health's shale gas conference.

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	N/A - Did not attend	Rating Average	Response Count
The presentations were clear and easy to follow.	1.4% (1)	0.0% (0)	13.0% (9)	<b>46.4%</b> <b>(32)</b>	36.2% (25)	2.9% (2)	4.19	6
The conference met my expectations.	5.8% (4)	7.2% (5)	14.5% (10)	29.0% (20)	<b>40.6%</b> <b>(28)</b>	2.9% (2)	3.94	6
The sound system and projectors made it easy to follow the presentations.	2.9% (2)	1.4% (1)	1.4% (1)	37.7% (26)	<b>52.2%</b> <b>(36)</b>	4.3% (3)	4.41	6
The speakers presented information in an unbiased manner.	5.7% (4)	8.6% (6)	24.3% (17)	<b>37.1%</b> <b>(26)</b>	21.4% (15)	2.9% (2)	3.62	7
The presentations provided valuable new information.	4.3% (3)	1.4% (1)	12.9% (9)	<b>44.3%</b> <b>(31)</b>	34.3% (24)	2.9% (2)	4.06	7
The conference contributed to the research and knowledge base of shale gas drilling.	4.3% (3)	2.9% (2)	11.4% (8)	34.3% (24)	<b>44.3%</b> <b>(31)</b>	2.9% (2)	4.15	7
<b>answered question</b>								7
<b>skipped question</b>								

**2. Please rate the quality of the morning presentations/speakers. If you did not attend the conference or missed a particular speaker's presentation, please skip the question.**

	Poor	Below Average	Average	Above Average	Excellent	Rating Average	Response Count
“Health and Safety Considerations in the Extraction of Fossil Fuels” (Bernard Goldstein, MD)	1.9% (1)	1.9% (1)	16.7% (9)	<b>50.0% (27)</b>	29.6% (16)	4.04	54
“Inorganic Geochemistry of Marcellus Shale Hydrofracturing Waters” (Carl Kirby, PhD)	0.0% (0)	0.0% (0)	33.9% (20)	<b>40.7% (24)</b>	25.4% (15)	3.92	59
“Trace Metal Chemistry of the Marcellus Shale” (Tracy Bank, PhD)	1.7% (1)	5.0% (3)	30.0% (18)	<b>31.7% (19)</b>	<b>31.7% (19)</b>	3.87	60
“Unconventional Gas Extraction in Legacy, Energy Production Landscapes: Uncertainties in History, contamination, and Interactions” (Dan Bain, PhD)	6.6% (4)	3.3% (2)	<b>39.3% (24)</b>	34.4% (21)	16.4% (10)	3.51	61
“Water Management Challenges in Marcellus Shale Gas Production” (John Veil)	7.9% (5)	11.1% (7)	<b>36.5% (23)</b>	31.7% (20)	12.7% (8)	3.30	63
“Long-Term and Cumulative Assessment of the Impact of Marcellus Shale Drilling” Michel Boufadel, PhD, PE, PHydro)	4.7% (3)	10.9% (7)	20.3% (13)	<b>34.4% (22)</b>	29.7% (19)	3.73	64
Conversation with participants about the gaps in the science and future directions from the morning speakers (Radisav Vidic, PhD, PE)	9.8% (6)	18.0% (11)	<b>31.1% (19)</b>	29.5% (18)	11.5% (7)	3.15	61
						<b>answered question</b>	<b>65</b>
						<b>skipped question</b>	<b>7</b>

**3. Morning Sessions - In the box below, please list any questions or research gaps based on the morning presentations and conversations that you would like included in the conference proceedings:**

	<b>Response Count</b>
	18
<b>answered question</b>	<b>18</b>
<b>skipped question</b>	<b>54</b>

**4. Please rate the quality of the afternoon presentations/speakers. If you did not attend the conference or missed a particular speaker's presentation, please skip the question.**

	Poor	Below Average	Average	Above Average	Excellent	Rating Average	Response Count
"Air Quality Monitoring Strategies" (Robert Field, PhD)	1.7% (1)	5.0% (3)	23.3% (14)	<b>43.3% (26)</b>	26.7% (16)	3.88	60
"Addressing Combined Effects of Air Pollution and Social Stressors Exposures on Health in Communities Affected by Natural Gas Fracturing" (Jane Clougherty, MSc, ScD)	1.7% (1)	1.7% (1)	16.7% (10)	<b>45.0% (27)</b>	35.0% (21)	4.10	60
"Short-Term Air Quality Impacts from Marcellus Shale Operations in Southwest PA" (Nick Lazor)	1.8% (1)	3.5% (2)	38.6% (22)	<b>42.1% (24)</b>	14.0% (8)	3.63	57
"Use of Health Impact Assessment (HIA) to Help Inform Decision Making Regarding Natural Gas Drilling Permits in Colorado" (Roxana Witter, MD, MSPH; John Adgate, PhD; and Jim Rada)	3.5% (2)	8.8% (5)	24.6% (14)	<b>43.9% (25)</b>	19.3% (11)	3.67	57
"Spatial Data Infrastructure for Evaluating the Health Impact of Gas Well Drilling in North Texas" (David Sterling, PhD, CIH)	0.0% (0)	9.8% (5)	31.4% (16)	<b>45.1% (23)</b>	13.7% (7)	3.63	51
"Research Methods and Results of the Baseline Socioeconomic Study of the Impact of Marcellus in Pennsylvania" (Teri Ooms)	4.3% (2)	6.5% (3)	23.9% (11)	<b>45.7% (21)</b>	19.6% (9)	3.70	46
"How Should We Think About the Economic Consequences of Shale Gas Drilling?" (Susan Christopherson, PhD)	4.7% (2)	2.3% (1)	4.7% (2)	34.9% (15)	<b>53.5% (23)</b>	4.30	43
Conversation with participants about the gaps in science and future directions in research (Conrad Dan Volz, DrPH, MPH)	5.3% (2)	7.9% (3)	28.9% (11)	<b>39.5% (15)</b>	18.4% (7)	3.58	38
<b>answered question</b>							<b>63</b>

**5. Afternoon Sessions - In the box below, please list any questions or research gaps based on the afternoon presentations and conversations that you would like included in the conference proceedings:**

	Response Count
	16
<b>answered question</b>	<b>16</b>
<b>skipped question</b>	<b>56</b>

**6. Additional comments on the University of Pittsburgh Graduate School of Public Health's shale gas conference:**

	Response Count
	40
<b>answered question</b>	<b>40</b>
<b>skipped question</b>	<b>32</b>

**2. Morning Sessions - In the box below, please list any questions or research**

**Response Text**

1	Dr. Boufadel presented compelling evidence that we need to know more about the transport and mobility of MS contaminants before we can design safe monitoring. I thought he was clear in saying we need more research into prevention since monitoring is minimally effective and too late for preventing a tragedy.	Nov 30, 2010 5:18 PM
2	Veil had no business making some of the comments he did about New York State. He is an industry shill, and did not belong on the agenda.	Nov 30, 2010 5:24 PM
3	I wonder whether there is any basic biology research on the effects of hydraulic fracturing contaminants tested in classic environmental exposure mode such as Ames tests. Also any controlled testing of mixtures to which organisms are exposed in the natural setting tested in a laboratory environment, such as Tyrone Hayes' work on atrazine contamination of ponding water with frogs.	Nov 30, 2010 5:44 PM
4	I'm wondering if anyone is beginning epidemiological research with people living near gas drilling areas; is there a cohort study somewhere? I may have missed this info at the conference. I know there are some individuals who are following this issue, but not sure about any large, NIH-funded studies.	Nov 30, 2010 6:01 PM
5	Most of these speakers did not address human health impacts. 1) Exposure impacts on workers? To me (as a Occupational Medicine Physician), this is the key item, and the chemicals used and reactive chemistry occurring underground remain a mystery. 2) Impacts on drinking water, and health impacts of those changes? 3) Other human health impacts?	Nov 30, 2010 6:17 PM

## 2. Morning Sessions - In the box below, please list any questions or research

Response Text		
6	More information on well casing, risks and hazard mitigation of flowback waters if well casing fails in the life cycle of hydraulic fracturing.	Nov 30, 2010 6:27 PM
7	More information about efforts needed to fill data/information gaps. Link topics to potential public health outcomes.	Nov 30, 2010 8:01 PM
8	<ol style="list-style-type: none"> <li>1. Dr. Goldstein brought out some great points -- especially how public health is rarely part of the studies on "environmental effects"</li> <li>2. I expected Veil to talk more about challenges rather than industry solutions.</li> <li>3. Boufadel's illustrations were excellent.</li> </ol>	Nov 30, 2010 8:59 PM
9	Goldstein's off-the-cuff unprepared remarks added nothing to the conference but his arrogance. Vidic's Q & A was a waste as few were able to raise Q's.	Nov 30, 2010 10:41 PM
10	I'm concerned about the disparity of environmental protections afforded the western counties of PA compared to that of the central and eastern regions. The Delaware River and Susquhanna River Basin Commissions seem to exert more responsible legislation and enforcement than does the Ohio River Sanitation Commission. Why is that? Should not the protections be state-wide? And, if not, why not?	Dec 1, 2010 1:10 AM
11	What type of health effects can we expect from all the contamination? What do these heavy metals do to a body over time?	Dec 1, 2010 1:21 AM
12	I know it was a scientific conference but as the public was invited I feel that the scientist could have done a better job at describing their research on a more general knowledge level.	Dec 1, 2010 1:18 PM
13	Too much speculation and very little fact based data presented.	Dec 1, 2010 2:37 PM
14	Can municipal water treatment plants adequately handle the volume of hydrofrack flowback fluids sent to them,, and can they remove the chemicals, sediment and radioactivity? Can communities handle the truck traffic of this flowback fluid sent to municipal water treatment? Would it be more successful if drilling companies built their own specialized wastewater treatment plants? Will dividing flowback fluid and sending it to multiple municipal treatment plants cover up problems from specific drilling sites or companies and thus become a public problem to mitigate and pay for?	Dec 4, 2010 4:25 PM

## 2. Morning Sessions - In the box below, please list any questions or research

Response Text		
15	<p>John Veil presented a biased pro-fracking power point with a pony-show drilling site. As one of the presenters said to me, "I've seen a lot of hydrofracking drill sites, and I never seen one like that." Veil was a fountain of misinformation and non-information. He painted the industry as perfectly safe. Fracking a well takes several hours? Ask people who have listened to compressors on their property for weeks. Unmentioned are the 1300 trucks per well. How about the hundreds of chemicals, many toxic, carcinogens and endocrine disruptors, mentioned by Dr. Boufadel. Veil would intimidate those who questioned him. An example: He strongly told a participant she was wrong and denied that the fracking industry was exempted from the Safe Drinking Water Act. In fact it is the only industry that is now permitted to inject hazardous chemicals through or near fresh water drinking sources.</p> <p>A spokesperson should have been allowed to speak concerning the health problems with the industry.</p> <p>Dr. Vidic's conversation was a pro-industry monologue. He said he visited Veil's site and was impressed by its cleanliness. He had to wear protective clothing. He is unabashedly pro- fracking.</p> <p>Earlier he intimated, in regard to the Gulf Oil Spill, that we should now all be much happier to know that the agent used to break down the oil and keep it beneath the surface was non-toxic.</p> <p>Dr Goldstein's lead off remark was that we should presume that all fossil fuels will be used by human beings. I don't know if he was being ironic, but it would have been nice to mention climate change.</p>	Dec 7, 2010 1:02 PM
16	<p>What was billed as a 'moderated' conversation with the speakers seemed, instead, to be Dr. Vidic's monologue to 're-spin' and in fact to UN-DO, the impact of the morning sessions. Is it just me, or was he a 'ringer' to present the industry's rebuttal to the speakers?</p>	Dec 9, 2010 3:07 PM
17	<p>Disappointed that Radisav did not really facilitate a conversation among the presenters or the audience which would have been more interesting than just listening to his sort of summarizing what the speakers had said. There's so much rich information along with many unanswered questions that a dialog among the researchers would have been so interesting.</p>	Dec 17, 2010 7:39 PM
18	<p>I came expecting that there had actually been research on health impacts and was surprised at the lack of information.</p>	Jan 6, 2011 8:01 PM

## 4. Afternoon Sessions - In the box below, please list any questions or research

Response Text		
1	<p>What are effects of diesel and fossil fuel usage on the carbon signature of shale gas drilling--how much pollution does it add to clean burning natural gas inventory if life cycle CO2 and methane release is taken together and added</p>	Nov 30, 2010 5:06 PM
2	<p>Although there were interesting presentations on other topics related to gas drilling, I came to hear and obtain preliminary data about health effects. There was little - really no data presented specifically in regard to this. While this is not the fault of the presenters - industry controls much of the data upon which studies can be built, the conference should have left the word "health" out of the title.</p>	Nov 30, 2010 5:09 PM

#### 4. Afternoon Sessions - In the box below, please list any questions or research

	Response Text	
3	This session demonstrated great research needs into monitoring and controlling air toxics. Too much focus seems to be placed on water, when air may be as important. The other main point that came out of several of the talks is that impact on social and personal stress and stress related behaviors may have even a greater impact on public health than the air and water contaminants. This is a very important area of public health research.	Nov 30, 2010 5:18 PM
4	There are special concerns about the impact of Marcellus Shale development on agricultural land, particularly on organic certified farming. This is a critical time issue because the MS fields lie below the most fertile agricultural land in W PA and we are losing it at the rate of 125 acres per day!	Nov 30, 2010 5:44 PM
5	Human health impacts were not addressed, nor even posited. Is there a human impact, or is this all just handwaving?	Nov 30, 2010 6:17 PM
6	More information about what types of efforts are needed to fill data/information gaps	Nov 30, 2010 8:01 PM
7	<ol style="list-style-type: none"> <li>1. The team from Colorado was Above Average but with 3 people in one time slot it went too long.</li> <li>2. I seem to remember Terri Ooms did not have slides. She had great info but I couldn't absorb it all.</li> <li>3. Christopherson was EXCELLENT</li> <li>4. Too bad there wasn't time for the wrap-up "Conversation"</li> </ol>	Nov 30, 2010 8:59 PM
8	Why was the youngest PhD (Jane Clougherty) the best presenter of the day? Susan should have had more time as she raise wonderful questions. More hot coffee late in the afternoon would have helped to make the afternoon sessions more engaging.	Nov 30, 2010 10:41 PM
9	I'm just wondering if anyone is looking into the "safety" of local organic animal/vegetable food products? With all of the land/water contamination taking place in the MS field as an industry by-product, can consumers just assume that going organic is still the "healthier" alternative?	Dec 1, 2010 1:10 AM
10	I would have loved to hear more about the water issues.	Dec 1, 2010 1:21 AM
11	How can we start these important conversations (a) to evaluate the differing risk to human health - more gas usage makes cleaner air in big cities with lots of people versus more gas exploration makes much dirtier air and asthma in rural communities, and (b) how to help communities and states to adopt policies that lessen the negative effects to the public of Boom & Bust economics so common with Shale Gas exploration.	Dec 4, 2010 4:25 PM
12	<p>Dr. Volz began the session by outlining the topics to be discussed. He then offhandedly mentioned that his review of the material gave him little reason to see why drilling should not proceed. What?</p> <p>The questions permitted of Dr. Sterling, who spoke of measurements of industry air problems in Texas, was limited to one.</p> <p>After Dr Christopherson's excellent talk on the economic downside of drilling, Dr. Volz announced cocktail hour.</p> <p>Teri Ooms was pleasant, as a Chamber of Commerce cheerleader should be. Her study was really an opinion poll of how many Pennsylvania residents would like to proceed with drilling. The survey was a great test of the effectiveness of industry PR.</p> <p>I will give her credit for mentioning that many residents had health concerns and were distrustful of the leasing agents who are the backbone of the industry.</p> <p>The presentation by DEP rep Lazor seemed only to show the shortcomings in trying to measure air quality in PA - lack of funds, proper equipment and personnel. The need for industry cooperation to obtain any measurement. I think he would have been more candid if he weren't a Pennsylvania State employee.</p>	Dec 7, 2010 1:02 PM



#### 4. Afternoon Sessions - In the box below, please list any questions or research

Response Text		
13	It's a shame that Dr. Christopherson was at the end, and had no time for public Q&A. Her presentation was the best of the day, and her stand-up, informal Q&A was quite valuable.	Dec 9, 2010 3:07 PM
14	In an already full day....still wish there had been more time - particularly to hear more from Susan Christopherson. As a social worker by training I am interested also in the social, economic factors and how they impact health as well. It seems for immediate economic gain for the few, whether it be companies or destitute farmers, we seem to be rushing into something before the scientist can fully tell us its impact. And since Marcellus Shale isn't going anywhere I would like to give more time to getting more answers...and for conferences like this to be held in neighborhoods.	Dec 17, 2010 7:39 PM
15	Many of the things I heard expressed by community members were related to the severability of mineral rights from surface property rights. these are big issues but the health impacts are tenuous at best. If we count stress and worry about the potential impacts, I can see where some health impact studies could be done. However, the act of studying the community might actually make the community think and dwell on health impacts that could be rather than that actually exist.	Jan 6, 2011 8:01 PM
16	There are huge gaps on what impact air toxins have at a local level. The DEP is obligated to the EPA under the Clean Air Act. This keeps the DEPs focus on "regional air quality issues" and leaves a huge gap on the local impacts of air toxins. It took TX 10 years before they even started studing localized air quality issues associated with this industry. With the rapid move from the oil fields to now operating in neighborhoods and school playgrounds, more research needs to be done. Partnerships need to be built between the Department of Energy, EPA, academia, DEP to get this data and get it fast. PA in particular is taking grave risks using its citizens as guinea pigs. This is not acceptable! This pertains to water disposal into the drinking water supply as well however I am most concerned with air issues as this region is already in severe non-compliance with the Clean Air Act. We need meaningful research to address this gap.	Jan 22, 2011 11:40 PM

#### 1. Additional comments on the University of Pittsburgh Graduate School of

Response Text		
1	Conference needed more effective time-keeping. Went too long b/c speakers were not kept on track. Needed some sort of "sugar" facilitator in the afternoon, e.g., cookies.	Nov 30, 2010 5:02 PM
2	Great Topic, Further Discussion is needed. Good Format with Audience participation. More moderation is needed to filter these questions.	Nov 30, 2010 5:06 PM
3	Thank you for putting the conference together. It was well done. I do wonder how many of the particiapnts were looking for academic speculative types of presentations versus more pallied to what we do know today.	Nov 30, 2010 5:08 PM
4	I met and networked with some interesting people. Reception after was nice, wish I did not have to rush out to Fayette County.	Nov 30, 2010 5:10 PM
5	Timely and interesting. Would have liked to hear something more from industry on planned safeguards/reducing health risks. However, given the number of activists in the audience, this might have turned into a brawl.	Nov 30, 2010 5:10 PM
6	Great work and there should be more of this type of meeting.	Nov 30, 2010 5:18 PM
7	Overall the conference was excellent and informative. It is worth noting that the overall lack of real knowledge of the development activities in the Marcellus.	Nov 30, 2010 5:25 PM

# 1. Additional comments on the University of Pittsburgh Graduate School of

Response Text		
8	Great job! Very impressive line-up, and a beautiful location to hold the event. BTW, lunch, and conversations with other participants, was outstanding!!	Nov 30, 2010 5:26 PM
9	This is a critical issue. There needs to be broad dissemination of the material presented here, especially the long term effects of the fracking process on both surface and subsurface systems.	Nov 30, 2010 5:44 PM
10	Recognizing that zero risk is out of the question (as Dr. Boufadel stated), it would be good to have some research on what would be acceptable risk (which is also morally sound risk) with respect to frac water contamination from surface spills or from below ground migration of frac fluids. This research should indicate worst case scenarios for damaging the health of human beings as well as flora and fauna in ecosystems, and point to best practice methods for reducing the risk of worst case scenarios that should be codified in laws and regulations.	Nov 30, 2010 5:46 PM
11	Very useful seminar - thanks	Nov 30, 2010 5:49 PM
12	I appreciate the diversity of this conference, with hard science geologists/engineers, and social science, public health officials. Bringing these sciences together is an important endeavor for environmental issues, since both are needed for finding solutions.	Nov 30, 2010 6:09 PM
13	Thank you for arranging such an informative conference. Looking forward to more of such events.	Nov 30, 2010 6:28 PM
14	Logistics were excellent, parking and food were great, although conference was too long (scheduled for 10 hours plus a reception). Hydrogeology and air sampling recieved way too many hours while human health was essentially unmentioned. About 1 hour on hydrogeology and one hour on air sampling would have been great, then spending the rest of the time on human health impacts or concerns. Overall, as far as a way to spend a day, this conference was quite a bit less useful than I had expected from a conference at the School for Public Health titled "HEALTH EFFECTS of shale gas extraction: what is known, and what can we predict? Thank God I had taken my laptop and could do some reading while waiting for talks with the hope that at some point the word "human" or "health" might be used by a presenter, but alas, my endurance to sit through talks with very limited relevance ended before that ever happened.	Nov 30, 2010 6:29 PM
15	It was a shame that more of the speakers were not truly unbiased or at least scientifically based in their presentations. I am not pro industry, and, as a matter of principle and as a matter of contract I am required to remain unbiased when discussing Marcellus shale. This conference was NOT truly unbiased. One speaker in particular, Michel Boufadel, was working strictly on what appeared to be his beliefs and assumptions rather than ANY scientific research. He also made several comments that he did not back up with any explanations or science and for anyone in the audience not well educated in hydrology could very easily take out of context and misunderstand. There were a couple excellent speakers, several average ones, a couple below average and one very poor speaker. Shame on PITT for not being more judicious in their choices of speakers for such an important topic. The very least you could have done is be certain all of the speakers whether unbiased in their own opinions or not, had information based in accurate, unbiased scientific data.	Nov 30, 2010 6:31 PM
16	The title was a misnomer. I learned almost nothing about the known impacts. Most of the presentations seemed more like grant proposals rather than results of research specifically targeting impacts of shale drilling. Perhaps the choice of speakers was the problem. There is a lot of information that has been collected by government agencies, for example, about these problems, yet almost nothing of this was presented or referenced. Most of the presentations addressed how the problem could be studied rather than data that have been collected. I think Pitt could have produced a much better effort. I apologize for being so critical, but I expected far more!	Nov 30, 2010 6:36 PM

# 1. Additional comments on the University of Pittsburgh Graduate School of

	Response Text	
17	Thank you. It was important for participants to know what is being done around the country. Collaboration will be essential to understand the implications of the ng on health.	Nov 30, 2010 6:46 PM
18	I do think it would be helpful to have just a brief 10 minute break in the morning and afternoon to help keep people focused and alert.	Nov 30, 2010 6:57 PM
19	Most of the speakers gave a summary of existing data without much personal experience or data relavent to PA. An extremely biased conference.	Nov 30, 2010 7:16 PM
20	The University Club facility and the lunch arrangements were super--thank you!	Nov 30, 2010 7:20 PM
21	Well done!	Nov 30, 2010 7:51 PM
22	Not much info/discussion on exposure or risk	Nov 30, 2010 8:11 PM
23	The conference was very informative. However, there was a large discrepancy in the level of presentation. Some, especially in the morning, were a bit beyond the level of a conference that is open to the public.	Nov 30, 2010 8:13 PM
24	Thank you for holding this conference. I hope you are able to hold more conferences on this topic because so much still needs to be studied/reported on it.	Nov 30, 2010 9:00 PM
25	Despite overwhelming data presented that natural gas drilling can be dangerous, presenters seemed very hesitant to conclude that yes, this could be a danger to public health. This seemed strange at a conference of professionals who are interested in public health. John Veil was an exception, and I thought he gave an excellent presentation. Thank you.	Nov 30, 2010 9:26 PM
26	The room and amenities, including food were most wonderful. Thank you. Hard to believe that some did not attend. I think an annual event should be planned focused on the health aspects of Marcellus. Next year, focus less on procedure/process and more on results/implications.	Nov 30, 2010 10:44 PM
27	All of the speakers appeared to have excellent backgrounds in their fields; however, many of the presentations were "over my head" which I found somewhat frustrating. I didn't walk away with a good sense of the Health Effects. Guess, given the topic, I expected more on the health impact from a medical perspective. Not having the medical community represented was telling. I would like to know how the Medical community is educating themselves, and responding to residents presenting with suspicious symptomatology. Does the continuing education of the physicans include the diagnosis/treatment of air/water borne conditions associated with gas extraction activities? Are physicans entering any of this information into a database? Are they reporting it to some public health entity? And, if not, why not?	Dec 1, 2010 1:10 AM
28	Great job !! Everything was perfect. the issues were well adressed, now we should all have a thirst to learn and teach more. We all need to educate ourselves.	Dec 1, 2010 1:22 AM
29	Excellent conference and I hope it perhaps is the start of a more formal scientific forum on this topic.	Dec 1, 2010 3:04 AM
30	The conference was well organized and provided a lot of new informations. I especially enjoyed the afternoon sessions about social and economic impacts.	Dec 1, 2010 1:19 PM
31	Although assumed to be an unbiased national lab employee, r. Veil certainly did not present an unbiased opinion about the potential effects of natural gas on local and regional water budget issues.	Dec 3, 2010 5:14 PM

## 1. Additional comments on the University of Pittsburgh Graduate School of

### Response Text

- 32      Excellent information. Thank you for hosting. I thought the speakers & audience generally did a very good job remaining open-minded and factual despite having strong feelings about the topic. John Veil provided great facts, info & photos about the hydrofracturing best management practices, but I felt his presentation was the least neutral because it did not acknowledge that often best management practices are not used, and he also ended his presentation with a very judgmental statement about those who post "No Fracking" signs in cities (Ithaca) and the inaccurate generalization that all the rural landowners around cities sensibly want to allow fracking. The difference in opinions is not just city/rural, and the difference in opinion could have easily been pointed out in a neutral, non-judgmental way. Mr. Veil is an excellent presenter, has excellent data, and I would be happy to hear him speak again if he could be more fair in his presentation about positives & negatives.      Dec 4, 2010 4:37 PM
- 33      I would like to know more about health effects to the workers exposed to the frac water. I guess this is hard to do since it is not clear what is in the water, moreover that the water has more contaminants after it returns to the surface. I suppose researchers could collect frac water and run some kind of health assessments using dose responses or something.      Dec 6, 2010 1:54 PM

# 1. Additional comments on the University of Pittsburgh Graduate School of

## Response Text

- 34      The Department of Public Health should be concerned about the public health:      Dec 7, 2010 1:05 PM
- Massive amounts of water are mixed with any number of hundreds of fracking chemicals which include carcinogens and endocrine disruptors ( Dr. Boufadel) and pumped into the Marcellus Shale.
- Fracking waste is withdrawn which includes heavy metals, mercury, arsenic, lead and radioactive materials.
- The entire fracking waste is difficult to test because - 1. the industry won't tell you what they put in the ground and what you should look for, and 2. detection of other chemicals and metals is masked by the heavy brine solution ( Dr. Banks)
- The only disposal methods discussed were placing the waste in injection wells in Ohio and John Veil's promise that not a drop of the fluid is spilled and that the material is being safely recycled . There was no discussion of the damaging effects frack waste fluid has had on public waste water treatment plants.
- Air quality is difficult to measure. Equipment is inadequate. Industry will not cooperate. A female owner of an organic farm was able, by stealth and bravery, to detect large emissions of benzene at a time drilling was actually taking place. Where concerted efforts are made, some studies in Texas have shown the over 60% of facilities are leaking gas (Dr. Sterling).
- The Marcellus Shale has vertical faults as well as horizontal fissures. By its very nature it is able to leak frack fluids towards the surface especially after multiple frack jobs under high pressure.  
The patterns of fluid migration underground is largely unpredictable, except that they travel the route of least resistance.
- Pennsylvania has the smallest public health workforce in the nation.
- We have a duty to humanity to avoid "morally unacceptable harm" in the extraction of resources (Dr. Boufadel, quoting a United Nations agency).  
So to paraphrase Dr. Goldstein, what's the rush?
- Knowing the above, it would be incumbent on the Public Health Department to ask for a ban on the practice of hydrofracturing and horizontal drilling in Pennsylvania.
- 35      If you give a follow up conference or can guide us to other conferences on Marcellus gas drilling, please let us know. We would like updates on the research and problems. Thank you.      Dec 7, 2010 2:34 PM
- 36      Too bad that there were two conferences in town on the same day. Thanks for holding this event!      Dec 9, 2010 3:07 PM
- 37      As a PhD student beginning research regarding this topic the program was excellent! I made contacts to support my work.  
As a former program director at a non-profit organization I was extremely impressed with the venue, generous free attendance, and rather fine-tuned line-up of so many speakers in that amount of time.  
THANK YOU! - Deb Kittner, UC Geography      Dec 10, 2010 10:53 PM
- 38      Thank-you for a well planned conference. The speakers were frank and presentations were easy to follow. The environment was comfortable and pleasant. Of course the food was wonderful. I would highly recommend a similar conference to everyone.      Dec 16, 2010 6:57 PM

## 1. Additional comments on the University of Pittsburgh Graduate School of

### Response Text

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| 39 | This was an amazing conference - the level of knowledge of the presenters, the broad spectrum of the population represented in the audience - it represented the best of a university as a resource to the community. Asking questions, providing the data, engaging our best selves. The amount of information packed into the day - there was no wasted time - it was brilliant. Diverse opinions and statuses engaged respectfully. And all of the logistics were wonderful as well - from registering, to the facilities - the room, the A/V, the food - just perfect! What a staff to pull this off. Thank you. | Dec 17, 2010 7:51 PM  |
| 40 | More seminars or similar outreach. Content should be recast for distribution on radio, TV, newspapers, on-demand programming through services such as netflix, etc.  | Jan 22, 2011 11:42 PM |