

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BEFORE THE ENVIRONMENTAL QUALITY BOARD

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IN RE: PROPOSED RULEMAKING, OIL AND GAS WELL CASING  
AND CEMENTING

\* \* \* \* \*

BEFORE: DAVID STRONG, CHAIR  
HEARING: Thursday, July 22, 2010  
7:06 p.m.  
LOCATION: Department of Environmental Protection  
230 Chestnut Street  
Meadville, PA 16335  
WITNESSES: J. Paul Linnan, William Roach

COPY

Reporter: Jacqueline L. Hazlett

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E X H I B I T S

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## P R O C E E D I N G S

CHAIRMAN STRONG:

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4 We're going to get started. It doesn't  
5 look like we're going to have a major turnout, so ---.  
6 I'd like welcome you to the Environmental Quality  
7 Board's public hearing on the proposed regulations  
8 regarding oil and gas well casing and cementing. My  
9 name is David Strong. I'm a member of the  
10 Environmental Quality Board. I represent the  
11 citizens' advisory council to DEP. I officially call  
12 this meeting to order at 7:07.

13 The purpose of this hearing is for the  
14 EQB to formally accept testimony on the proposed  
15 regulations concerning oil and gas well casing and  
16 cementing. In addition to this hearing, the EQB held  
17 similar hearings on proposed regulations in  
18 Tunkhannock on Monday, July 19<sup>th</sup>, and in Williamsport  
19 on Wednesday, July 21st. The EQB will also hold  
20 hearings on the proposed regulations this evening in  
21 Pittsburgh, and on Monday, July 26th, 2010 in  
22 Pittsburgh.

23 The proposed rulemaking, which was  
24 adopted by the EQB on May 17th, 2010 updates existing  
25 requirements in Pa. 25 Code, Chapter 78 regarding the

1 drilling, casing, cementing, testing, monitoring, and  
2 plugging of oil and gas wells and the protection of  
3 water supplies. The proposed rulemaking includes  
4 updating material specifications in performance  
5 testing and amended design, construction, operation,  
6 monitoring, plugging, water supply replacement, gas  
7 migration, and reporting requirements. The additional  
8 requirements will minimize gas migration and will  
9 provide increased degree of protection for both the  
10 public and private water supplies.

11           In order to give everyone equal  
12 opportunity to comment on this proposal, I would like  
13 to establish the following ground rules. I will first  
14 call upon the witness who had pre-registered to  
15 testify at this hearing. After hearing from those  
16 witnesses, I will provide any other interested parties  
17 with an opportunity to testify as time allows.  
18 Testimony is limited to ten minutes for each witness  
19 at the discretion of the chairman. Organizations are  
20 requested to designate one witness to present  
21 testimony on its behalf. Each witness is asked to  
22 submit three written copies of his or her testimony to  
23 aid in transcribing the hearing. Please hand me a  
24 copy prior to presenting your testimony. Please state  
25 your name, address, affiliation for the record prior

1 to presenting your testimony. EQB would appreciate  
2 your help by spelling names and terms that may not be  
3 generally familiar so that the transcript can be as  
4 accurate as possible.

5           Because the purpose of the hearing is to  
6 receive comments on the proposal, EQB or DEP staff may  
7 question witnesses; however, the witnesses may not  
8 question the EQB or DEP. In addition to or in place  
9 of oral testimony presented at today's hearing,  
10 interested persons may also submit written comments on  
11 this proposal. All comments must be received by the  
12 EQB on or before August 9th, 2010. Comments should be  
13 addressed to Environmental Quality Board, P.O. Box  
14 8477, Harrisburg, PA 17105-8477. Comments may also  
15 be emailed to RegComments@state.pa.us.

16           All comments received at this hearing as  
17 well as written comments received on or before August  
18 9th, 2010 will be considered by the EQB and will be  
19 included in the comment response document prepared by  
20 the department and reviewed by the EQB prior to the  
21 EQB taking its final action on this regulation.

22           If anyone is interested in receiving a  
23 copy of the transcript of today's hearing, you may  
24 contact the EQB for further information. Okay. We'll  
25 call our first and only witness, Mr. Paul Linnan.

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MR. LINNAN:

Well, as instructed, my name is J. Paul Linnan, L-I-N-N-A-N. You'll see in my written testimony that my address is given as 1022 Forest Drive, Summerville, just as it sounds, Pennsylvania 15864. I am a resident of Limestone Township, Clarion County.

Members of the Board, I thank you for the opportunity to present my thoughts and recommendations regarding the proposed amendments to Chapter 78, the Department's regulations governing the Oil & Gas program.

For the sole purpose of having you understand my familiarity with this process and with the issues which I am bringing to your attention, I will tell you that I worked for the Department formerly, nearly 35 years. I've listed in my written testimony various positions that I held. I was involved as a permitting chief in the Knox District Mining Office. I eventually moved to Harrisburg, served as the first bureau director of the Bureau of District Mining Operations; spent some time in the abandoned mine program. And then when I retired in 2003, I was actually working in the deputy's office on special programs.

1           I now, however, find myself in the position  
2 of having been notified by a gas producing company  
3 that they intend to drill a gas well adjacent to my  
4 home and the homes of several of my neighbors, all  
5 having private water supplies within 1000 feet of a  
6 proposed gas well. In fact, I am one of the closer  
7 ones, with my well being 600 feet from their drilling,  
8 and my neighbor being 425 feet from the drilling.

9           Finding myself in this position and knowing  
10 that our current water supplies are already impacted  
11 by older, pre-act coal mining, I quickly became  
12 sensitized to the potential for further degradation of  
13 our supplies. Being familiar with the existing  
14 measures for water supply protection in the permitting  
15 of a mine site, I began to determine what measures may  
16 be in place for the protection of water supplies in  
17 the oil and gas permitting program.

18           In the pursuit of this endeavor, I spoke with  
19 various DEP Officials, read regulations and other  
20 materials, and spoke with a few people who have had  
21 recent personal experience with gas wells being  
22 drilled nearby their residences. It was during the  
23 conversations with the DEP folks that I learned of  
24 these proposed regulation changes and the possibility  
25 that I could give public input. Having given both the

1 existing and proposed regulations considerable  
2 thought, and with particular emphasis on their  
3 comparison to DEP's mining regulatory program, I offer  
4 the following thoughts, along with my recommendations.

5           To begin with, I want to clearly state that  
6 I'm not at all opposed to the development of  
7 our mineral resources. I fully understand they are  
8 not only a vital part of our economy but an important  
9 component of individual land and mineral owners'  
10 livelihoods. Further, until realistic alternative  
11 energy options become available, the majority of us  
12 must rely on coal, oil, and natural gas for  
13 electricity, heating, cooking, and various other daily  
14 uses.

15           The absolute caveat, however, for the  
16 production and use of our resources is that it must be  
17 done in a manner that does not negatively impact our  
18 water, our air, our landscape, or our neighbors.  
19 Neither should such development be done to the  
20 detriment of a minority in favor of the greater good  
21 for the masses. We should not as a society condone  
22 the advancement and enrichment of one party's interest  
23 over another's when there is clear loss or suffering  
24 to the second party as a result.

25           Therefore, in order to fully understand the

1 differences and ramifications of these competing  
2 interests, and to ably make informed and just  
3 decisions when those interests conflict, adequate data  
4 and assurances must be developed and in place to  
5 ensure an equitable outcome.

6           Now, with respect to the proposed regulatory  
7 changes, there are two issues on which I will focus  
8 that I believe must be strengthened in order to assure  
9 equitable permitting decisions and ensure fair,  
10 adequate restoration action when the inevitable,  
11 unanticipated negative impact occurs. Those issues  
12 are water replacement and bonding, both of which I've  
13 had much experience with in my years with the mining  
14 program.

15           With respect to the first, water supply  
16 replacement, I give the department credit for the  
17 proposed amendments to Chapter 78.51, which more  
18 clearly articulate a gas well operator's threshold of  
19 responsibility in the event that a water supply has  
20 been affected by contamination or diminution.  
21 However, these amendments, improved as they are, do  
22 not go far enough in requiring the necessary data to  
23 provide for informed decision making with respect to  
24 these competing interests during a permit application  
25 review.

1           The requirement that affected water supplies  
2 be replaced to the degree spelled out in the proposed  
3 amendments, both from a quality and quantity  
4 perspective, is not only praiseworthy but also  
5 absolutely essential to the lives and property values  
6 of the affected parties. What is missing, however, is  
7 a requirement for the gas well operator to establish,  
8 prior to permit issuance, whether or not an acceptable  
9 replacement supply source is even available in the  
10 event that it becomes necessary to provide it.

11           In the early 1980s, we in the Department's  
12 mining program wrestled with a number of regulatory  
13 changes as a result not only of incorporating the  
14 primacy requirements into our program, but also with  
15 troublesome issues which were occurring in the field.  
16 We found ourselves in exactly the situation that I'm  
17 bringing to your attention.

18           It was grand to be able to assure concerned  
19 homeowners that there was little to worry about  
20 because a mine operator was required to replace their  
21 supply if it was affected. We then found ourselves,  
22 not a little chagrined, but highly embarrassed in  
23 those situations where there was no readily available  
24 replacement supply. Rather like the banks that have

1 failed in the last several months because, when push  
2 came to shove, they didn't really have the financial  
3 resources to cover all the obligations they had  
4 incurred. Or, as the world has learned in the current  
5 ongoing saga in the Gulf, BP didn't really have the  
6 safeguards in place to prevent or deal with their  
7 tragic occurrence.

8           Now, in my personal situation and that of my  
9 neighbors, it is just such a detail that is of great  
10 concern to us if the proposed gas well is to be  
11 drilled. As I mentioned previously, our current water  
12 supplies are impacted by pre-act coal mining. The  
13 impact is that of very poor quality, and to such an  
14 extent that it costs me approximately \$100 per month  
15 just to treat the water, not including well  
16 maintenance and pump replacement, which I've done  
17 twice over the last six and a half years that I've  
18 lived there. Any additional impact to our local  
19 groundwater as a result of gas well development and  
20 from parameters other than those being experienced  
21 from mine drainage such as, for example, sodium,  
22 chloride, magnesium, or methane, would cause an  
23 overwhelming burden for us and render the treatment,  
24 even if possible, to be exorbitant.

25           Given that we each have only a couple of

1 acres of property or less, it would be impossible to  
2 find a source of groundwater for a new well on our  
3 properties that wouldn't also be further contaminated  
4 by the gas well. To find a replacement then would  
5 require drilling in locations remote from our property  
6 over which we would have no personal control. Both of  
7 these potential problems seem to be at odds with the  
8 proposed amendment revisions, those being that a  
9 replacement must not require excessive maintenance and  
10 must provide the owner and the user with as much  
11 control and accessibility as exercised over the  
12 previous water supply.

13           In our particular situation, therefore, it  
14 seems to us that there is no acceptable replacement  
15 source available, with the possible exception of a  
16 public water supply, potentially an expensive  
17 proposition for the operator. Playing the scenario out  
18 through both options, one that does not require a pre-  
19 permit demonstration of an acceptable replacement  
20 source and the other that does, I submit we would find  
21 the following:

22           In the case where no pre-permit demonstration  
23 is required, the operator would make the notifications  
24 to the homeowners, would likely take samples of their  
25 supplies and then proceed to drill with a belief and

1 confidence that if the gas well is constructed  
2 properly, there will be no effect to the water wells.  
3 Nevertheless, after the gas well is drilled  
4 and operating, the wells are impacted by its presence.

5           The Department now finds itself in a long  
6 contentious process of ordering the operator to  
7 replace, the operator drills well after well, finding  
8 no fit water, which requires excessive treatment, at  
9 best. The homeowners are fit to be tied and calling  
10 their representatives. Money and time are being  
11 wasted and absolutely no one is satisfied or gaining,  
12 except for the water well drilling contractor and  
13 likely some lawyers. Everybody gets a black eye and  
14 no one wins.

15           In the case where a pre-permit demonstration  
16 is required, the operator has the appropriate  
17 consultant examine the situation and either is able to  
18 demonstrate the existence of a source, which would  
19 convey pre-gas well development quality and quantity  
20 of water or conclude that public water is the only  
21 option available. In either case, the operator now  
22 knows the true cost of replacement that would be faced  
23 if their activity does result in the need to replace.  
24 They can now make an informed business decision as to

1 whether the well is worth proceeding with, and the  
2 course of action to be followed if there are actual  
3 impacts. Of course, if the well is constructed  
4 according to the best technology and operated  
5 conscientiously with no unanticipated anomalies, there  
6 should be no impact and therefore no additional  
7 expense to the operator.

8           A further benefit of knowing the true cost  
9 is that if the operator feels fairly strongly that  
10 there will be no impact, even in the face of expensive  
11 replacement costs, he/she will be more careful to  
12 ensure that the well is developed with all plausible  
13 safeguards in place, which is better for all  
14 concerned.

15           So to sum up my recommendations for this  
16 portion of my testimony, I advise the Board  
17 and the Department to add two requirements to Section  
18 78.51, those being: First, require a positive  
19 demonstration by the permit applicant that an  
20 acceptable source of replacement water for both  
21 quality and quantity is available for those supplies  
22 within a specific distance or that otherwise have the  
23 potential to be impacted.

24           The second part of that is, there needs to

1 be a survey or evaluation by the permit applicant of  
2 the pre-permit water use of those supplies that have  
3 the potential to be impacted. In the mining program  
4 regs, when an operator evaluates replacement water  
5 supplies, they also must make an evaluation of the  
6 uses that are currently occurring at a residence and  
7 compare that to the quantity of water that is  
8 available from the replacement water supply.

9           And another part of that, that the mining  
10 program had difficulty with until they resolved it  
11 with guidelines, was that you might find a replacement  
12 water supply with great water quality at a gallon a  
13 minute; in the meantime, the supply you're trying to  
14 replace might have a need of two or three gallons per  
15 minute. So there needs to be a focus in these  
16 regulations on requiring some pre-permit issuance  
17 evaluation of the needs of the supplies that would be  
18 in a position that they may be affected.

19           The second issue, which I bring to the  
20 boards' attention very quickly, is that of the current  
21 bonding requirements for gas wells. Section 601.215  
22 of the Oil and Gas Act --- and I've attached a copy of  
23 that to the testimony. I've also attached copies of  
24 the Bureau of Mines' technical guidance document, at

1 least the pertinent parts about having to demonstrate  
2 a replacement supply is available.

3           The second issue in the current Oil and Gas  
4 Act, it requires that a bond of \$2,500 be filed with  
5 the Commonwealth for the well and the well site. The  
6 bond is to be conditioned, quote, that the operator  
7 shall faithfully perform all of the water supply  
8 replacement, restoration, and plugging requirements of  
9 this act. It further stipulates that the bond amount  
10 may be adjusted every two years by the Environmental  
11 Quality Board to reflect the projected costs to the  
12 Commonwealth to perform well plugging.

13           While I have no idea of the cost of  
14 performing well plugging, I submit that in cases  
15 where water supply replacement becomes an issue, a  
16 bond of \$2,500 will more often than not be woefully  
17 inadequate for the replacement by itself, let alone  
18 the other obligations which the bond would be expected  
19 to cover. Treatment costs, which an operator could  
20 encumber ad infinitum, would quickly exceed this  
21 amount. In the mining program an operator must either  
22 have water supply insurance in effect, or file a  
23 minimum water supply replacement bond of \$3500 per  
24 permit, above and beyond the reclamation bond. So I  
25 urge the board to give this aspect some serious

1 consideration, from both the perspective of the  
2 regulation changes at hand and of their ability to  
3 adjust the bond for plugging.

4 Thank you very much for the opportunity to  
5 share my thoughts and the time you have taken to  
6 listen to them.

7 CHAIRMAN STRONG:

8 Thank you, Mr. Linnan.

9 MR. LINNAN:

10 You're welcome. I have, if you're  
11 interested, Dave, the entire mining technical guidance  
12 document on water replacement.

13 CHAIRMAN STRONG:

14 I'll share that with the DEP.

15 MR. LINNAN:

16 Do you have any questions?

17 UNKNOWN SPEAKER:

18 You talked about having public water  
19 supplies. In our area of the woods there isn't a  
20 possibility of having a public water supply, or the  
21 public water supply is a unit that may not want to  
22 extend their lines that far.

23 MR. LINNAN:

24 They may not and they don't have to.

25 CHAIRMAN STRONG:

1           That's right.

2           MR. LINNAN:

3           And I mean they may not. That's just the  
4 basis of my recommendation. And certainly in our case  
5 --- and I'll elaborate in a minute. In our case, we  
6 feel that if we were to be affected, the things that I  
7 mentioned would happen; our treatment could be  
8 exorbitant. My understanding from my discussions with  
9 the Department was that it will be up to the operator  
10 to get the appropriate treatment; the operator will  
11 have to pay for all that. But if there's nothing  
12 available that is suitable, then the way the mining  
13 program handles it you don't mine there. You cut that  
14 part out.

15           So whether it's a case that this well ---  
16 which, by the way, it's still my understanding that  
17 there's no permit application even been submitted to  
18 this office, and Craig has assured that he will call  
19 me five minutes after it hits the door. Why that is,  
20 I don't know, because we got our notice a couple of  
21 months ago now. But I think it puts the Department in  
22 a bad position to rely on regulations which say the  
23 operator has to do this, this, and this, when it might  
24 be impossible to do.

25           CHAIRMAN STRONG:

1 Correct. I agree.

2 MR. LINNAN:

3 And that not only makes it a hard time for  
4 the people here in this building, but it makes an even  
5 harder time for the citizens now who don't have the  
6 water, and the operator's saying, and believe me, I've  
7 experienced this enough to wish that I never had, you  
8 know, and the operator's saying I'm honest, I can't do  
9 it, there's nothing I can do. So, you know, nobody  
10 wins. By making the demonstration of whether that's  
11 available or not, I think that leads into a better  
12 permit decision, and it also is a better situation for  
13 the operator because now they know what they would  
14 have to do in the event.

15 In our particular case, I'm very familiar  
16 with not only my neighbors but our township, because  
17 we were trying to get a public water line extended  
18 into our township. And when the effort started,  
19 before I actually moved to the house I'm living in,  
20 the effort started I believe in about 2000 or 2001,  
21 the township supervisors who were serving at the time  
22 were in favor of this. Because there are many people  
23 in the township that are not only affected by pre-act  
24 mining, but there are many, many supplies that have a  
25 lot of biological problems, a lot of sewage in their

1 wells. And so the township supervisors at the time  
2 were in favor to write a grant to Pennvest to begin  
3 the engineering. And we went even to where we bid the  
4 thing out. But the township supervisors changed and  
5 they failed to vote, because they were the ones that  
6 had to sign the papers. They said, no, it costs too  
7 much, we're not going to do it.

8           So I know that the water in our area is poor.  
9 I know that, in my view and many of our folks, the  
10 only solution for an alternate water supply, in the  
11 event that we would be further hampered, would be to  
12 run a public waterline. It would take a year.

13           CHAIRMAN STRONG:

14           A water buffalo.

15           MR. LINNAN:

16           Yes. I just think that's a shame. So that's  
17 my input. I hope that the board considers it  
18 seriously. And I hope that these regulations are able  
19 to be amended so that those couple of things are  
20 included.

21           CHAIRMAN STRONG:

22           Thank you. Thank you for your time.

23           MR. LINNAN:

1 I need to check what I handed in, because as  
2 I went through mine, I was missing a page. And I need  
3 to be sure that it's in there.

4 CHAIRMAN STRONG:

5 Seeing that Mr. Linnan is the only one that  
6 pre-registered, is there anybody else that would like  
7 to give testimony or have anything to say at this  
8 time?

9 MR. ROACH:

10 I called but I was ---.

11 CHAIRMAN STRONG:

12 Oh. Okay.

13 MR. ROACH:

14 You know, this whole hearing situation here.  
15 Give me a second.

16 CHAIRMAN STRONG:

17 Can you give me your name and all of that?

18 MR. ROACH:

19 My name is William Roach (phonetic), 3108  
20 Island Road, Erie 16506. I'd like to comment on this  
21 because of the --- there's a hearing down in  
22 Pittsburgh by the EPA. And some of the members --- I  
23 belong to the Sierra Club and the Lake Erie Alliance,  
24 and we were very interested in seeing what the  
25 comments were going to be here tonight, and I'm kind

1 of disappointed. I'm really disappointed, but I'd  
2 like to just go on. And we're going to submit some  
3 written copies, but I do have the position of the  
4 Sierra Club. And I will provide you a copy as soon as  
5 I read this.

6 I'd like to just give you a little  
7 background. When I got out of college, I worked --- I  
8 used to run the water lab for the Pennsylvania Fish  
9 Commission at Benner Springs. I also have a degree in  
10 Biology and worked in the graduate school in the  
11 physical chemistry lab. I'd like to say that I worked  
12 for a driller, a gas driller. I did Medina, Clinton  
13 and Oriskany formations. I helped on a drill rig and  
14 I also worked with the company. I did work in  
15 geothermal drilling, which I'll get into that as I  
16 think it's really interesting considering, you know,  
17 the gas wells.

18 I would like to say, when I was Penn State, I  
19 remember in 1969, they had a big hearing there,  
20 Operation Plowshare. Up in Quehanna they were going  
21 to put a nuclear bomb in the ground to liberate --- to  
22 frack. And we stopped that. But they did one out I  
23 think in Colorado, and the gas was so radioactive you  
24 couldn't use it. And it did liberate it. Boy, it  
25 really did.

1           I've worked on a number of cases with  
2 attorneys and for some professors from various  
3 universities around here. Down here in Shaw's Landing  
4 (phonetic) I worked on a case with Attorneys Shrek  
5 (phonetic) and Segel (phonetic). And at that time  
6 Cabot Oil and Gas were drilling there, and they had  
7 --- in some residence there I saw a 42 inch flame  
8 coming out of a garden hose; and I also saw a guy's  
9 head where he, the phone rang, he was on the toilet,  
10 and he had a cigarette and he threw it in the toilet  
11 and it exploded and it threw him headfirst into the  
12 door.

13           I was up in Cubbin Park (phonetic) up in  
14 Warren, and I did see, a woman showed me --- I was  
15 doing chain of custody on samples. So we took a jug  
16 of water and put your thumb on the top and you could  
17 just light it, and there was sediment in there also.

18           But another case was over in Perry, Ohio, and  
19 that was in a Clinton formation, Viking Oil and Gas,  
20 and we won on that one. And Viking Oil and Gas was  
21 drilling in formations, and they caused a major  
22 problem up there. They had drilling brine fluids and  
23 sediment in their wells. And they also had a problem  
24 with gas migrating. And it was a huge area. I  
25 couldn't believe the size of the area.

1           So one of the problems that I've seen, and  
2 this is personal experience, there's a lot of ---  
3 there were fly-by-night companies in this, really fly-  
4 by-nights, because I worked in shale wells, too,  
5 Devonian. And what I found was like some of these  
6 guys didn't even know how to cement a well. I saw  
7 them with a trimming line, putting it in the top and  
8 dropping it down. And that's not the way to do it.  
9 With that trimming line, you should be down at the  
10 bottom feeding up, and making sure you got some stuff  
11 above the surface. Now, I'd like to see like 25  
12 percent or more coming out to make sure.

13           There should be cement standards in this  
14 country, and we don't have them on this. We don't  
15 have cement standards. Every darn highway bridge has  
16 a cement standard, but we don't have a cement standard  
17 for this. And it's crazy. We don't have any  
18 standards for trimming lines. And so I think that,  
19 you know, the casing, we've got to protect the health  
20 and cement these things properly and make sure that  
21 the casing, when they put it in, the surface casing,  
22 you want to make sure it's straight. I've seen them  
23 go in at angles. And when you do that with drilling,  
24 and I've drilled with rotary drills and you hit the  
25 side, you weaken the whole side of the casing.

1           And the other thing, I would like to see  
2 something like a Most Favored Nation Clause. And that  
3 would be --- that's quite common in treaties and  
4 things. It's called a Most Favored Nation Clause. And  
5 what that does is essentially insures that the best  
6 available technology is used in the State of  
7 Pennsylvania, just like it is down in Texas or  
8 anywhere else they're drilling.

9           One of the things that really concerns is the  
10 department does not have enough people. It really  
11 doesn't have enough. They've been really short  
12 staffed. They hired 64 more people, that's a 52  
13 percent increase, but that's not enough. Because a  
14 delay of ten days is too long a period of time from  
15 the time it's reported to the time it's investigated.  
16 It's got to be a lot sooner than that. And that's not  
17 being considered. That has to be considered.

18           Also the casing, they have a suggestion in  
19 there, in 78.51, that a casing goes down I believe 50  
20 feet below the aquifer; and I'd highly suggest, like  
21 other states, a 100 feet. And I was in New York and  
22 they had testimony up there. They're 100 feet,  
23 they're testifying to, below the aquifer.

24           Also on replacement water, that water should

1 be replaced. The standard should be that it meets  
2 established Pennsylvania safe drinking water  
3 standards. Not just replace the water, but it meets  
4 the safe drinking water standards of Pennsylvania when  
5 they replace it. And that's in 78.51 section --- I  
6 mean Subsection D, Section 2. The blowout preventers  
7 on these things should be tested. Some of them ---  
8 and I've seen it on an Oriskany well, just a little  
9 Oriskany well, should blow right off the top.  
10 Oriskany wells aren't that deep, but they really, they  
11 sound like a jet engine when they come in. And I  
12 couldn't believe that that blowout preventer didn't  
13 hold that.

14 There should also be, and this is really  
15 crucial, there are so many abandoned gas stripper  
16 wells in Pennsylvania that it just shocks me. And  
17 here's where the problem is. You can have a good  
18 cement job and everything, and if you had some kind of  
19 problem, and you've got communication, she's going to  
20 come right up those stripper wells or those abandoned  
21 wells. There's tons of them out there. There's so  
22 many that you can't believe how many.

23 And the department, I want to stress again,  
24 the Department is --- they have to get more  
25 inspectors. If they don't, it's really not fair to

1 the people working there. I'm just telling you  
2 because I know it's impossible. For the regs to be  
3 implemented you have to have more people. They can't  
4 do it. They can't do it with even that many because  
5 of the fact that, what, 350 wells were drilled last  
6 year, and not just Marcellus, we're talking about  
7 strippers and other things going in.

8           And something that the department, I mean the  
9 Quality Board should consider, and I'll give you  
10 copies of this, and this is out in Michigan. I got  
11 the whole report, and it's at best practical for a  
12 vertical closed loop. And I don't think you're aware  
13 of this, but they're drilling wells in New York City  
14 1000, 1500, 2000 feet deep. And around here there's  
15 ways to do that too. And this geothermal system, if  
16 you don't cement properly or if they use Bentonite,  
17 you're going to have that stuff working right up  
18 someone's heating system. There's no consideration at  
19 all in that. And that should be considered because  
20 you're drilling.

21           And I can tell you from practical  
22 experiences, we've drilled 82 wells, 500 feet deep in  
23 Erie on 13th and Holland. And I got scared. I was  
24 there looking over, just watching the site. And all  
25 of a sudden, I could smell gas at 500 feet. And this

1 is shale gas, smell it, the whole neighborhood had  
2 gas. I was afraid the whole neighborhood was going to  
3 go up. So I loaded all the wells up with water as  
4 much as I could. And there's no --- on this  
5 geothermal, there's no, there's no regs. There's  
6 nothing.

7 I helped institute regs in New York State.  
8 They called me, and I said, you know, they're going  
9 --- they're doing it up there, they have it in  
10 Michigan. I've got it all here on drilling, on casing  
11 and things. And the department can't just consider  
12 --- when they're drilling, you're drilling. And up in  
13 this area here, you're going to hit shale in some  
14 areas. In Erie County at 10 feet you hit it. I mean  
15 the shale in some areas --- I mean on the other end of  
16 the state it's deeper. But in this area, some areas,  
17 it's real close to surface. And you get into that  
18 stuff, you've got a real problem.

19 And I know for a fact that if you use some of  
20 the fluids, like glycol, ethylene glycol for fracking,  
21 that'll go right through, that'll eat right through  
22 the polyethylene they use for geothermal.

23 There's no method of talking about when these  
24 things are abandoned. They're just like an abandoned  
25 gas well, but we don't have any regs on them. There's

1 nothing. So I want to present this to you. I really  
2 think this should be a moratorium. I know that's not  
3 supposed to be addressed here. But other states, New  
4 York did it, and they're looking at it very carefully.  
5 Because I'll tell you, this is helter-skelter. And  
6 what concerns me most of all is abandoned gas wells.  
7 They're all over the place. And in Erie we have a  
8 senator who wants to drill in Lake Erie. He's running  
9 for senate. And we've got a problem up there because  
10 International Paper Hammermill put in a deep well  
11 injection. They injected tremendous quantities of  
12 pulp liquor under the whole city of Erie and out into  
13 the lake. And it was, you know, Hazardous Waste in  
14 America by Sam Epstein, it's the largest injection  
15 well system in all of the United States, right up in  
16 Erie. If they start drilling, slant drilling, through  
17 that stuff, and it's in the Bass Island, but they  
18 start at 650 feet, billions of gallons of pulp liquor  
19 is in there because they didn't know how to dispose of  
20 it. That stuff could ruin a whole water supply if  
21 they went through that.

22 I'd like to also say that one of the problems  
23 that you've got in the Marcellus, you're talking about  
24 deep well injection, because a lot of them are going  
25 to leave fluids in the formation. And as you probably

1 know, if you add hydrochloric acid to frack fluid  
2 (phonetic) it can liberate arsenic. And that happened  
3 down in Youngsville, Pennsylvania, and Doctor Mezzero  
4 from Case Western was up there testifying. He's  
5 written a number of papers on it. And when you put  
6 some of this fluid in there, you're going to liberate  
7 --- it frees up the arsenic right into the water. And  
8 that did occur. And he did testify to that in court.  
9 So it's not just a question of hearsay here, this  
10 actually happened. So those are some of the things  
11 that should be considered.

12           And I'd just like to say there was a fellow,  
13 Doctor Ron Bishop, and this was in New York in  
14 Tompkins County. When tens of thousands of wells are  
15 drilled in a region, even a tiny aerate can result in  
16 hundreds of problems. Doctor Ron Bishop has obtained  
17 data from health officials across New York state and  
18 from several other states where gas drilling has taken  
19 place and from the data calculated 1 to 2 percent  
20 chance of groundwater contamination and 5 to 8 percent  
21 chance of groundwater contamination of surface impacts  
22 such as sedimentation of surface water or chemical  
23 pollution of soil, streams or lakes.

24           A 2007 Penn State study of 200 water wells

1 near oil and gas wells found 8 percent contaminated.  
2 I've read further, in some other studies they say that  
3 it's as high as 20 percent contaminated water wells  
4 with natural gas and methane. Contamination from just  
5 1 percent of the 2600 to 4000 gas wells expected in  
6 Tompkins County, this is in New York, would mean 26 to  
7 40 separate cases of groundwater contamination. It  
8 only takes one chemical spill to contaminate an  
9 aquifer and ruin the drinking water for an entire  
10 region. Once an aquifer is contaminated it can  
11 rarely, if ever, be cleaned up.

12           An aerate of this magnitude in the airline  
13 industry, 1 percent of 8.8 million U.S. commercial and  
14 domestic flights per year would mean an unacceptable  
15 88,000 crashes in the U.S. each year or 241 per day.  
16 And this is put together and I have all kind of  
17 references here. This was included in New York State  
18 when they were considering --- they were really  
19 worried up there and they said off limits in New York  
20 City, they were really storming about the fact that  
21 they didn't want drilling up in the Catskills or the  
22 Adirondacks. Well, it's the Catskills where their  
23 water supply comes into New York City.

24           Now, I don't know the answer to this, I'm  
25 telling you right now. I know we need gas. In fact,

1 what's really interesting about this, I was just  
2 telling a friend of mine, T. Boone Pickens says buy --  
3 - he's really pushing natural gas. But he also is  
4 buying water, surface water and water all over the  
5 country. And Business Week reported that.

6           And it's kind of interesting because in two  
7 days' time --- no, the 28th, the United Nations is  
8 going to consider water as a human condition. And if  
9 that occurs, we're going to have a problem. Water ---  
10 there's a book called Blue Gold, and that deals with  
11 the fact that the real riches are in water, they're  
12 not in oil or gas, they're in water.

13           And we have to assure that this water supply  
14 in this State of Pennsylvania --- because Pennsylvania  
15 has the second in amount of water resources to Alaska.  
16 And these have to be protected. Because this is our  
17 real wealth is the water in our state. And I saw what  
18 happened with acid-mine drainage, I worked --- and  
19 people say, whoa, whoa, whoa, that can't happen again.  
20 It could happen again, and acid mine drainage caused a  
21 major problem for a lot of streams.

22           And I did a research project up in the  
23 Susquehanna near Scranton, where the acid mine  
24 drainage was coming down through. And we were working  
25 with --- they were working with Shad, American Shad,

1 and we had telemetry, we were monitoring as they went  
2 downstream. And believe it or not, they survived; and  
3 the only way they survived was going through the  
4 sewage outfall in Scranton Wilkes-Barre which  
5 neutralized the acid mine drainage. I don't want to  
6 see that happen in the State of Pennsylvania, where  
7 people can't go trout finishing and where the streams  
8 are in bad shape.

9           But I would like to present that really the  
10 EQB has to consider the wells that are drilled for  
11 geothermal. If they're not, they're opening  
12 themselves wide open because you're really  
13 discriminating against one industry against another.  
14 And I've been involved in both, and I can tell you  
15 right now, there's a major problem with this  
16 geothermal.

17           CHAIRMAN STRONG:

18           Do you have written testimony?

19           MR. ROACH:

20           We're working on it right now. I'm  
21 working with Cathy Bedletter (phonetic), she's a ---  
22 but I'll give you this statement. But I want to make  
23 sure you have all this because people have no idea. I  
24 mean, there are people putting these geothermal wells  
25 in, they don't know what they're doing, I can tell you

1 that right now. And what's interesting, I saw this  
2 happen, they're drilling a well and you hit the gas.  
3 And I don't know if you know what happens when a  
4 diesel engine gets natural gas into it, it runs away,  
5 and it blew up. I was right there when it blew up on  
6 the site. And these fire companies and these local  
7 volunteer fire departments, they are not prepared to  
8 handle this stuff. It's almost criminal to allow them  
9 to go into a situation in which they don't have any  
10 training. If that was in the Army, you'd be court-  
11 martialed. This is not right. These people need  
12 training and the department needs more people because  
13 you're really being unfair to dump this on people when  
14 they don't have the capability of handling it.

15 CHAIRMAN STRONG:

16 Well, your spontaneous discussion was  
17 pretty diverse.

18 MR. ROACH:

19 I've worked in this field.

20 CHAIRMAN STRONG:

21 We'll enter that as part of your  
22 testimony. Anybody else lke to say anything? If  
23 there isn't anybody else that wants to say anything,  
24 we will close the meeting and adjourn.

25 \* \* \* HEARING CONCLUDED AT 7:51 P.M. \* \* \*

CERTIFICATE

I hereby certify that the foregoing proceedings, hearing held before Chairman Strong, was reported by me on 07/22/2010 and that I Jacqueline L. Hazlett read this transcript and that I attest that this transcript is a true and accurate record of the proceeding.

Jackie Hazlett  
Court Reporter