HOUSE OF REPRESENTATIVES
COMMONWEALTH OF PENNSYLVANIA

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Marcellus Shale Exploration

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House Environmental Resources &
Energy Committee

Irvis Office Building
Room G-50
Harrisburg, Pennsylvania

Tuesday, March 31, 2009 - 9:30 a.m.

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BEFORE:

Honorable Camille George, Majority Chairman
Honorable Bryan Barbin
Honorable Mike Carroll
Honorable H. Scott Conklin
Honorable Eugene DePasquale
Honorable Michael Gerber
Honorable R. Ted Harhai
Honorable John Hornaman
Honorable Tom Houghton
Honorable David Kessler
Honorable Steven Santarsiero
Honorable Tim Seip
Honorable Greg Vitali
Honorable James Wansacz
Honorable John Yudichak
Honorable Scott Hutchinson, Minority Chairman
Honorable Martin Causer
Honorable Jim Christiana
Honorable Garth Everett
Honorable Matt Gabler
Honorable Kate Harper
Honorable Jeffrey Pyle
Honorable Kathy Rapp
Honorable Dave Reed
Honorable Chris Ross

ALSO PRESENT:

E. Thomas Kuhn
Majority Executive Director

Jamie Serra
Majority Research Analyst

Rhonda Campbell
Majority Committee Secretary

Joseph Deklinski
Minority Executive Director

Jessica Pariso
Minority Secretary to Chairman Hutchinson

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CHAIRMAN GEORGE: This meeting is now in session on the public hearing. This committee will now consider testimony concerning Marcellus Shale exploration. While Pennsylvania is no stranger to gas exploration, the Marcellus Shale deposit presents new challenges to our current system of drilling. The size and magnitude of the well drilling poses new challenges which must be examined and understood to ensure that industry as well as the environment are protected.

To better understand the mechanisms involved in the entire drilling process, along with the potential environmental concerns posed by this new water intensive drilling, we've invited various individuals here today to testify. By becoming educated about the Marcellus Shale and the fracing used to extract this valuable resource, I believe the legislature will come to understand those areas where we will best be able to serve the people of this fine Commonwealth.

Mr. Hutchinson, I turn to you for remarks.

REPRESENTATIVE HUTCHINSON: Just to

say, Mr. Chairman, I do believe that this industry presents a great opportunity for Pennsylvania, but obviously, many members of this committee and of the General Assembly do face a learning curve to hear about the processes of drilling these wells and the challenges that are ahead. So I think it's very important that we have hearings like today where we hear from various interested parties to educate the members and to educate the general public about what is happening and what is not happening in this important industry.

So, thanks again to all our testifiers, and thank you for having this important meeting today.

CHAIRMAN GEORGE: I thank the gentleman. Let me say at the start we have a full agenda this morning. Consequently, it is imperative that those who present their testimony keep their presentation within the allotted time, in that, the members may have a question. Your complete testimony should be submitted for the record.

Testifying first is a gentleman, Howard Neukrug, Director, Office of Watersheds,

City of Philadelphia Water Department. Am I correct with that announcement?

MR. NEUKRUG: You did very well there, yes.

CHAIRMAN GEORGE: And the pronouncement?

MR. NEUKRUG: You did great.

CHAIRMAN GEORGE: See I told you. The next is Jan Jarrett, President and CEO of PennFuture. And the final testifier today will be the gentleman, Ray Walker, Vice President, Appalachian Shale, Range Resources. I now turn to the gentleman, Mr. Neukrug. You may start, sir.

MR. NEUKRUG: Well, thank you very much, Chairman, and members of the committee. It's my first time testifying in front of the state House. I welcome doing this. Thank you for inviting me to speak on behalf of the City of Philadelphia and the Philadelphia Water Department.

Pennsylvania is very fortunate that its natural resources can contribute to both U.S. energy independence and create thousands of jobs throughout the state. Natural gas is

widely recognized as a lower emissions energy resource that will help transition our economy away from high emissions fossil fuels to renewable resources.

We would like to acknowledge the extraordinary effort that the DEP and other state officials have put towards making natural gas extraction both economically beneficial and environmentally responsible. As a utility that provides the full gamut of water services, drinking water, regional wastewater treatment, and stormwater management for nearly two million people in southeastern Pennsylvania, we can appreciate the overwhelming commitment of time and resources required to balance the economic, environmental and social considerations.

We are following these discussions very closely because we know all too well that being at the bottom of a 10,000-square-mile watershed, comprehensive watershed management should include preservation of headwater streams and forested lands well upstream of Philadelphia.

There's a map included in my written

testimony. It shows that about half of the source of Philadelphia's drinking water is underlain by Marcellus Shale. And we recognize that the extraction of natural gas is an activity that can be performed with low risk to natural resources if there is good enforcement of existing regulations, inspection of drilling sites, and full restoration of sites to their predrilling state.

We are pleased at the state's commitment to increase inspections of well sites and staff to perform them, the increase in statewide industrial wastewater treatment capacity, and the acknowledgment that groundwater pollution regulations need to be stronger. Given these very positive DEP activities, I'd like to focus this testimony on the prevention of forest loss due to the drilling operations. Preventing forest loss is fundamental to the long-term quality of Philadelphia's drinking water supply.

Our concern is that existing state regulations do not require full-site restoration. The regulations ultimately leave the details of site restoration to be

negotiated between the landowner and the gas company. We are here to advocate for a more comprehensive approach. Without this there can be long-term degradation of water quality due to forest clearing and soil compaction.

There's another map also attached to the testimony. The second map shows that Philadelphia's 10,000-square-mile watershed encompasses two great rivers, the Delaware and the Schuylkill, and three states, Pennsylvania, New York and New Jersey. The watershed is dominated by forested lands which cover over half the area, and quite interestingly, it's about the same land that covers the Marcellus Shale map. If you look at the two maps they look very similar.

In Pennsylvania, a portion of our watershed, we have 2800 square miles of forested water supply, 70 percent of which is underlain by Marcellus Shale and vulnerable to clearing from natural gas extraction.

Statewide forested watersheds cover over 80 percent of our drinking water resources, making Pennsylvania's drinking water resources some of the cleanest in the world.

Forests assimilate nutrients, filter out waterborne sediments, hold soils in place to prevent erosion, and act like a sponge to hold rain water when it's slowly released to replenish streams and groundwater supplies.

The Philadelphia Regional Source Water Assessment and Protection Plans confirm that the excellent water quality of the Delaware River Basin is attributed to the dominance of forested land cover; and the forested areas are critical to maintaining good water quality in the face of future challenges from development pressure and climate change.

As a drinking water provider, we routinely model the relationship between land cover and water quality. What we see is that turbidity concentration in runoff from lawns is two times greater than that from forested areas. We see that nitrogen concentration is almost five times greater, phosphorus three times, and Cryptosporidium and Giardia concentrations in runoff is over 30 times greater from lawns than from forested lands, and fecal coliform concentrations are 3,000 times greater.

In essence, we view the lost of forested lands as synonymous with water quality degradation. Pennsylvania has poured millions of dollars into protection of forested areas based on their value to watershed protection through state agencies, private entities, and public utilities. Philadelphia has likewise expended great resources to regional partnerships like the Schuylkill Action Network and the Act 220 Delaware Regional Water Plan to protect lands and its water supply. We do not want to see all the environmental improvements and statewide support for watershed protection set back by failing to return clear drilling sites to the original predrilling state.

To encourage regrowth and full restoration the solutions are simple. The drilling sites may need topsoil replacement, mitigation of compacted soils, planting of sapplings, removal of access roads, and invasive species control in order to overcome disturbances associated with drilling activities.

We appreciate the extraordinary efforts of DEP to regulate all facets of

Marcellus Shale drilling. However, each drilling site cannot be left as a hardened clearing. If this were to happen, drinking water suppliers across the state would experience water quality degradation because forests play a fundamental role in water resource protection.

In closing, we hope that the state continues its focus on producing clean energy by drawing the attention of agencies, landowners, gas companies, utilities and environmental organizations to the issue of full-site restoration. We do not necessarily call for stricter regulations, though they could be part of the solution. Forests can also be protected if significant commitment to the funding is dedicated to full-site restoration and if skilled environmental groups are provided opportunities to get involved.

The health and viability of Pennsylvania's vast forest resources are of incalculable value to the water resource, hunting, recreation and silviculture communities.

Thank you for letting me lend our

support to protecting these great resources. Thank you very much.

CHAIRMAN GEORGE: I thank the gentleman for his testimony. We'll stand for questioning. Are there any questions?

(No response.)

CHAIRMAN GEORGE: Seeing no questions, thank you very much.

MR. NEUKRUG: Thank you.

CHAIRMAN NEUKRUG: Next individual that will come before the committee is the lady, Jan Jarrett, President and CEO of PennFuture. Welcome, madam.

MS. JARRETT: Thank you very much. Good morning, and thank you, Chairman George and Chairman Hutchinson, for the opportunity to testify before you this morning.

PennFuture, like everybody else in this room, has been really excited watching the development of the Marcellus Shale gas formation. It poses a great potential to benefit Pennsylvania's economy, particularly the economy in our rural areas. But gas drilling, just like all forms of energy production, poses risks to the environment. So

we're going to talk about ways that we might be able to mitigate these risks in this testimony.

I'm just going to do a brief thing about the Marcellus Shale formation. I'm sure you're going to hear a whole lot more about it from the representative from the industry. But the Marcellus Shale formation lies deep underground, a mile or more underground. And it underlies almost all of western Pennsylvania -- almost all of Pennsylvania, in fact, except for the southeastern corner of the state.

Folks knew that there was gas in that shale formation for many, many years, but it wasn't until the 1990's that the drillers developed the technologies -- two technologies to be able to get at that, and they are hydraulic fracturing and horizontal drilling. In 2003 a company drilled a well down into the Marcellus Shale formation in Pennsylvania and it hit paydirt. And after that there's been something of a boom, sort of a gold rush, if you will, for Marcellus Shale resources.

It's slowed down a little bit since the economy has slowed down and the price of

natural gas has dropped, but the shear size of the reserve in Pennsylvania insures that gas drilling will be with us here in Pennsylvania for a long time.

Penn State researchers estimate that this formation holds something like 363 trillion cubic feet of gas, making it the largest gas deposit in the nation. In short, it's an economic gain change for Pennsylvania. It poses tremendous opportunities for the state, but also great challenges in making sure that we manage this and regulate it well. And there are a number of issues associated with doing that.

First of all, the process to get at this gas involves the use of millions and millions of gallons of water. What happens is that the drillers must shoot water under high pressure mixed with sand and a proprietary mixture of chemicals deep underground into the shale formation to fracture the shale open and free up the gas. The frac water also contains grains of sand in order to hold the pores open in order to allow them to continue to recover the gas. It can take from one to six million

gallons per well to do this process, and some wells will have to be fraced as many as three times over their lifetime to ensure their productivity.

Early on the industry in some cases simply, we threw water out of the nearest stream and in some cases to the point where they dewatered streams. Fortunately, DEP informed the industry that this was illegal and inappropriate and required them to stop and required them to get permits for taking out the water.

There have been scattered reports across the Marcellus Shale area about temporary impacts on drinking water wells, but those seem to have also been mitigated somewhat. So it's a problem that DEP, the Susquehanna River Basin Commission and the Delaware River Water Commission are also addressing, and it seems that either it nipped the practice in the butt or they've completely driven it underground.

One of the problems with properly ensuring that we're not negatively impacting our water supply is that, Pennsylvania doesn't have a good handle on how much water is

available and how much is really consumed. We've taken a first step towards trying to figure that out last week when the State Water Plan required by Act 2250 was finally released. We urged DEP and the Statewide Water Resources Committee to integrate the information that well operators are providing regarding their water consumption into the State Water Plan on an expedited basis so that we can better protect the water supply for Pennsylvania's citizens, industries and communities.

When the frac water gets shot down into the formation to fracture the shale, a portion of it, a good portion of it comes back as wastewater, flowback. As it comes back up and as it goes down it flows through -- There are chlorides present in the gas-bearing shale and they're dissolved by the frac water as it moves through the shale. When it comes back it's very, very salty. It has chlorides in concentrations as high as 45,000 parts per million. Just as a comparison, seawater typically contains chlorides in concentrations of between 10,000 and 35,000 parts per million, so it's really, really salty.

In addition, it can also pick -- It also has proprietary chemicals in it, which make the frac water more effective and also can pick up hydrocarbons, metals and radioactive materials as it comes back out. What the drillers are left with is huge volumes of wastewater, and they've got to have some way to either dispose of it or treat it. If it's disposed of, it has to be disposed of as a hazardous waste because of the constituents, a lot of it ends up getting treatment.

There are three methods of treating brine that are appropriate in Pennsylvania right now. One is treatment in an industrial treatment plant, specifically designed for brine treatment, treatment at sewage treatment plants, and underground disposal deep underground into a disposal well.

There are just a few, a limited number of industrial treatments facilities that are capable of treating drilling brines in Pennsylvania, although some are presently proposed and I think some are under construction. But, right now there's not enough capacity at these facilities to handle

the volume of wastewater that's being generated by the fracing operations.

There are some of the wastewater that's actually being transported by truck to some locations where they can be treated, either to industrial facilities or sewage treatment plants. But the high cost of transporting a waste raises concerns that unscrupulous operators may resort to illegal or otherwise improper disposal practices.

Further, a large frac job may require as many as 600 truck trips to haul fresh water and brine, and that much traffic creates air pollution and puts a great strain on rural roads.

Right now there's a question of just how much treatment is going on at some of the facilities that are designed to treat the brine. Recently the Pennsylvania Bulletin published a notice of a draft NPDES permit for a brine treatment facility that would allow the facility to discharge as much as four tons an hour directly into the Allegheny River. That's not adequate to protect water quality and other uses of the water. So we urged DEP to impose

more stringent discharge limits for the water quality parameters that are most affected by brine from drilling operations, including chlorides, sulfates and total dissolved solids.

Sewage treatment plants have also been accepting this waste, but sewage treatment plants aren't designed to treat brine. So really, what they're doing when they take it to a regular industrial sewage treatment plant or a municipal sewage treatment plant is simply diluting it, and that doesn't work.

As we saw last fall, there were nine sewage treatment plants in Greene, Washington and Fayette counties that were receiving Marcellus Shale wastewater and they were discharging it into the Monongahela River. Unfortunately, it raised total dissolved solid levels in the Monongahela to the point where several important industrial facilities in the Mon Valley, including U.S. Steel, had to shut down their processes because the water was not fit to use in their processes. And people who relied on the Mon for their drinking water complained of bad-tasting water.

Those nine plants were accepting the

treatment without applying for the necessary revisions to NPDES permits despite an announcement by DEP confirming that they had to do that. DEP since imposed consent orders on the nine plants to limit their daily intake of brine to no more than one percent of their total daily inflow, and to require them to test their outflow for the brine and about two dozens other different parameters and to provide DEP with an analysis proving that the brine won't interfere with the actual processes of the -- the normal processes of the sewage treatment plants. The order also requires any other sewage treatment plants to submit formal applications for revisions to NPDES permits.

Many sewage treatment plants across the state have accepted brine, in fact, without applying for, let alone receiving, the legally-required NPDES permit revisions. Recently PennFuture, while reviewing the permit for the Sunbury generation station for other things, discovered that they were actually receiving, accepting brine for treatment without having applied for a revision to its NPDES permit.

DEP needs to continue to inform

treatment facilities of their obligation to seek and obtain revisions to NPDES permits before they accept brine and to step up its monitoring efforts to make sure that some facilities aren't doing this without receiving the proper permit revisions and doing the proper analysis to actually prove that the treatment will actually treat it and protect water quality.

Another disposal option is to dispose of it deep underground, way underground below drinking water supplies and in an formation that's capped by an impermeable layer of rock. This might be an acceptable way to dispose of some of this. However, it has one big downside. And that is, that once you take millions of gallons of water and permanently put it underground, it's lost forever for uses for drinking water, other industrial processes. So it would potentially adversely impact the adequacy of our water supply.

One thing that PennFuture would like to suggest the industry explore is using on-site mobile treatment facilities such as are used in Texas and Oklahoma. To our knowledge

none are being used right now in Pennsylvania. The upsides of that particular option is that they can then reuse the -- They can recycle the water and use it again to do fracing, and it also cuts down substantially on the truck traffic that is being used to haul the water to and from treatment sites.

We also believe that there needs to be greater transparency. DEP regulations currently require well operators to report the types and amounts of waste they dispose of and the facilities to which they ship their wastes on an annual well and water production report. But, DEP, as required by the Oil and Gas Act, keeps these reports confidential five years after they are submitted. As a practical matter, this precludes any member of the public from being able to ascertain that the waste generated by a particular well are being properly disposed.

By way of contrast, other generators of industrial wastes provide DEP with residual waste reports, which are not kept confidential absent for some need for confidentiality. Senator Gene Yaw of Lycoming County has

introduced a bill, S.B. 297, to amend the Oil and Gas Act to require well operators to submit reports specifying the amount of production for each well to DEP semi-annually and to require DEP to make those reports immediately available. We think that's a good first step.

Ideally, however, DEP and the public should be able to track the generation treatment and disposal of brine on a cradle-to-grave basis. So, we urge that S.B. 297 be amended to require well operators to report to DEP the types and amounts of waste that each well generates and the facilities to which those wastes are sent for treatment or disposal on at least a monthly basis and that DEP should make that information available on-line.

Another problem with a potential negative environmental impact is cumulative impacts. The Oil and Gas Act nor the oil and gas regulations in Chapter 78 require the DEP to assess probable cumulative impacts of gas drilling on the natural resources in the area of a proposed well. And you heard that outlined -- some of the problems outlined by Mr. Neukrug earlier. But nobody looks at

the -- While just one well might have a minimal impact, when you get a bunch of wells in one particular watershed, it could be a problem leading to deforestation and habitat fragmentation, plus the construction of -- These drilling sites include well pads, roads and pipelines, and that could have a substantial cumulative impact in a particular watershed.

There are a number of administrative issues facing DEP. I think they were a little bit caught off guard by the scale of the industry and the speed with which it grew over the last couple of years. Right now there are 63,000 wells, active wells in Pennsylvania. Not all of them are Marcellus Shale. In fact, most of them are shallow wells. The Department has established nonbinding guidelines for the frequency of inspections.

This is what the Department requires for an inspection to each well: Once before a permit is issued; once when objections are raised to a permit application; at least once during drilling; once during the period in which the area of the well is to be restored;

once before the well is granted inactive status; once during plugging; once during the period in which the area of the well is to be restored; once before the bond is released; at least once to determine that any violation by the operator has been corrected; once in response to any complaints; and once a year to determine the operator's compliance with the applicable laws.

As of March 20th of this year, there were only 17 oil and gas inspectors on staff at DEP. That's wholly inadequate. DEP has raised it fees in order to fund the hiring of more inspectors, and they anticipate that they will be hiring about 40 more inspectors. But even at that level, each inspector would have to visit five wells on the average working day just to meet the annual compliance check-up guideline. Consequently, for all intents and purposes, Pennsylvania has its gas well operators working on the honor system.

Bonding. Another problem is that the bonding amounts set forth in the oil and gas -- the section of the Oil and Gas Act that covers that was passed by the legislature in 1984 and

no longer reflects the full amount the Commonwealth is forced to spend to plug abandoned or illegally operated wells.

In 2008, for example, the Department spent $2.2 million to plug 150 wells in 10 counties in western Pennsylvania. Marcellus Shale wells are probably going to be more expensive to drill, so the bond amounts in the Oil and Gas Act must be increased to reflect the current cost of plugging abandoned wells to ensure that well operators, rather than taxpayers, bear the costs if drilling companies go out of business or walk away from their responsibilities to recover the land.

Finally, PennFuture supports the Governor's call to impose a severance tax on Marcellus Shale. Pennsylvania is -- There are 39 other states in the country that impose such a tax, including West Virginia. And, in fact, the tax that the Governor suggested is structured exactly like the one in West Virginia.

In addition, PennFuture and a number of other environmental organizations supports using a portion of that for environmental

purposes to address some of the impacts that drilling brings to us. We commissioned a poll. We found that a majority of Pennsylvanians support such a tax, and almost nine in ten supports using a portion of it for environmental purposes.

We also believe that some of it should go to the Fish and Game and Boat commissions for wildlife habitat improvement and public access, and some of it should be returned to municipalities that host drilling sites in order to help them cover the costs that drilling activities bring to their community.

That concludes my testimony. I look forward to your questions. Thank you.

CHAIRMAN GEORGE: I thank the lady for the presentation. I see that the gentleman, Mr. Vitali, already has asked to allow him to question. Are there any others?

(Raise of hands).

CHAIRMAN GEORGE: MR. Vitali, I recognize you.

REPRESENTATIVE VITALI: Thank you, Mr. Chairman.

Thank you for your testimony, Jan. I just want to be clear. Is disposal of the spent water for the fracing operation currently allowed to be disposed of by injection underground under current Pennsylvania law or regulation?

MS. JARRETT: I believe it is.

REPRESENTATIVE VITALI: You had mentioned the treatment plants and the potential inadequacy of capacity. Who has the responsibility for constructing treatment plants, and are there any planned or under construction now?

MS. JARRETT: I believe there are -- There are some planned and I think there are some under construction. Currently, it's the industry's responsibility to construct the brine treatment plants, wastewater treatment plants.

REPRESENTATIVE VATALI: You mentioned that 40 staffers are currently planned under the DEP proposal. Do you have a figure as to what the adequate level of staffing would be for this?

MS. JARRETT: We have not arrived at

a level that we think would be adequate. We don't believe that 40 some is an adequate complement to actually do this job correctly, even given the current number of wells that are out there. We would anticipate when the economy recovers, and surely when the price of natural gas goes up, that there will even be further activity to monitor. So, they're going to really need to -- They're going to really need to beef up their staffing in order to adequately monitor this.

REPRESENTATIVE VATALI: And then my final question, do you have evidence right now that polluted water is being discharged into Pennsylvania's streams?

MS. JARRETT: We have the example of last fall where we had a really big problem in the Monongahela. We have anecdotal -- We hear anecdotal tales about folks who come across one of these trucks that are just discharging right into a waterway. But, I don't think that any of that has been documented. And if it has, they would get fined. That would be a violation.

I think there might be scattered

instances of that, but I don't think that's necessarily the rule. The industry right now I think is really trying to figure out how they're going to be able to treat the amount of water they have in a responsible way. We want to make sure that that really happens.

REPRESENTATIVE VITALI: Thank you Jan. Thank you, Mr. Chairman. That concludes my questions.

CHAIRMAN GEORGE: I thank the gentleman. The gentleman, Mr. Barbin.

REPRESENTATIVE BARBIN: Thank you, Mr. Chairman. And thank you, Ms. Jarrett, for your testimony. I would like to ask you a question, though, based upon something I read in Mr. Walker's testimony, as well as your own testimony.

Do you believe that natural gas drilling from Marcellus can be moved forward in Pennsylvania if a brine solution is reached?

MS. JARRETT: We certainly do, and we would encourage that. As Mr. Neukrug said, natural gas is a valuable resource and it's a much cleaner burning fuel than many that we've already got access to, so we support the

development of the resource.

REPRESENTATIVE BARBIN: Do you think it's possible by using a combination of the on-site mobile treatment facilities to reduce the amount of recycled flowback?

MS. JARRETT: We would hope so.

REPRESENTATIVE BARBIN: Okay. Do you also believe that if you took the recycled flowback and you found a way to insert it into the municipal sewage plant's system on a diluted basis, that brine water could be treated in a municipal sewage plant? If you could dilute the amount of brine water going into the system by maybe going out a couple miles into where the pipings were and you could reduce the amount of brine that was put into the system itself before the treatment -- before it got to the treatment plant, is that conceptionally a way that you could reduce the chlorides that would finally be distributed?

MS. JARRETT: It's my understanding that that was one of the methods that was being used at those nine sewage treatment plants that were discharging into the Monongahela. And the amount was just so much -- The volume was just

so much that it was -- the plant -- the dilution factor did not work. If that's going to happen, then the permits need to be revised and the wastewater stream needs to be analyzed to make sure that that dilution is enough to safely discharge it into the waterways, but that analysis needs to be done first.

REPRESENTATIVE BARBIN: Okay. Is that something that we should be spending our time on or requesting DEP to try to find part of the solution to this problem?

MS. JARRETT: I think that has to be done on a case-by-case basis. If a municipal sewage treatment plant wishes to accept that wastewater, then they need to go through the analysis and the demonstration that they can do it safely. So, that's to be done on a case-by-case basis.

I think it's a better option either to look at the mobile treatment option or to build facilities that are specifically designed to treat this particular kind of wastewater.

REPRESENTATIVE BARBIN: But is there anything that's mutually exclusive about using both?

MS. JARRETT: Probably not.

REPRESENTATIVE BARBIN: Thank you.

CHAIRMAN GEORGE: Is the gentleman concluded?

REPRESENTATIVE BARBIN: Yes. Thank you, Chairman,

CHAIRMAN GEORGE: The gentleman, Mr. Kessler.

REPRESENTATIVE KESSLER: Thank you for your testimony. I think you mentioned there's 39 other states that are drilling and they're using the same techniques that we're using in Pennsylvania, are they?

MS. JARRETT: Not all of those states have this deep resource. Texas is one place that does. There's some of them have Marcellus Shale present in parts of West Virginia. There's a formation called the Barnett Shale deposit in Texas, and that's another deep one like this, so there are places like that.

But, you know, drilling for natural gas has been going on at various levels with various techniques for, you know, decades and decades and decades. It's the states which actually have the resource available to them

that are actually taxing -- imposing these severance taxes on the extraction of the gas.

REPRESENTATIVE KESSLER: So do you think it would be good for us in Pennsylvania to contact some of these states to learn what they've done with the water?

MS. JARRETT: Yeah. We've actually compiled some information about the various taxing schemes. I'd be happy to forward that to you. The Governor's proposal is identical to the tax that West Virginia imposes on natural gas extraction.

REPRESENTATIVE KESSLER: But I mean also, as well as contacting these states to find out how they treat the water, how the process goes and all that.

MS. JARRETT: Yeah.

REPRESENTATIVE KESSLER: Are there similar states that are using techniques that we're using?

MS. JARRETT: Yeah, there are. I would imagine Texas would be a good source of information. Colorado is another place that's got a similar situation.

REPRESENTATIVE KESSLER: Okay. Thank

you, Mr. Chairman.

CHAIRMAN GEORGE: I thank the gentleman. The gentleman, Mr. Reed.

REPRESENTATIVE REED: Thank you, Mr. Chairman. And thank you, Ms. Jarrett, for appearing before the committee today.

I want to go back in your testimony where you call for cumulative impact studies done with drilling within a region and their impacts on the natural resources and the environment within that community. That's a new concept that we haven't really discusses in this committee before. It seems like an interesting concept that we, perhaps, should take a look at in the future.

And I guess my question to you would be, if we're going to evaluate the net, the cumulative impact of resource extraction as it relates to the natural resources within a community, should we also evaluate the cumulative or net impact of each environmental regulation on the economy and each environmental regulation on the price to the consumers for the electricity in which they're using? If we're going to look at the

cumulative impact of extraction, should we also look at the economic impact as well as the impact on consumers?

MS. JARRETT: Yes. And you ought to also look at the impact of the profit that companies are making and where that money is going and that sort of thing. It's impossible I think to get an entire picture of all that, but I really think that when you look at the impact of drilling operations on maybe 20, 30 of these drilling operations in a single watershed, it makes sense to sort of look at the overall impact on a particular watershed.

REPRESENTATIVE REED: Which I understand, because basically, what you're saying is, one well could be drilled 20 years ago, you know, and then a well each year for the next 20 years. The cumulative impact of those 20 wells could have a bigger impact than just each well individually.

I would just profess that, perhaps, the same concept should be construed to environmental regulation or alternative energy mandates that each taken individually may have a small insignificant impact on our economy and

on the price of electricity and power to the consumer. But when you add up the cumulative impact of environmental regulation and alternative energy mandates over a 10-, 15-, 20-year period, you're probably talking about a much more significant impact.

So I guess it's more of a comment in the end that if we're going to evaluate the cumulative impact of natural resource extraction, we probably also need to evaluate the cumulative impact of environmental regulation, as well as the cumulative impact of alternative energy mandates. I would think that that would be a concept that your organization would be in favor of given the total picture of what's going on in the State of Pennsylvania, not just looking at one minute aspect in any given year.

MS. JARRETT: You also have to look at the way companies may be externalizing some of their costs onto taxpayers rather than internalizing them. When you don't have adequate environmental regulations, those costs then aren't borne by the company and aren't incorporated into the actual cost of

production. Rather, they're passed on to the taxpayers in terms -- when it comes times to deal with polluted water and remediation. Just like we've seen the legitimacy of badly or unregulated coal mining, those costs were never incorporated by the companies. So now we're faced with billions of dollars of cleanup generations later. So we've got to also keep that kind of thing in mind.

REPRESENTATIVE REED: Second question I would have --

CHAIRMAN GEORGE: If I may interject, one more question, please. We're running a little late and I have another witness.

REPRESENTATIVE REED: Then I guess I'll choose between the two questions I had. Your organization as well as a number of other environmental organizations have said as part of your justification for the severance tax, modeling it after West Virginia, though I do question whether we want to model our economy after West Virginia, but I guess that's a whole other debate that we can have at another time.

The justification of the comments that I've seen in newspaper articles across the

Commonwealth, on T.V. and upon radio, has been that these companies should not get off scot-free without paying taxes when they're making a profit within the State of Pennsylvania.

So my question would be, do you just not recognize the other taxes that corporations are paying, the corporate net income tax, the capital stock and franchise tax; the fact that the severance tax would also be paid by the landowners receiving royalties for the payments for natural gas extraction, or are you just operating in a vacuum? Yes, we don't have a severance tax, but we have every other tax out there that's imaginable under the stars.

If you're going to compare our state taxing situation to other states taxing situations, you've got to, once again, take the cumulative tax burden based upon a company. And when you look at a number of the other states out there--Texas is a good example as well--their total tax burden is still less than Pennsylvania has today without a severance tax.

MS. JARRETT: In many other places, though, the industry pays a number of different

kinds of taxes, state taxes, property taxes, extraction taxes, corporate taxes. There's a lot of places where they do that. The industry is used to paying these taxes in other places incorporated in the cost of doing business.

REPRESENTATIVE REED: Well, once again, I would think that we should just also look at the cumulative tax burden. Just because they're paying other taxes, just because they're paying a tax called a severance tax, it doesn't necessarily mean in other states they're paying more taxes. In Pennsylvania they could be paying a higher tax burden just with the existing taxes we already have in place.

Just because we don't name one the severance tax, doesn't mean they're not paying their fair share. I think if we're going to have the argument on taxation and the debate, which we're going to have in the next couple months, we at least owe it to the taxpayers and the people of the Commonwealth to have an honest debate on how this state ranks compared to other states across the nation.

Ms. Jarrett, thank you for your

testimony. Mr. Chairman, I know I've run out of time, but I appreciate your indulgence.

MS. JARRETT: I can get you a study that actually looks at that comparison. I'd be happy to forward that to you.

REPRESENTATIVE REED: Okay. We can get you the numbers as well. We've done it as well. Thank you.

CHAIRMAN GEORGE: Are you concluded?

REPRESENTATIVE REED: Yes.

CHAIRMAN GEORGE: Thank you for your courtesy, and thank you for your testimony.

MS. JARRETT: Thank you.

CHAIRMAN GEORGE: The next witness will be Mr. Ray Walker, Vice President of Appalachian Shale and Range Resources. Welcome, sir.

MR. WALKER: Thank you, Mr. Chairman, and Representatives. And again, thank you for inviting me here today to talk about the Marcellus. What I'd like to do today, I have extensive testimony that's been passed out. I'm not for the sake of time going to read through that. I'm assuming you can read that as well as me.

There's also a copy of a Pow-R point that has way more information than we have time to go through, so I'm going to skip through some of that and try to hit some of the high points and leave most of the time for discussion, if that's okay with you guys.

First of all, I'd like to say, there are a lot of -- There's a lot of excitement out there about the Marcellus today, huge potential economic impact. There is a lot of misconceptions, there's a lot of media hype, and a lot of those things that we hope to help clear up by sessions like today. So again, thank you for inviting me.

I'll tell you a little bit about Range Resources. We're not a newcomer to this play or the state. We've been here over 25 years. Our corporate headquarters is in Forth Worth, but the roots of the company actually are in Appalachia back as far as 1976. We operate over 5,000 wells in the state, over 11,000 wells in Appalachia, and we've put to work over 120 new people in South Pointe, which is Washington County. So far in the last couple of years we employ well over 200 people

in the state. Our payroll is well over $12 million today.

Marcellus Shale, I won't go into that. A couple of the witnesses before me did an excellent job of describing where it is and why. I think this picture does a really good job of showing the potential scale of the Marcellus compared to all the other shale plays. And, of course, you'll hear a lot of people refer to the Barnett Shale play, which is the granddaddy of shales.

The Barnett Shale in North Texas is the largest-producing natural gas fill in the United States today. Back in 2003 the Barnett Shale had less than 50 horizontal wells and produced 300 to 400 million cubic feet of gas. Today it has 10,000 wells surrounding the City of Forth Worth and it produces approximately five bcf of gas per day. Tremendous growth. They started out with two or three companies drilling, and today there's over 65 active operators, over 220 operators that own horizontal wells in the Barnett play today.

This is a picture of what we term the Marcellus Fairway. This circle here represents

the size of the Barnett Shale overlaid upon that, to give you some sort of context how large this play could go. A lot of us feel like it could be multiple times larger than the Barnett.

This is a picture. The blue dots represent the drilled wells in the Marcellus. Red dots represent the permits. We're beginning to get quite a spattering of wells across the state. Activity is growing much slower than we predicted last year because of the economy, and so forth, but things are looking very good.

I won't spend a lot of time talking about why natural gas. I think that's been covered today. There's a lot of reasons that Pennsylvania could become a leader, a natural gas exporter, and one of the leading states in taking us towards energy independence in the United States.

The traditional industry has seemed to get pushed aside here in all the hype about the Marcellus, but the traditional industry in Pennsylvania is quite large. Today it's seven-billion-dollar annual impact, employs

over 23,000 permanent jobs in the industry.

To date, over the past couple years we estimate there's been over $4 billion invested in the Marcellus, most of that in leasing. Basically, this year there will be another billion dollars invested approximately. That's somewhat less than before, but actually this will probably be one of the few plays where activities increase over this year. Most of the other plays are actually decreasing in activity levels.

Gas prices are close to $3.63 last week for April. That's the lowest price in about eight years. Six months ago it was about $12. Six months ago there were 2400 drilling rigs operating in U.S. on shore; today there's less than a thousand. So you can tell the industry is suffering just like every other industry.

Each well in the Marcellus could generate as much $2 million in royalties over a 20- to 40-year period. We believe when compared to the Barnett Shale in some really nice economic impact studies that have been done there over the last couple years, that

we're looking at as many as 100,000 jobs and potentially $10 billion in annual economic impact to the state.

Each horizontal drilling rig creates 150 full-time permanent jobs; average salary in the 70,000-dollar range; advanced technical degrees, Ph.D's, all the way down to general truck drivers, welders, pipefitters, and so forth. Tremendous job creation opportunity for the state.

I'll get into just a little bit here in talking about the process of drilling the well, show some pictures. I think a picture is worth a thousand words. We have drilled about 120 or some odd Marcellus wells in the state, far ahead of anyone else. We're the ones that drilled the first well in 2003 and completed that well in 2004. The rest is history from there. So we have probably as much history to talk about as anybody else.

Of course, most of you are familiar with acquiring leases. First we have to go out and acquire and negotiate the right to drill on the property. We spend a lot of science, mapping three-dimensional surveys, looking at

where we think the Marcellus is, how thick it is, what depth it is, and so forth.

Then we move to -- prepare a site, move in a drilling rig. This particular drilling rig we moved in from Wyoming. It's about 150-foot tall. It's capable of doing the things that we need to do at the depths and going horizontal that we do. Footprints range from three to five acres. On well sites we'll drill multiple wells. It could be as large as seven or eight acres.

This is why we're doing what we're doing. And again, I apologize, I'm going really fast, but I'm trying to get through this quickly. This is a vertical well on the right side of the screen. You can see from that what sort of influence you would have on the Marcellus, so you build -- really only contact a small amount of rock. If you look at the horizontal well, you can see how many more multiples of rock that you can contact with just one vertical well. This is exactly why we go horizontal; to be able to contact more Marcellus economically.

Water protection. This is a great

quote from Doctor Watson from Penn State. The simple reality is that stimulation used in this technique does not impact groundwater bearing zones. There are very, very few cases in literally hundreds of thousands of wells drilled across the United States. I've been in this business 35 years, I've not seen it happen yet.

This is a highly regulated DEP process. The DEP has been doing it longer than pretty much any other state regulatory agency. I feel like they have a very, very comprehensive and dedicated program to protecting groundwater and surface water. This process, which we can go through in more detail, we will set as many as three and sometimes as many as five casing streams just to protect the fresh water in the coal-bearing zone prior to starting to drill the actual well.

This is why we like horizontal wells. This represents a 500-acre square piece of land. And essentially, in yellow you can see one location in the middle and how we could develop this 500 acres with six horizontal

wellbores. If we did it in a vertical sense--That's what the little purple locations would be--you would have to do several more. So this is why we like to go horizontal. This is why the DEP likes us to go horizontal. This is why the local townships and landowners like us to go horizontal. Much less environmental footprint, it's cheap for us. We can appreciate economies of scale. We have one road, one pipeline, and so forth.

Picture of a drilling rig in Washington County, several of these. You can see while it is invasive--We know it's invasive, we know it's loud. We have lights. We have to build roads. We have to construct the location--but we use impeccable EMS controls; again, all highly regulated by the DEP.

The well then moves into the completion phase. This is an actual picture of a wellbore with two wellheads, so there's two horizontal wellbores off the same location. So you literally see a picture there of how close they are together.

The fracing operation is essentially

pumping a bunch of water, a little bit of chemicals and a bunch of sand. We pump water down there. Water is incompressible, it breaks the rock. The sand leaves the cracks open and then basically the wastewater flows out. This is a picture of a frac impoundment. You can see in this case the farmer has planted his corn literally right up next to the water, again, very nonevasive; again, holding just fresh water.

This is how we have brought in technology from other states to transport water from these impoundments to the frac job rather than putting, Ms. Jarrett quoted a while ago, as many as 600 loads. It's actually closer to a thousand loads of water to get ready for one of these horizontal wells. So we would much rather pipe this water through these temporary irrigation pipes than send the trucks up and down the road. So again, this is a new technology we brought up here.

On the production phase, our footprint is very, very small. I'll show you some pictures. These are some horizontal wells that have been reclaimed. This is one in

Washington County. They're put as close to the general slope that they were beforehand as we can get it. We generally try to pick a flat spot to build a location in the first place because it's a lot cheaper for us. This is what one looks like afterwards (holding up a picture).

This is a great picture of the Paxton #1 well in Washington County. This is directly off of 519. This is what the well looked like during the clean-up procedure after the frac job. You can see us flaring the gas there. This is what it looks like today, five months later.

This is a picture of the actual very first Marcellus well that employed the modern fracture techniques. This is the Renz #1 well in Washington County near the little community of Westland. This was the operation during drilling, and this is what it looked like when it was reclaimed, just a few months later.

Stringent regulations and protections. Nationally we refer to Pennsylvania in the industry as a state that has really teeth in its protections. There are

a ton of organizations that we work with every day and follow regulations, and so forth. Pennsylvania is blessed with a great natural resource in water.

I'm from Texas, you probably guessed that. I moved up here about two years ago, so I now am a Pennsylvania resident. I love outdoors and hunting. I will tell you there's more water in Washington County it appears to me than there is in the whole state of Texas. So, it's great to be up here.

It's highly regulated. There's a lot of hype about the millions, quote unquote, gallons of water that we use, but compared to other industries, we use very little water. If we were at the peak of the Barnett level a few months ago, which they were drilling about 3,000 horizontal wells a year, we are about at a level of two or 300, so we're less than, you know, 10 times less than that today.

But if we were at that level in a few years from now, we would literally be using 30 million gallons a day. Mining uses almost 200 million gallons a day. Power generation uses six billion gallons of water a day. So

again, compared to other industries we use very little water, and we're very temporary in nature.

According to the SRBC, this comes straight from them, their quote, if we were at double the Barnett or 20 times the level we're at today, we would use less than half of the water that's consumed on the golf courses in the State of Pennsylvania. Again, we use very little water compared to the normal uses.

What goes into them? There's been a lot of hype about the proprietary nature of chemicals. I will assure you, every single chemical that we use on frac jobs has been disclosed to the DEP and it is available at public request. There's nothing secret about anything we pump in the water. Now, the actual mixture of the certain chemicals inside their brand name, it's just like Heinz ketchup, you're not going to know what the exact mixture is, but you will know every chemical that's in there. The same thing here.

The chemicals are less than five-tenths of a percent of what we pump in the hole. They're very common chemicals, things

like surfactant, which is a fancy name for a soap; a friction reducer, which is a fancy word for slick-em that you put in water to make it pump easier through the pipe.

There's a misconception that these chemicals are what get the gas out of the well. The chemicals do not get the gas out of the well. The chemicals help us pump the water into the well, at less pressure which costs less money. Most of the chemicals never come back because they are so diluted. They're literally in parts per billion that they're put into the water. The chemicals are very, very benign, bacteria size or commonly the same materials that are used in your, what's called bacterial-type soap that you use, hand soap, and so forth.

Again, I went through that. Water treatment. The biggest concern that the industry has in working through this play and the DEP is working with us in partnership on this is the treatment of the residual waste. The wastewater coming back from this is not hazardous waste, it's residual waste. It's simply salt water.

The water can be treated. We look at it as a three-phrase process. We're developing underground injection wells, like was talked about previously. We're looking at reusing the treatment water. The DEP is working with us on being able to do that and capture the flowback water on location, diluted with more fresh water and simply use it again.

Then treatment technology. There are a couple of companies that have gotten together and spent intangible dollars, literally hundreds of thousands of dollars on engineering studies. We are looking at some of the mobile and permanent facility-type treatment facilities. We're going to literally invest hundreds of millions of dollars over the next couple of years in these desalinization and crystallization-type plants.

Literally, they cook the water, evaporate the water, distill the water and you end up with fresh water coming out and either a salt brine or a salt cake, which we are also looking and talking with PennDOT about being able to use that to put on the highways.

In comparison, PennDOT puts over

700,000 tons of salt on the roads every year on state highways. This is just PennDOT; does not include local municipalities or the turnpike. That would be equivalent to 3100 horizontal wells, just what PennDOT puts on the roads every year. And where do you think that ends up? It goes right in the river.

We have a shared vision for water treatment. There is ample assimilative capacity in the rivers in Pennsylvania for the next couple of years. We are working diligently with the DEP. We are investing tangible dollars. This is not new technology that needs to be developed. It's just new facilities that need to be built.

The lead time on these facilities is often as much as two years; special alloy materials that they have to use. There's a lot of technology in Texas and Oklahoma and Colorado that needs to be brought up here. Again, there has to be economies of scale. There have to be enough people drilling wells to use those technologies to get companies to invest in this state.

A few things I need to address. I

already covered, chemicals are not what strips the gas. Essentially we put water down there, we break the rock. And when the rock is broken, molecules of gas start escaping from that.

There are no -- And believe me I've been working with Acting Secretary Hangar and the DEP for months now. There are no reported incidents of dewatering streams that we can find tangible proof of. There are no tangible or reportable incidents of illegal dumping that we can find that's been reported. And believe me, we are looking. The industry is very protective of its reputation. If our reputation is not good, public policy will dictate a very tough environment for us to work in. It's already tough enough in Pennsylvania. We can't afford any more costs.

The Mon River incident. We went out, the industry went out and hired a very reputable international, worldwide environmental firm, Tetra Tech. We have supplied that report to the DEP. It is public information. We donated it. Basically, we figured that -- Or Tetra Tech figured that the

only gas portion of that problem was somewhat less than seven percent. The maximum chloride concentration that the EPA -- or the EPA threshold is 230 parts per million. It never exceeded 56 parts per million.

The interesting thing about all of it to me--I'm just sort of a bottom-line, nuts-and-bolts guy--is when the DEP ceased those plants from taking wastewater from natural gas drilling activities, the TDS levels monitored did not go down. So that was a pretty good indication to me that it wasn't our problem.

The biggest portion of that problem was sulfates. We all know where sulfates come from. There are no sulfates in Marcellus flowback water.

As far as road bonding, again, that's sort of a reputation thing. If we tear up a road, we don't fix it, we won't be able to get a bond to go back in there. We have huge investments in the communities that we work. We cannot allow ourselves to be caught in a trap of not being able to access those properties and be able to drill wells in the

future. So it is in our best interest to get the bond roads -- bond the roads correctly and keep them fixed.

There is recent improvements in the permitting process. We're very thankful for the Governor's office and the DEP working with us over the last month or so to streamline some of the permitting and also to basically correct a lot of the paperwork issues that we have there. In that study, in the new process that is in place there is a cumulative impact analysis on the use of water, so that will be part of the DEP's charge going forward to look at that.

Severance tax, I will not go into that because I could literally sit here for several hours and talk about severance taxes. But, what I will point out is, Pennsylvania is a very high-cost environment in which to operate and drill these types of wells. I can take a well in Washington County, Pennsylvania, the same depth, same lateral length, same frac job, same drilling rig, same crew, same everything, plop it down in Forth Worth, Texas, and it's a million dollars cheaper. There's a

lot of regulations, a lot of legislation and a lot of things that we need to work together to fix over the next couple years.

To summarize, Range Resources and the other companies developing the Marcellus Shale are committed to getting it right and protecting Pennsylvania's environment. We believe there can be a proper balance. Pennsylvania has the opportunity to be a leader in the production and use of natural gas and to establish a true and realistic plan to achieve energy independence.

The Commonwealth of Pennsylvania should focus on a long-term approach that is one of the encouraging responsible development of the Marcellus Shale, while providing the proper balance of protecting our environment and encouraging new investment in the play. The opportunity to develop a clean and reliable energy source, create and sustain new jobs and inject literally billions of dollars into Pennsylvania's economy must be fostered by elected leaders and regulators. Those states who best encourage this activity will attract the essential capital and resources and will be

the true winners.

The larger challenge for Pennsylvania's elected leaders is to drive state and national energy policies that encourage the usage of this newly-realized and vast natural gas resource. Nearly every national and international expert agrees that natural gas will be the bridge to our energy future and will play a prominent role in our nation's energy portfolio for generations.

Thank you very much for your time today.

CHAIRMAN GEORGE: Is the gentleman concluded?

MR. WALKER: Yes, sir.

CHAIRMAN GEORGE: I thank you for your fine testimony. I think the gentleman, Mr. Vitali, might have a question, if you will.

REPRESENTATIVE VITALI: Thank you, Mr. Chairman. And thank you, Mr. Walker, for that very good testimony.

I just wanted to focus a little bit on the issue of the ejection, the disposing of the frac water because I have some concern with the environment. I have a knee-jerk reaction

to taking water which is not fit to be released into streams in its current form and putting it underground. I just want to explore that a little bit.

You currently dispose in Pennsylvania of your frac water underground?

MR. WALKER: There's a very, very small amount of it. There are only I think eight permitted wells in the State of Pennsylvania. It's a process governed by the EPA and not by the state.

REPRESENTATIVE VITALI: So there's eight wells where that's currently happening in Pennsylvania --

MR. WALKER: Yes.

REPRESENTATIVE VITALI: -- which, I guess, eliminates the need for my second question, which is, is that currently permitted in Pennsylvania, which I guess it is.

MR. WALKER: It is permitted, yes.

REPRESENTATIVE VITALI: You're admitting --

MR. WALKER: Yes. And Acting Secretary Hangar is very much in favor of that process too.

REPRESENTATIVE VITALI: I chatted with him with that and we had a discussion on that.

The issue of the decision that gas companies make with regard to treating the water versus injecting it, is it location, is it availability of space underground? What goes into your decision as to whether you choose to inject versus treat frac water?

MR. WALKER: It's availability of those resources and cost. We don't want to spend any more money than we have to, of course. So if there are nearby treatment facilities that have the capability and the capacity to handle the fluids, then we'll take it there. If there's a nearby injection well, which there are not, but if there were nearby injection wells, we would take it there also.

It will never be -- There's never going to be one silver-bullet solution. There will be the current way of disposing water through treatment facilities that are capable of processing the wastewater. And there will be new underground injection wells drilled and permitted. There will be new treatment

facilities, both permanent, large facilities that are lower cost to operate; and then there will be smaller mobile facilities, which are higher cost to operate but less capital upfront. There will be combinations of all those as time progresses.

REPRESENTATIVE VALTALI: Thank you, Mr. Walker, and thank you, Mr. Chairman.

CHAIRMAN GEORGE: We have time for a couple of questions. One from the gentleman, Mr. Reed, and then from the gentlemen from a Cambria. Mr. Reed.

REPRESENTATIVE REED: Thank you, Mr. Chairman. I'll try to be quick and concise with this. It's been estimated that Marcellus Shale Play could create in excess of a hundred thousand jobs in Pennsylvania over the next 10 years; is that correct?

MR. WALKER: Yes, sir.

REPRESENTATIVE REED: Can you tell me, almost every another time an industry, particularly a manufacturing, comes to Pennsylvania looking to create even a couple thousands jobs, last couple of years you can point at Comcast and PNC Bank, Pittsburgh and

Philadelphia, they come to the state looking for state tax dollars to help subsidize the industry in one form or another.

To the best of your knowledge, has anybody within the natural gas industry come to the state and ask for a big cardboard check or a handout from state government to create those hundred thousand jobs?

MR. WALKER: No, we have not.

REPRESENTATIVE REED: One final question. Is the industry currently paying taxes to the Commonwealth of Pennsylvania?

MR. WALKER: Yes, we are.

REPRESENTATIVE REED: Could you just give us a brief synopsis of just what a couple of those taxes would be?

MR. WALKER: Well, I'm not a tax expert by any means, but there's a corporate net income tax that we pay. Then there are several, what I'm going to call ancillary small taxes in different areas, depending where you're at, townships, and so forth, like that that sometimes occur. But normally it's corporate net income tax.

We tend to group taxes in as just a

cost to do business in the state. And again like I said earlier, Pennsylvania is a very high-cost environment because there are certain legislation, there are certain statutory acts. There are certain regulations that are in place that basically cost us a million dollars more per well to drill here versus another state.

And the reason that those are there is nobody ever anticipated the type of drilling and this type of technology that we're using today in the horizontal drilling, and so forth. It's already a very high-cost environment to operate here.

And again, like you said earlier, we're not asking for any subsidies or abatements. We're not waiting on any new technology. We just need an environment where we're able to drill and develop these resources.

REPRESENTATIVE REED: Thank you, Mr. Walker. Thank you, Mr. Chairman.

CHAIRMAN GEORGE: I thank you. The gentleman, Mr. Barbin.

REPRESENTATIVE BARBIN: Thank you, Mr. Chairman. Thank you, Mr. Walker, for your

testimony.

I was reading your written testimony and it stated that you believe that treatment and disposal of oilfield wastewater at sewage treatment can be safe and effective, if monitored, and with appropriate pretreating. There was also some discussion about mobile units being used at the facilities. What is the cost of the mobile units that could provide this appropriate pretreating per well?

MR. WALKER: It's difficult to say. I can't talk about the larger facilities which we would consider more permanent than mobile. A facility that will treat a million gallons a day of water would be approximately a 95-million-dollar investment upfront.

REPRESENTATIVE BARBIN: Would those type of facilities be used at -- The 300 wells that you have, would you use that type of facility? I'm trying to get an idea of what appropriate pretreating is. Does that mean that you'd have these types of facilities at all the wells?

MR. WALKER: No, no. Generally they're going to be more centralized. The way

to envision it, in simplest of concepts is, to find something that's very mobile you don't have to spend a lot of money upfront, but it's going to be really, really high cost per barrel of fluid that you put through it. It's going to take a lot of money to operate.

All of these processes other than just the simplest of filtration, lack of osmosis or a clarification type facility, which that is mostly what's used in Barnett. They don't have any high-end desalinization or crystallization, zero discharge-type plants like we're talking about here.

So, those little mobile plants are very expensive. They're very energy intensive because it take -- You have to burn natural gas or electricity or something to heat that water up to evaporate the liquids and leave the salts, and so forth. So it's a very energy -- So there will be -- I don't want you to get the impression --

There will be all versions of that. There will be highly mobile plants that can be used in remote areas. There will be great big permanent facilities that may be, like in

Washington County where there's a lot of activity and a gas plant. You know, we can take the waste heat off of the cogeneration that's burning the ethylene out of the gas plant and use that to heat the water. There will be all combinations of those in between. And then, of course, there will be disposal wells that will be drilled, and so forth. So that will all factor in.

REPRESENTATIVE BARBIN: Well, what I'm trying to do is to get this idea. I understand you have a zero emission sort of plant that might cost $95 million. But, are there other things short of that that can be done at the --

MR. WALKER: Um-hm.

REPRESENTATIVE BARBIN: And what does that cost, a ballpark? I'm not asking you -- Is it 10 million, is it five million?

MR. WALKER: It's totally dependent upon the size. But I would say at the bottom end you're looking at five or $10 million for a very small one.

REPRESENTATIVE BARBIN: Thank you. I appreciate your answers.

CHAIRMAN GEORGE: Is the gentleman concluded?

REPRESENTATIVE BARBIN: Yes, Chairman. Thank you.

CHAIRMAN GEORGE: Let me say this. I thank you for your testimony as well as the others. This will not be the last hearing. My most sincere apology, the members that have left have not left because they weren't interested. A lot of them have as many as four different committees that they attend.

So I'll say that the next meeting will be here in the Capitol on April the 15th at 1 p.m. in the Majority Caucus Room. At that time we will possibly have more individuals testifying. But the rules and the time limits and that will be more strict. I allowed a lot of flexibility because I think it's important that we find out what this is all about.

I think that the committee as a whole are interested in working to see that more employment is provided in Pennsylvania. But by the same token they insist that as individuals we're required to protect the environment and so should those that make money, and I think

we're in agreement.

I thank you for the courtesy you've extended, and I say to the audience, thank you for participating. If there's no other business, this meeting is adjourned.

(At or about 10:45 a.m., the hearing concluded.)

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C E R T I F I C A T E

I, Karen J. Meister, Reporter, Notary Public, duly commissioned and qualified in and for the County of York, Commonwealth of Pennsylvania, hereby certify that the foregoing is a true and accurate transcript of my stenotype notes taken by me and subsequently reduced to computer printout under my supervision, and that this copy is a correct record of the same.

This certification does not apply to any reproduction of the same by any means unless under my direct control and/or supervision.

Dated this 17th day of April, 2009.

Karen J. Meister - Reporter

Notary Public

My commission

expires 10/19/10