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1

HYDRAULIC FRACTURING ON PUBLIC LANDS FORUM

HOSTED BY THE BUREAU OF LAND MANAGEMENT

April 25, 2011

4:00 p.m.

1717 Denver West Boulevard  
Denver, Colorado

1 PRESENTERS:

2 Helen Hankins, Bureau of Land Management

3 Richard Ward, Aspen Science Center

4 Mike Worden, Bureau of Land Management

5 Jerry Strahan, Bureau of Land Management

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8 PANELISTS:

9 Dave Neslin, Colorado Oil and Gas Conservation  
Commission

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11 Debbie Baldwin, Colorado Oil and Gas Conservation  
Commission

12 Dave Cesark, Mesa Energy

13 Mike Eberhard, Halliburton

14 Michelle Haefele, Ph.D., The Wilderness Society

15 Cathy Purves, Trout Unlimited

16 Jerry Strahan, Bureau of Land Management

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

2 HELEN HANKINS: Good afternoon. I wonder if  
3 this has to be like one of my employee meetings where I  
4 have to say it twice. Good afternoon.

5 (Audience replied.)

6 HELEN HANKINS: All right. I'm glad you all  
7 are here. My name is Helen Hankins. I'm the state  
8 director for the BLM in Colorado, and I am very pleased  
9 that all of you could come to this hydraulic fracturing  
10 forum. That's a mouthful for me. I'm kind of used to  
11 just saying frac'ing, but more about that in a little  
12 while.

13 Before we begin with my very brief  
14 introductory remarks, I would like to acknowledge some  
15 key county commissioners that we have here today. Tom  
16 Jankousky and John Martin from Garfield County. And  
17 also Wally White from La Plata County. And hopefully I  
18 didn't miss any other commissioners. But we're glad  
19 that these elected officials could be here with us  
20 today.

21 I don't think there's a single one of us here  
22 who would question the importance of continued energy  
23 exploration and development on public lands in our  
24 country.

25 We all know that our president, President

1 Obama, has a goal that 25 percent of our energy will  
2 come from renewable resources by 2025. And we are  
3 making good progress toward that goal, both on projects  
4 on public land and on private land across the west.

5 But until we can reach that goal and even  
6 after, oil and natural gas and coal are going to be  
7 part of the business that we are in.

8 Right now our country gets about 50 percent  
9 of our oil and gas from foreign sources. I think we  
10 all recognize in these turbulent times in the Middle  
11 East, how important it is that we continue to work  
12 toward energy independence, but that independence, of  
13 course, has to be done in a responsible fashion.

14 There are many benefits to oil and gas and  
15 other mineral development on lands that BLM manages or  
16 are managed by other federal agencies. 34 states  
17 received a total of \$1.8 billion in revenues from  
18 federal mineral leases last year. In these economic  
19 times, clearly that doesn't go unnoticed.

20 Recently I was in a meeting with Governor  
21 Hickenlooper, and he knew to the penny how much of his  
22 budget was derived from revenues from mineral leasing  
23 in Colorado.

24 Nationwide BLM manages over 700 million acres  
25 of mineral estate, onshore energy minerals. We know

1 that we have an important responsibility along with our  
2 fellow agencies, such as the U.S. Forest Service. We  
3 know that we need to have a thoughtful and balanced  
4 approach to mineral development on these public lands.

5 Today I'm going to talk just a little bit  
6 about how BLM approaches this. The first step is in  
7 the development of our resource management plans or  
8 land use plans.

9 In these documents, which have many steps and  
10 many opportunities for public involvement, we have the  
11 task of defining areas that should be open and  
12 available for mineral leasing as well as other  
13 activities that we manage under our multiple-use  
14 mandate.

15 These documents take many years to prepare,  
16 but once completed and once official, they provide our  
17 template for proceeding with oil and gas exploration  
18 development and production on public lands.

19 Once we have these plans in place, it's up to  
20 industry to express interest in part or parcels for  
21 which they have an interest. We evaluate that and now  
22 we have additional steps that we've derived from Oil  
23 and Gas Leasing Reform of 2010, which I'll talk about  
24 more in a minute. That provides for a much more public  
25 involvement upfront.

1           This allows the public to engage with our  
2 field offices and field trips and input to our  
3 environmental documents about which areas should be  
4 carried forward and offered for lease and which should  
5 not, or which should be carried forward with protective  
6 stipulation. And this, of course, is accomplished  
7 through an environmental analysis process.

8           Once we have arrived at the decision that we  
9 want to offer a parcel for lease, that is done through  
10 a competitive lease sale. Assuming that the involved  
11 company pays all their money and provides appropriate  
12 bonding, they can proceed to file an application for  
13 permit to drill.

14           The APD that you all are familiar with, with  
15 that APD comes a drilling plan, a well plat, evidence  
16 of bond coverage and evidence of certification of the  
17 operator.

18           With these in hand, our field offices do  
19 additional NEPA review, additional review under the  
20 National Environmental Policy Act. If necessary,  
21 develop site-specific stipulations and a permit to  
22 drill can be issued.

23           Throughout the development process --  
24 exploration and development process, during production  
25 and even during plugging, abandonment and reclamation,

1 BLM has oversight responsibilities for inspection and  
2 enforcement. These responsibilities extend to what's  
3 happening to other surface values, what's happening  
4 down the hole, and, of course, what's happening in  
5 terms of production verification.

6 I mentioned a few minutes ago Onshore Leasing  
7 Reform of 2010. This was a new policy that arose in  
8 Secretary Salazar's office that provides for a number  
9 of things. But a couple I'll highlight here is the  
10 increased public involvement for the leasing process  
11 and the concept of master leasing plans.

12 This provides an opportunity for either the  
13 BLM or the public to identify areas where it is  
14 believed that additional detail analysis needs to occur  
15 before an area should be identified as available for  
16 oil and gas leasing.

17 In Colorado four areas were identified as  
18 master leasing plans, but because we are in the middle  
19 of seven land use plans, we will be incorporating that  
20 analysis into those land use planning efforts.

21 It is important as we implement onshore  
22 leasing reform that we keep a balanced approach that  
23 provides for continued energy development but also that  
24 it be done in an inspiring -- excuse me --  
25 environmentally responsible way. We hope as we

1 implement this policy that we will benefit from the  
2 increased upfront public involvement, and we will see a  
3 reduced amount of protest of our oil and gas lease  
4 sales.

5 As we work through our land use planning  
6 efforts, our APDs and our inspection enforcement, it's  
7 important to remember that we have many partners in  
8 this effort at the federal, state and county levels.  
9 And in particular we work with these partners to  
10 address air and water quality issues.

11 For many decades the technique of hydraulic  
12 fracturing has been in use around the country. The  
13 growth that we have seen in the development of the oil  
14 and gas industry in the last decade and even longer is  
15 due to the innovation and technological advances that  
16 industry has made, and hydraulic fracturing is one of  
17 those advances.

18 As we see more and more use of this  
19 technique, we also are starting to see more and more  
20 concerns and interests on the part of the public for  
21 whom we manage the public lands and public minerals.

22 We are here today to begin an open dialogue  
23 on this topic. Hydraulic fracturing is a technique  
24 that allows us to extract more oil and gas than we  
25 would be able to otherwise.

1           In the past, as it was explained to me  
2 earlier today, we were tending to do our oil and gas  
3 development in areas of sandstone with higher  
4 permeability of the rocks. As we are developing more  
5 and more shale prospects, the technique of hydraulic  
6 fracturing is being employed to allow us to extract  
7 commercial quantities of these minerals.

8           About 90 percent of wells drilled across the  
9 country now use hydraulic fracturing as part of their  
10 development. We are here today to hear your concerns,  
11 thoughts, perspectives and ideas. As my boss and the  
12 BLM director has said, We want to be smart from the  
13 start about this issue.

14           It is our hope that all of who are here today  
15 will have the opportunity to speak, if you wish to do  
16 so, or to provide written comments. We have also set  
17 up a location where you can go to provide comments.

18           And I will read it now, but if you don't get  
19 it down, we can give it to you later as well. And  
20 that's at C O for Colorado, underscore, H F, hydraulic  
21 fracturing, underscore, forum at B L M dot G O V. So  
22 again, C O, underscore, H F, underscore, forum at BLM  
23 dot gov.

24           We realize as we engage in these discussions  
25 that there are many different perspectives, ideas and

1 experiences that you bring to the table. We are  
2 committed to continue to have oil and gas development  
3 on public lands, and we're also committed that that  
4 development be responsible and environmentally  
5 appropriate. It wouldn't be wise for us to have one  
6 without the other.

7 I would like to introduce to you now Richard  
8 Ward, our meeting facilitator.

9 Richard.

10 RICHARD WARD: Hello. Welcome. Welcome.  
11 Come on in and find a seat.

12 Well, this a real pleasure to -- to be here  
13 today, and it's going to be a long evening, and so what  
14 I'd like to do to start out with is reiterate the  
15 purpose of the forum.

16 This is the third of a series of BLM forums.  
17 One in Bismarck, one in Little Rock and then this one  
18 in Denver. And these three forums build on a DC public  
19 meeting that was held back in November.

20 Ken Salazar is generally interested. This is  
21 generally a diverging conversation. Generally was  
22 interested in hearing from the public about -- about  
23 the innovations that have occurred in the oil and gas  
24 industry and the remarkable development that's occurred  
25 in this country.

1           So the point of this forum is an outreach.  
2           There's no answer in the back of the book, rule-making  
3           happening. This is genuine outreach. So this is your  
4           opportunity as the public to inform that process.

5           And so it will -- we'll just make sure that  
6           we develop this resource as a nation in an  
7           environmentally sustainable way. Let me go through the  
8           program and then you can see where you fit in.

9           So this first part -- the first part of the  
10          agenda, the first hour, what we'd like to do is a  
11          little bit of introduction, and I'm going to take you  
12          through Hydraulic Fracturing 101, 15 minutes. And the  
13          reason for that is just to get the right lexicon in the  
14          room. There are people with different backgrounds,  
15          different technical knowledge. For some in industry,  
16          it'd be a snore. For others it might be new  
17          information.

18          And the reason for that is just to sort of  
19          level the playing field. After that we'll hear from  
20          the BLM who will speak about their authorities, both  
21          federally and the state's.

22          After that, what we're going to do is have a  
23          panel of experts, and these experts come from the  
24          state, they come from civil society, and they come from  
25          industry. And I've asked each of them to give their

1 bona fides, their credentials, and sort of role model  
2 that.

3 And the reason for -- I've asked them to do  
4 this is if you think in terms of what makes a good  
5 argument, it's Logos, Pathos and Ethos, right? It's  
6 the logic, it's the drama, but then there's the Ethos.  
7 The Ethos is why I'm credible to speak to you.

8 And so it's the one part that we don't like  
9 to do with people because it's so self-serving, but  
10 since I've asked everybody to do it on the panel, I'm  
11 going to do it myself.

12 I'm 25 years a geologist, hydrologist working  
13 on the contaminate transport. I started as an  
14 exploration geologist. Got a degree from Stanford for  
15 petroleum geology, both master's and BS, and have been  
16 working on the sustainability side. I was three down  
17 from the top of Shell as the sustainability director.

18 I decided to move to Washington and had  
19 joined the Aspen Science Center. And so the Aspen  
20 Science Center I joined because it's a really  
21 compelling group where we try to bring people of  
22 divergent -- divergent opinions together through  
23 rational dialogue.

24 And it's a pleasure for me to be able to  
25 moderate the BLM forum. And what we're going to do in

1 the second part of the agenda is hear from a series of  
2 experts, and they'll come up sequentially in the next  
3 hour to give their ten-minute view.

4 And then following that, after a ten-minute  
5 break, we'll have an hour or -- well, actually as long  
6 as it takes. We're going to target closing at 9:00,  
7 where we can hear from you, your concerns and your  
8 questions.

9 Now, when you came in, there were  
10 three-by-five cards. During this whole program, you  
11 can write on the three-by-five cards to get your  
12 thoughts down, get your ideas together, so that when  
13 you come up to the mic or when you present them to me,  
14 they're succinct and well thought through so we can  
15 move through time quickly.

16 What we're not going to have is a long back  
17 and forth at the mic because we need to share the time  
18 with everybody. And so one question per person, and  
19 then you get back to the back of the line or back of  
20 the queue, okay? So just little bit of housekeeping.

21 So let's launch into Hydraulic  
22 Fracturing 101 and get everybody sort of on the same  
23 level playing field.

24 The big energy game changer, combination of  
25 two technologies that have been around for a long time,

1 as -- as you all know. Directional drilling,  
2 horizontal drilling combined with hydraulic fracturing  
3 has opened up enormous zones for hydrocarbon  
4 production. And it has opened up formations that were  
5 previously thought unable to be explored in a  
6 tremendous way. Essentially, the entire oil basin now  
7 has become the oil field, and that is what this map  
8 shows.

9 Fully a third of the nation is now a prospect  
10 for oil and gas development. The reason I say oil  
11 development is that in the Bakken, when we hear about  
12 shale plans, in the Bakken actually it's a very tight  
13 dolomite. And in the Monterey here in California, it's  
14 a tight diatomaceous -- originally diatomaceous  
15 deposit, which is now crystal or opal-CT.

16 But here, again, with this long lateral  
17 hydraulic fracturing and these -- and this type of  
18 completions, these formations that have oil in them are  
19 now yielding tremendous reserves. The Bakken is on the  
20 order of 3 billion barrels, just a phenomenal amount.

21 When we talk about gas, the Marcellus, here  
22 in the east is on par with anything in the Middle East.  
23 Now the United States has reserves comparable to none  
24 in the world. And the thing that's so compelling about  
25 this whole event is that we invented -- Americans, we

1 invented the technology and we will have the capability  
2 of exporting the technology.

3 Sedimentary basins occur all around the  
4 world. So what's happening here in the U.S., what  
5 happened in Poland, Sweden, in Austria, places that if  
6 you had asked me ten years ago whether they would ever  
7 be in the oil game, I would have said, No, not on your  
8 life. And so it has profound geopolitical  
9 ramifications.

10 So what is this technology? What -- what  
11 actually goes on? You build a well pad. You put in a  
12 little basin for your mud pit. You put in your  
13 conductor pipe, and that conductor pipe is installed  
14 through gray material, which represents the water  
15 table, and the conductor pipe generally protects most  
16 private wells.

17 Then you bring the rig on-site, and here you  
18 can see a picture of the rig and it begins drilling.  
19 And it drills down through the water table. And as it  
20 drills through the water table, the drill bit uses  
21 water or air. It doesn't use any kind of chemicals.  
22 The aim is to really protect the water table. And here  
23 you can see that this rig is using air, and the  
24 cuttings are put into this pit so they're disposed of  
25 properly.

1           When the bit gets through the water table,  
2 what happens is we extract the bit, or the industry  
3 representatives, whoever is drilling the rig, extracts  
4 the bit and puts a pipe on it. It's called casing, and  
5 that pipe is centralized. You'll see a centralized  
6 pipe coming in right here in a minute. You'll see that  
7 it's centralized in the hole. And it goes down to the  
8 total depth.

9           And a specially formulated cement is put into  
10 the -- into the pipe, and that cement goes all the way  
11 up and around the outside of the centralized pipe. And  
12 the aim is to put a barrier of cement and pipe between  
13 the water table and the hole so that when you come back  
14 in to drill it out again with a smaller diameter bit to  
15 go all the way down to the zone of interest, the  
16 groundwater is already protected.

17           And this drilling operation now uses a mud.  
18 And this mud generally is a water bentonite formula  
19 with all sorts of other -- other additives that could  
20 be added.

21           Now, this stage depends on where you are in  
22 the nation. This is a general thing just to get us all  
23 grounded. You could stop here and put in another piece  
24 of casing and -- called intermediate casing. And for  
25 this example, the video goes on, and -- and the well's

1 kicked out and it starts drilling through the horizon  
2 of interest. This could be shale, dolomite, tight  
3 sand, and it can go out for a mile or 2 miles  
4 horizontally.

5 When the well completes all the way to the  
6 end, again, the pipe is taken out, and the casing is --  
7 another string of casing, this time called production  
8 casing, smaller diameter -- here, again, centralized --  
9 goes into the hole, all the way to TB, and again the  
10 cement is poured down the pipe and around the outside  
11 of this -- of this production casing.

12 And the point of the -- of this cement is to  
13 prevent zonal isolation, to isolate the zones -- the  
14 production zones from anything at the surface. And  
15 this cement is injected at -- at sufficient pressure  
16 and sufficient volumes to cover the design that's  
17 specified by the regulators and by -- by the -- by the  
18 operators.

19 That cement can come up to a horizon that's  
20 specified, can come up to a certain height, can come  
21 up -- depends on the geology. It's very much  
22 associated with the local condition. And so the aim at  
23 the end is to protect groundwater.

24 And so here this white rock represents  
25 sandstone that's containing groundwater, and you have a

1 line of cement, and then you have your conductor  
2 casing, line of cement, surface casing, mud, production  
3 casing.

4 And then finally tubing is put down the hole  
5 when the well is put on production. So there's seven  
6 layers to protect groundwater. And this is all about  
7 well integrity. Well integrity is absolutely key in  
8 this whole process.

9 So after the well is drilled, the rig drops  
10 down a perforating gun, and perforating guns are simply  
11 charges on a tool that shoot holes in the rock and  
12 through the -- through the casing you can see the  
13 charges have shot off.

14 The rig is replaced by a hydraulic fracturing  
15 crew, and the hydraulic fracturing crew brings water in  
16 from impoundment or from a truck operation into  
17 containers that hold water and then into a mixer that  
18 combines chemicals, surfactants, deviscoseters  
19 (phonetic), you know, all kinds of things to make the  
20 pump job work better.

21 And then it goes through a sand mixer, and  
22 Halliburton is here and will further elaborate on this  
23 process. And the sand mixer adds profen. The mixture  
24 goes through a low side of a -- of a manifold, low  
25 pressure side through these pump trucks to the high

1 pressure side, then down in through the Christmas tree  
2 and down hole.

3 This whole process is governed by a truck  
4 that monitors the pressure, and you'll see later in our  
5 discussion how important pressures are for the whole --  
6 whole process.

7 That water goes down, that water and -- and  
8 sand mixture goes down hole under sufficient pressure  
9 to break the gradient of the rock, and it -- the  
10 fractures migrate vertically and then horizontally on  
11 zones of weakness. And the fracs propagate out. The  
12 sand is put into the fracs.

13 And so the reason that sand is necessary is  
14 to hold these really microfractures open, so that when  
15 water drains out, the fractures don't close and the gas  
16 can flow to the surface.

17 After the first frac job is done, the -- the  
18 rig's replaced, and it's all done on wire line. This  
19 shows the installation of the bridge plug to protect  
20 this frac job from the subsequent frac job.  
21 Perforation gun continues to perforate this stage, and  
22 after the perforation gun is removed from the well, the  
23 same exact process that you saw earlier occurs, and  
24 that process is done in stages, anywhere from 10 to 20  
25 stages.

1           And so this is what we're talking about.  
2           This is what this big innovation is, this new -- new  
3           technology of hydraulic fracturing and horizontal  
4           drilling, and this shows how a formation is opened up  
5           to production.

6           And once it's under production, what comes  
7           back, of course, in the first stage is a lot of that  
8           fluid that goes down the hole, the frac fluid. And  
9           that frac fluid is contained according to state  
10          regulations -- state and federal regulations and  
11          disposed of and will be recycled properly.

12          And that is it. And what's -- what's also  
13          fantastic about this technology is every rig that goes  
14          out there is a directional rig, and so if we were to do  
15          this with conventional rigs, doing only vertical holes,  
16          it would require an enormous infrastructure with -- you  
17          know, just prohibitively costly.

18          You can see everything would look like Signal  
19          Hill in this kind of developmental. But with  
20          directional wells and the potential of even having  
21          multipad drilling, it really, really reduces the  
22          surface footprint. So there's -- there are all kinds  
23          of options for establishing best practices.

24          Let me try to move on here. Escape.

25          So that -- that is a quick overview of

1 hydraulic fracturing. And what you -- what you -- what  
2 you get from it is that the well construction is  
3 absolutely key. All the oil and gas industry well  
4 construction has been key for the last 60 years, and  
5 there has been a lot of technology in place to make  
6 sure that well construction standards protect our water  
7 resources.

8           And so why do we read in the press about  
9 how -- how this new technology has contaminated  
10 groundwater? Why do we read that, you know, wells  
11 are -- have -- have gas in them, and why do we read  
12 about all of these issues if it -- you know, it can't  
13 all be apocryphal?

14           And so what I thought I'd show you is how --  
15 how things can go wrong. When things are right and you  
16 have the right cement seal, keeping the formation water  
17 or radionuclides or gas or oil out of the formation or  
18 out of a well, things work just fine. The gas and oil  
19 is produced from the target zone and up annulus -- or  
20 up the -- up the production casing, production tubing  
21 to the surface and goes to market.

22           But, however, if you don't have a good cement  
23 job and the shallow producing zone is allowed to  
24 produce in that annulus, what can happen is it goes up  
25 the annulus, pressure builds up and then it can come

1 off the shoe and cause problems in -- in the lower  
2 striae of the water table. This has happened in --  
3 in -- in the oil fields.

4 In addition, a poor well design or if too  
5 much cement got lost in the lower formation, you don't  
6 have enough cement coverage, similar -- similar  
7 phenomena can happen. Shows you how important it is to  
8 measure annular pressures, and that's the best  
9 practice, and we'll probably discuss that. Once you  
10 measure the annular, you know you've got a problem and  
11 you can go fix it.

12 When you're drilling those wells out,  
13 remember, if you go into the casing and continue to  
14 drill out, sometimes you can nick the casings, or  
15 sometimes the casing can be flawed, or sometimes it  
16 can't withstand the pressure. Even though there's all  
17 sorts of regulations about its specification, it can  
18 have casing ruptures, and this has happened and has  
19 caused problems.

20 At the very near surface in -- in really  
21 hydrocarbon-rich zones where there are a lot of coal  
22 seams, there's -- there's an awful lot of methogenic  
23 activity. And even in the surface casing, if you have  
24 a bad cement job, it's plausible that methane can  
25 migrate up through the surface casing.

1           So well integrity is really, really key.  
2       That's what -- that's what it's all about to make sure  
3       that we protect our groundwater.

4           So what happens when somebody drills -- and  
5       here we've got good mechanical integrity and -- and  
6       this -- this operation can go on -- on fine.

7           I think I'm going to leave this for  
8       Halliburton folks to talk about. Let me go to another  
9       slide here.

10          What happens when you have a water well  
11       that's drilled in the oil province and -- or in a gas  
12       province and that water well shows up with gas in it.  
13       Obviously it's because of this well. You know, I mean  
14       there's no other reason that there could be gas in  
15       the -- in the water well.

16          Well, actually, there is a reason. It's  
17       called biogenic gas, and this is a slide show to show  
18       those folks who -- who don't understand the process,  
19       how it works. This gas is sitting under pressure in a  
20       coal seam, and it's been there for thousands of years.  
21       And this water is providing pressure to hold that gas  
22       into solution.

23          It's just like a 7-up bottle with a top on  
24       it. When you drill your water well and you start  
25       producing, you actually lower the pressure. That's

1 what this shows. You're pumping the water well and you  
2 lower the cone of depression. And you actually take  
3 the top off the 7-Up bottle, and it can cause fresh  
4 water, clean water to actually have methane, totally  
5 unrelated to this well.

6 Now, it's really tough to tell whether this  
7 water well and this well have no relation unless you  
8 fingerprint the gases, and there are techniques to do  
9 that if you look at the fluids. I just thought I'd  
10 bring this up because there is a -- there is a natural  
11 explanation for -- for the kinds of things that you've  
12 seen in the news.

13 When we talk about this enormous explosion of  
14 potential around natural gas and oil, it's hard to  
15 separate surface activity from that. You can see that  
16 the way that these wells are drilled, it's in an array,  
17 right? And that array is that way because this is not  
18 like a conventional oil field where you're sticking a  
19 straw into a pressurized vessel and it comes up.  
20 You're actually creating your -- your reservoir by  
21 frac'ing it.

22 And so there's potential for -- for a lot of  
23 activity at the surface. And there are best practices  
24 that we can deploy as a nation to make sure that we  
25 minimize our footprint. And industry is working

1 diligently to -- to implement those best practices on  
2 the widest possible scale so that the industrialized  
3 footprint becomes as small as possible.

4 As this -- as this conference is about  
5 hydraulic fracturing and long lateral drilling, it  
6 could stray into this -- into this realm, and I think  
7 legitimately, and so let's have patience, okay?

8 So with that, I'll introduce Mike Worden from  
9 the BLM who will speak to you about their roles and  
10 responsibilities.

11 Just bear with me two seconds. Here we go.  
12 Thank you very much.

13 Mike.

14 MIKE WORDEN: Thank you, Rich. My name is  
15 Mike Worden, as Rich said. I'm a petroleum engineer  
16 for the Bureau of Land Management out of the Washington  
17 DC office.

18 I earned my bachelor's degree in petroleum  
19 engineering from the University of Alaska Fairbanks.

20 After earning my degree, I worked on the  
21 North Slope of Alaska before joining --

22 THE REPORTER: I'm sorry. I'm going to need  
23 you to slow down. I can't understand what you're  
24 saying.

25 MIKE WORDEN: Okay. I can slow down.

1 THE REPORTER: Thank you.

2 MIKE WORDEN: After earning my petroleum  
3 engineering degree for the University of Alaska  
4 Fairbanks, I worked on the North Slope of Alaska before  
5 joining the BLM. I worked for the BLM for five years,  
6 out of the Buffalo Field office in Wyoming before  
7 joining the staff in Washington DC.

8 BLM's regulatory authority for oil and gas  
9 comes from the Mineral Leasing Act of 1920, which  
10 congress gave the secretary of the interior authority  
11 to regulate offshore oil and gas. The secretary of the  
12 interior has delegated the responsibility on to the  
13 BLM.

14 Protection of the resources, health,  
15 environment begins long before hydraulic fracturing  
16 equipment arrives on location. In fact, it begins  
17 before the rig even shows up.

18 As Helen mentioned, we have an APD process,  
19 an application for permit to drill process must be  
20 involved. Each operator must submit an individual APD  
21 for onshore oil and gas -- for federal onshore oil and  
22 gas well.

23 What is a federal onshore oil and gas well?  
24 That is when the Bureau of Land Management manages the  
25 minerals. These can be lands within the national

1 public system -- national system of public lands,  
2 federal minerals under the U.S. Forest Service lands,  
3 federal minerals on the Army Corps of Engineering lands  
4 or other federal agencies can also be federal minerals  
5 under privately held surface estate. This is often  
6 referred to as surface estate.

7 But they are not privately held minerals or  
8 state-owned minerals. Thank you.

9 The BLM has onshore orders to augment our  
10 regulations. Onshore orders are promulgated through  
11 the same rule-making process and regulations. Some of  
12 you may have taken part in that process, which requires  
13 public input. Most recently revised Onshore Order 1  
14 which was finalized in 2007.

15 Onshore 1 requires a drilling plan, surface  
16 use plan, and makes a provision for attaching  
17 conditions of approval to the approved application.  
18 Our -- once the plan is approved, the operations are  
19 conducted -- the drilling operations are conducted on  
20 Onshore Order 2.

21 Both onshores are available online. The  
22 quickest way to find them is by Googling "onshore oil  
23 reserves" and "BLM" and that may include the Colorado  
24 State website.

25 What Onshore Order 2, among other things,

1 requires is that the operator follow the approved plan,  
2 that they case and cement the well as they said they  
3 were going to and as reviewed by the BLM engineer. It  
4 also requires that the operator report all indications  
5 of usable water.

6 What this is used for is to, A, to ensure  
7 that all sources of usable water are protected while  
8 that well is drilled. They also are used -- this  
9 information is also used in -- in reviews of future  
10 wells.

11 So this begs the question, what is usable  
12 water? Usable water by definition is water that  
13 generally -- those waters generally contain up to 2,000  
14 parts per million of total dissolved solids.

15 The important thing about this number is to  
16 understand that this is the exact same number and value  
17 used in the Safe Drinking Water Act.

18 It was selected because that is the value  
19 used in the Safe Drinking Water Act. It is an example  
20 of how federal agencies work together to come up with  
21 regulations.

22 Once a well is drilled, a completion report  
23 must be submitted within 30 days. In the completion  
24 report, the operator tells BLM where the casing was  
25 set, where the cement was, what level it came up to,

1 how the fresh water was protected, among other things.

2 Required with the completion report is also  
3 two copies of all the logs, including cement logs which  
4 will tell the local -- the local engineer reviewing the  
5 completion report of where the top of the soil bed is  
6 to ensure that groundwater was being protected.

7 Hydraulic fracturing operations themselves  
8 require the operator to submit a subsequent report to  
9 the BLM after the operation has taken place. The  
10 engineer reviews this report to determine that  
11 groundwater among minerals are being protected.

12 With that I'm going to turn this over to  
13 Jerry. He works in the BLM Colorado State Office.  
14 He's going to be talking about local perspective and  
15 what BLM roles are in local operations.

16 JERRY STRAHAN: Thank you, Mike. And thanks  
17 to everybody for coming to the forum. My name is Jerry  
18 Strahan.

19 UNIDENTIFIED SPEAKER: Could you speak up,  
20 please.

21 UNIDENTIFIED SPEAKER: We can't hear you.

22 UNIDENTIFIED SPEAKER: Yeah, we can't hear  
23 you back here.

24 UNIDENTIFIED SPEAKER: And say your full  
25 name, please.

1           JERRY STRAHAN: Really? Did you turn this  
2 off? How is this? Is that better?

3           Well, thanks for coming to the forum. My  
4 name is Jerry Strahan, and that's somewhat difficult to  
5 spell. I'd like to say that it's like the football  
6 player, Michael Strahan, and then people can usually  
7 figure it out from there. They seem to know who  
8 that -- that fellow is. It's spelled the same but  
9 pronounced slightly different.

10           Still hear me okay now? Okay. Sorry. I'm  
11 usually not accused of being too quiet.

12           I'm the fluid minerals branch chief here at  
13 the Colorado state office of the BLM. Prior to that I  
14 was the assistant field manager up in Craig at the  
15 Little Snake field office. I've been with the BLM for  
16 26 years now.

17           Some of the following presenters are going to  
18 talk a little bit more about the specifics of frac'ing  
19 and some of the details. Mike has begun to talk about  
20 some of the information about how the BLM protects  
21 resources out there on the ground, and I'm going to  
22 discuss -- discuss that specifically.

23           The BLM approval process is to protect all of  
24 our resources, including usable water zones. Now, it's  
25 important to note that in 2009 and 2010 only about one

1 out of eight wells drilled in Colorado were on public  
2 lands, and that includes public minerals with surface  
3 owned by private owner or so-called split estate lands.

4 So we're only -- we're only talking about the  
5 wells that are specifically under the authority of the  
6 Bureau of Land Management here.

7 Am I going slow enough?

8 THE REPORTER: Yes. Thank you.

9 JERRY STRAHAN: Okay. We get a lot of  
10 attention on those wells because our process is so open  
11 and transparent, and rightfully so. We want to hear  
12 what people think about the process as we go through  
13 it.

14 Which button, Mike? How is that -- I got it.  
15 Okay. Arrow forward.

16 Okay. For public lands, oil and gas drilling  
17 is a multi-step process, as you've heard already. It  
18 includes the application to drill, the construction of  
19 the well site, associated facilities, the actual  
20 drilling of the well, and then well completion, which  
21 includes frac'ing, and finally the plugging reclamation  
22 process.

23 The BLM process is designed to protect --  
24 protect from any type of fluid escaping from the well,  
25 not just frac fluids. We're interested in keeping the

1 drilling fluids from getting into the water. We're  
2 interested in keeping frac'ing fluid from escaping. We  
3 also don't want oil and gas to get out and get into the  
4 water. So our process is focused on protecting those  
5 things.

6 Now, our process consists of several review  
7 steps and a big part of it is the drilling -- is the  
8 drilling plan. BLM has the responsibility for  
9 protecting a lot of resources, but the process for  
10 protecting usable water zones comes down to a  
11 continuous process that starts with the application and  
12 continues all the way through, through the reclamation.

13 During the APD review, a lot of issues are  
14 analyzed relating to the proposed surface disturbance,  
15 reclamation plans and the down-hole issues that we have  
16 down there.

17 And I know a lot of this is probably review  
18 for people, but bear with me. BLM does require bonds  
19 to ensure compliance.

20 All right. The drilling plan will consist of  
21 several -- several items. The operator's proposed  
22 casing design is to ensure that integrity that Rich was  
23 talking about. The estimated amounts of cement to be  
24 used are calculated and verified by our engineers. The  
25 principal people involved in the down-hole portion of

1 the BLM responsibility, our petroleum engineer, our  
2 geologist and occasionally hydrologists.

3           These team members review each drilling  
4 permit to ensure that the proposed project will not  
5 impact any usable water zones and then the equipment  
6 used will contain the fluids within the wellbore. And  
7 that's where we talk about some of the things like the  
8 burst pressure for the casing and the links of cement,  
9 things that you need to do in the well to make sure  
10 that pressures are held under control.

11           Get in to the drilling plan, we're also  
12 reviewing bottom hole pressures, any anticipated  
13 abnormal conditions. We have many excellent operators  
14 in Colorado, for the most part. The companies working  
15 on public lands have extensive experience in most of  
16 the areas that they work, and they incorporate that  
17 experience in their -- in their -- into their designs.

18           Second part of our process is our  
19 on-the-ground inspections and monitoring of the  
20 conditions out in the field.

21           The BLM has petroleum engineering technicians  
22 that actually visit the well sites and conduct  
23 inspections to make sure that the construction is done  
24 as it was approved. Our PET core, they have quite a  
25 thorough training system, and many of them have quite a

1 few years of oil and gas experience in the field.

2 After the well is completed, as Mike said, we  
3 require submission of all the data on what they found,  
4 what they did when the well was being drilled. This  
5 includes letting us know where they found water when  
6 they were drilling, what type of pressures they  
7 encountered, what sort of -- what sort of things that  
8 happened while the well was being drilled.

9 These reports are reviewed by BLM  
10 engineers -- engineers to confirm that the well was  
11 drilled and completed in the way that it was designed  
12 and reviewed and analyzed. And again, this goes back  
13 to well integrity.

14 The third point up here, cement bond logs.  
15 When Rich showed you a void behind the casing as a  
16 possible problem on a cementing job, which it is, a  
17 cement bond log can help identify the location of  
18 something like that and let you know where and when you  
19 need to go back in and fix things like that.

20 Okay. The end of the life of a well, whether  
21 it's a dry hole or it's been producing and reached the  
22 end of its usable life, we have a -- plugging  
23 operations.

24 Again -- again, this requires another  
25 complete review by the petroleum engineer and the

1 geologist to ensure that the well is plugged so that we  
2 don't have any transfer of materials between the  
3 wellbore and any of the other formations.

4 So we -- basically, we're starting that  
5 process again. We have discussions with the operator  
6 to make sure that their plan, when they're abandoning  
7 these wells, the casing and the cementing and  
8 everything is still good and -- and can control any  
9 flows of materials either direction.

10 Now, reclamation after plugging is an  
11 important part of this. And I just want to point out  
12 that reclamation out here in lands in Colorado can  
13 sometimes take ten years even. It's very difficult --  
14 very difficult to get things to grow up in Northwestern  
15 Colorado, for example.

16 My old field manager up there used to say  
17 that the jack rabbits carry canteens it's so dry. So a  
18 lot of times it takes -- it takes quite a while for us  
19 to get this growth established and get that well pad  
20 back to where we're satisfied and back to its original  
21 condition, so that's a -- a -- a final part of our  
22 operation.

23 So to summarize, the focus of BLM is on  
24 protection. We -- we want to prevent any materials,  
25 whether it's oil or gas or frac'ing fluids or drilling

1 fluids, we don't want it to escape. We want it to be  
2 in control at all times so that we can be assured that  
3 none of those materials is getting into either our  
4 surface resources or underground resources.

5 So that's it for me.

6 RICHARD WARD: Okay. This give us a chance  
7 to take a little break, ten minutes. I have five  
8 minutes to the hour, so we'll be here at five minutes  
9 past the hour, and we'll start with the presentations  
10 from industry, the state and civil society.

11 And could Ramon Castro come to the front if  
12 he's in the house?

13 (Recess from 4:55 p.m. to 5:05 p.m.)

14 RICHARD WARD: So we're moving into the  
15 second part of the forum, and this -- this is an  
16 intentional piece. And the idea here is to allow for  
17 the state, for industry and for folks from civil  
18 society to take a good ten minutes and give their  
19 perspective. And we'll have a break, and then we'll  
20 come back and hear from all of you.

21 So with that I'd like to also mention that we  
22 have some distinguished guests here tonight, Su Ryden,  
23 our state representative, and Roger Wilson, our state  
24 representative are here. And what I suggested is that  
25 when we open it up to the comment period, that they

1 could have a chance to -- to speak their views as well.

2 And also, John Tye from -- from the  
3 commissioner of the parks and county. So welcome.

4 So with that I'll turn it over to Steve Hall,  
5 who will -- I'm sorry -- Dave Neslin -- Dave Neslin  
6 from -- from the Bureau -- I'll let him introduce  
7 himself. I got my notes screwed up. Sorry about that.  
8 Sorry about that.

9 DAVE NESLIN: Well, at least when I left, I  
10 was still working for the Oil and Gas Commission.  
11 Mr. Ward might have more recent information.

12 You can rest your eyes. I don't have a  
13 PowerPoint.

14 My background is I practiced law for about 25  
15 years, environmental law. Did a lot of work on federal  
16 lands, with Bureau of Land Management, the Forest  
17 Service, representing energy development, recreational  
18 development, other kinds of public land projects under  
19 the various federal land management and environment  
20 statutes.

21 For the last four years I've worked for the  
22 state of Colorado as the acting director and now the  
23 director of the Colorado Oil and Gas Conservation  
24 Commission. Those of you who aren't familiar with us,  
25 we're about a 69-person state agency. We oversee all

1 oil and gas development in the state of Colorado.

2 And I just want to thank the State Director  
3 Hankins, Mr. Ward, fellow panelists and BLM, generally,  
4 for this opportunity to provide our perspective on how  
5 the state of Colorado is protecting public health and  
6 the environment generally and groundwater and drinking  
7 water specifically while we can follow our important  
8 indigenous oil and gas resources.

9 Colorado has a long and proud history of oil  
10 and gas development, with our first well drilling  
11 dating back to 1962. As of 2009 we rank fifth in  
12 natural gas production and tenth in oil production.  
13 Our diverse hydrocarbon resources encompass a variety  
14 of shale, tight sand, coal-bed methane and other  
15 formations that literally span the state.

16 At the same time we have a thriving resort  
17 and tourist economy. In our rugged mountains, clear  
18 streams and abundant wildlife are an essential part of  
19 our own heritage.

20 Today's meeting involves hydraulic  
21 fracturing, and it's important to realize that most of  
22 Colorado's 44,000 active oil and gas wells, as well as  
23 the thousands of new wells that will be drilled in the  
24 coming years, rely on hydraulic fracturing to create  
25 the permeability that allows fluid and gas to pump into

1 the wellbore and be produced.

2           And it's not an understatement to say this  
3 technology is absolutely vital to unlocking Colorado's  
4 rich natural oil and gas reserves. These reserves are  
5 a critical source of domestic energy for our state and  
6 our nation. And their exploration, development and  
7 production provides good-paying jobs for our residents  
8 and needed tax revenue for our community.

9           But it's also essential that this development  
10 occurs in an environmental responsible manner that  
11 protects our water resources generally and drinking  
12 water specifically.

13           This is a fundamental part of our own  
14 regulatory mission, and something that every person at  
15 our agency takes very seriously. To that end our  
16 environmental professionals have investigated hundreds  
17 of groundwater complaints over the years and typically  
18 they investigate dozens of complaints each year, and to  
19 date we found no verified instance of hydraulic  
20 fracturing on groundwater.

21           UNIDENTIFIED SPEAKER: Boo. You never  
22 looked.

23           DAVE NESLIN: In addition, since the year  
24 2000, our commission has required operators to collect  
25 pre- and post-development water quality samples for

1 more than 1,900 water wells in the San Juan Basin in  
2 Southwestern Colorado, which has historically been one  
3 of our most productive gas-producing areas.

4 Now, these water samples are taken before the  
5 gas well is drilled, after it's been drilled and  
6 frac'd, and then three-year increments thereafter. So  
7 for some of these water wells, we have multiple data --  
8 data points dating back over a decade.

9 And thousands of oil and gas wells in the  
10 basin have been hydraulically fractured. And if  
11 hydraulic fracturing were reaching these water wells,  
12 fracturing fluids were contaminating these water wells,  
13 you would expect to see changes in the chemical  
14 composition of the water. We've had the water results  
15 independently analyzed, and that data has indicated no  
16 statistically significant increase in chemical  
17 concentrations.

18 We've also collected or required operators to  
19 collect similar data from almost 2,000 water wells in  
20 other oil and gas-producing areas in the state as well.

21 And my colleague, Debbie Baldwin, who will  
22 follow me, will provide a little more information on  
23 water well sampling and the program we undertake. It  
24 is a very important part of our program ensuring that  
25 groundwater is protected in Colorado.

1           Now, Mr. Ward, in his introduction, talked  
2 about well integrity, and BLM representatives who spoke  
3 recently talked about BLM's process to ensure well  
4 integrity, and I -- I begin by saying our process is  
5 very similar to BLM's process.

6           We have a step called a location assessment,  
7 which involves an application for development of the  
8 drilling pad. And we have environmental staff who  
9 review that application, approve the site of the  
10 drilling pad.

11           Then a company needs to submit an application  
12 for permit to drill, Form 2, very similar to BLM's  
13 application for permit to drill. And that includes  
14 information on the bottom hole location on the casing  
15 and cementing plans, how the well and casing are  
16 cemented to protect aquifers and drinking water. And  
17 that application is reviewed by engineers on our staff  
18 and environmental specialists on our staff.

19           And then once the well is completed, an  
20 operator has to submit a completion report within  
21 30 days. And that's essentially an as-built for the  
22 drilling of the well, how the well was -- was drilled,  
23 cased and cemented, in fact, and confirms that -- that  
24 the well has been completed in the matter that was  
25 permitted.

1           And then there's an additional report called  
2 a completed formation report, which is, essentially, an  
3 as-built on the well completion for the frac'ing  
4 process, and provides information on the frac'ing on  
5 the well to us. And our engineers review those reports  
6 as well.

7           So our process -- we're attempting to ensure  
8 well integrity parallels BLM's process. But I'd like  
9 to emphasize during that 2007 and 2008, our agency  
10 devoted substantial time and effort to updating our  
11 regulations to address a broad range of environmental  
12 issues associated with oil and gas development,  
13 including hydraulic fracturing.

14           I think many of you probably participated in  
15 some manner in that process or are aware of it. It  
16 lasted 16 months. It included testimony from over 160  
17 witnesses. It involved 22 days of hearings, and the  
18 final rules, I think, strike a responsible balance  
19 between energy development and environmental  
20 protections, and they reflect input from dozens of  
21 local governments, oil and gas companies, environmental  
22 groups and thousands of our residents.

23           Again, our amended rules contain various  
24 provisions to ensure that hydraulic fracturing does not  
25 harm our drinking water while recognizing that one size

1 doesn't necessarily fit all, and that we have to tailor  
2 our regulatory programs to different conditions in  
3 different areas of the state.

4 Let me give you a couple of examples of the  
5 rules that were adopted and -- and provide additional  
6 protection for drinking water in Colorado. Rule 205  
7 requires operators to inventory the chemicals they keep  
8 at their drilling sites, including hydraulic fracturing  
9 fluids.

10 That information must be provided to our  
11 agency promptly upon request and also certain  
12 healthcare professionals. This allows government  
13 officials and medical professionals to investigate and  
14 responsibly address allegations of chemical  
15 contamination associated with hydraulic fracturing  
16 while also protecting propriety information.

17 I've talked about well casing and cementing,  
18 and that's been a long-time requirement under Rule 317,  
19 but we have also amended Rule 317 to require operators  
20 to run cement bond logs on all production casing to  
21 confirm that the cement has properly isolated the  
22 hydrocarbon bearing zones.

23 Another new rule, Rule 361, requires  
24 operators to monitor well pressures during hydraulic  
25 fracturing and to promptly report significant

1 increases, taking together these requirements in  
2 Rule 317 and 341, help ensure the groundwater is  
3 protected and that prompt action can be taken if  
4 conditions arise that could lead to a subsurface  
5 release of fracturing fluids.

6 Another new rule, Rule 317 B, imposes  
7 mandatory setbacks and enhanced environmental  
8 protection on oil and gas development occurring in the  
9 sources of public drinking water. These requirements  
10 provide an extra layer of protection for our public  
11 water supplies and help ensure that these critical  
12 resources are not inadvertently contaminated by oil  
13 development.

14 Rule 608 does something similar for coal-bed  
15 methane formations. Now, coal-bed methane formations  
16 are shallower formations. Those wells are completed at  
17 a shallower depth than shales and other formations on  
18 the West Slope, which may -- may be down six, seven,  
19 eight thousand feet.

20 Because these are shallower wells, we require  
21 the operators to pressure test the wells, to sample  
22 nearby water wells before, during and after operations  
23 to ensure that they're not contaminated by gas or other  
24 pollutants.

25 We have similar requirements up in the DG

1 Basin in Northern Colorado to do similar water well  
2 sampling before drilling. And these rules provide an  
3 extra layer of protection for water wells located in  
4 oil and gas development.

5 And finally, I note that our rules dealing  
6 with exploration and production waste, Rules 903, 904  
7 and 906, were updated to strengthen the requirements  
8 for pit permitting, pit lining, pit monitoring and  
9 secondary containment, to ensure that fluids --  
10 fracturing fluids that are returned to the surface do  
11 not contaminate soil groundwater or surface -- surface  
12 water and are properly contained to prevent  
13 environmental impact.

14 So in summary, I think our regulations at  
15 this time take a life-cycle approach to the issue of  
16 hydraulic fracturing. We have requirements dealing  
17 with the chemicals themselves and disclosure of that  
18 information to the state and to physicians.

19 We have requirements that deal with drilling  
20 of the well and the casing and cementing of the well  
21 and the confirming information, to confirm that that  
22 work has been done appropriately. We have requirements  
23 dealing with the frac'ing of the well and pressure  
24 monitoring during the frac'ing process to try to  
25 identify the potential problems.

1           And then we've got requirements that apply to  
2 the management of the fluids when they return to the  
3 surface. Now, these regulations are important, and we  
4 believe they substantially improved our protection of  
5 water resources, but we haven't stopped there. We're  
6 continuing to take proactive, cost-effective steps to  
7 ensure oil and gas development, and hydraulic  
8 fracturing, in particular, protects public health and  
9 the environment.

10           Let me summarize a couple of those steps that  
11 are ongoing at this time. First, we and other states  
12 have worked closely with groundwater protection counsel  
13 and the Interstate Oil and Gas Compact Commission on  
14 the launch on the new website two weeks ago,  
15 FracFocus.org.

16           This site encourages oil and gas operators to  
17 voluntarily provide information on the chemicals they  
18 use to hydraulically fracture wells. It also provides  
19 background information on the hydraulic fracturing  
20 process, chemicals used, well completion, water well  
21 testing and so forth.

22           This, as you know, has been a sensitive issue  
23 for the public and the industry, and we believe that  
24 this itemized chemical registry will provide helpful  
25 information to citizens who want to better understand

1 hydraulic fracturing or have questions about a  
2 particular well.

3 Under our regulations that took effect two  
4 years ago, operators already must disclose fracturing  
5 constituents upon request by state regulators or health  
6 officials, as I've mentioned. The website compliments  
7 that requirement by providing additional information to  
8 the public, including company names, well locations,  
9 construction details, fracturing fluid constituents,  
10 chemical abstract numbers and so forth.

11 Second, we've arranged to have our hydraulic  
12 fracturing regulations professionally audited this  
13 summer by STRONGER, the State Review of Oil and Natural  
14 Gas Environment Regulations. STRONGER is a national  
15 organization consisting of state regulators and  
16 industry and environmental representatives.

17 Their review process is a collaborative  
18 undertaking involving an evaluation of state  
19 regulations and the comparison of them against a set of  
20 guidelines developed and agreed to by all participating  
21 parties.

22 During the last eight months, STRONGER has  
23 completed similar reviews of Oklahoma, Pennsylvania,  
24 Ohio and Louisiana, and we're subjecting Colorado's  
25 program to a STRONGER review to determine whether

1 further improvements can be made. And that will be a  
2 public and transparent process that interested members  
3 of the public can participate and monitor or can review  
4 the results of.

5 Third, the House of Representatives'  
6 committee on energy and commerce reported several  
7 months ago that 1.3 million gallons of diesel fuel and  
8 fluids containing diesel were used for hydraulic  
9 fracturing in Colorado during the last five years.

10 In response, we've launched our own  
11 investigation into the subject. When we believe our  
12 regulations would have prevented any contamination of  
13 drinking water supplies for the reasons I've mentioned,  
14 we're collecting information independently to assess  
15 the information.

16 Fourth, we will continue to consider and  
17 assess public concerns that have arisen over this  
18 subject. As part of this we endeavor to give these  
19 matters the transparency they require and deserve.

20 For example, in February of this year our  
21 commissioners held a full public hearing to examine an  
22 allegation that hydraulic fracturing had contaminated a  
23 water well in Southern Colorado.

24 In that case our commissioners, which is a  
25 diverse board representing environmental groups, the

1 industry, local governments, the state, governor's  
2 cabinet, and other sectors unanimously determined that  
3 hydraulic fracturing had not impacted the well in  
4 question.

5 We're also continuing to investigate water  
6 well complaints, as I've mentioned, and we do  
7 substantial amounts of baseline sampling in areas where  
8 property owners request it.

9 So in summary, I want to stress how seriously  
10 we at the commission take this subject and how Colorado  
11 is committed to ensuring that hydraulic fracturing  
12 protects public health and the environment through an  
13 extensive regulatory program with a number of  
14 requirements that address the process from multiple  
15 perspectives.

16 In this way we believe that we can ensure  
17 that our precious natural resources and the environment  
18 are protected while we provide our state and nation the  
19 cleaner-burning vital source of domestic energy. We  
20 believe both of those objectives are critical for the  
21 state.

22 I'll turn the podium over to my colleague,  
23 Debbie Baldwin.

24 RICHARD WARD: Thank you, Dave. I just  
25 wanted to -- before Debbie speaks, I just wanted to put

1 up a little reminder to the audience that there will be  
2 a time for questions, and Dave will be there. But we  
3 want to keep our interjections courteous, okay?

4 Debbie Baldwin from the Colorado Oil and Gas  
5 Conservation Commission.

6 DEBBIE BALDWIN: Hi. I'm Debbie Baldwin.  
7 I'm the environmental manager for the Colorado Oil and  
8 Gas Conservation Commission and worked for the  
9 commission for about 16 years, almost 35 years of  
10 experience as a geologist and hydrogeologist and  
11 environmental scientist.

12 I've got a bachelor's degree from the  
13 University of Illinois, master's degree in geology from  
14 the University of Florida.

15 So I can get on to some information about  
16 where does the water from frac'ing come from or any  
17 other oil and gas activities. Some -- the highlights  
18 on some waste management programs and responsibilities.  
19 Talk about groundwater protection, our investigations  
20 and monitoring of the groundwater.

21 Dave has certainly covered that, but I'll  
22 maybe have a little more detail on it. Some  
23 information about our complaint response program or our  
24 approach to complaint response. So actually the  
25 surface water are governed in Colorado by the Division

1 of Water Resources, and they're the implementing agency  
2 for a large body of law.

3 And so I'm only going to touch on this  
4 briefly, but that water is a vital part of drilling and  
5 completing oil and gas wells and that water has to be  
6 obtained from a legal source. And legal sources  
7 include buying or purchasing water from the  
8 municipalities that have the right to use that water  
9 for -- the water has been classified for being capable  
10 of being used for industrial uses, because oil and gas  
11 industry certainly is an industrial use.

12 And a user of water that has, for instance,  
13 an agricultural right, they can go to the Division of  
14 Water Resources and ask for a temporary change in  
15 classification for the use of that water, and so  
16 someone could temporarily change the use from an  
17 agricultural use, as an example, to the industrial use,  
18 and then an oil and gas operator could be using that  
19 water.

20 An oil and gas operator can buy fully  
21 consumed water or affluent from wastewater treatment  
22 facilities. Produced water can be used and reused and  
23 recycled and what we call nontributary water through  
24 Colorado can be -- actually, you can operate --  
25 landowners can have agreements where operators can use

1 that nontributary water.

2 Nontributary water is water that doesn't  
3 react with surface water. It's a little more  
4 complicated than that, but I'll not be going to get  
5 into that.

6 Nontributary water is allowed by law to be  
7 withdrawn when mining minerals, and so oil and gas  
8 development is considered a mining of minerals, so  
9 produced water can be produced -- coproduced with oil  
10 and gas that's produced. There's a premise on the fact  
11 that that can be an incidental withdrawal, that the  
12 amount and the duration of that water withdrawal will  
13 be relatively limited and can only occur at the time  
14 the oil and gas well is producing.

15 Land ownership is not required for reusing  
16 and recycling that produced water if it is coproduced  
17 with water and gas. That is not in conflict with the  
18 other laws regarding the use of water resources in  
19 Colorado.

20 But the presumption is that those oil and gas  
21 reservoirs are deep and therefore they're not economic.  
22 They're not normal targets for water development.  
23 They're not productive enough to be real water  
24 reservoirs that would be aquifers most people would be  
25 looking to for producing water and they're not suitable

1 quality.

2 Management and exploration production waste.  
3 One of the largest wastes that has to be managed by oil  
4 and gas operators is produced water in Colorado,  
5 depending on the places. Most of that produced water  
6 is eventually injected, and the Colorado Oil and Gas  
7 Conservation Commission implements that underground  
8 injection control program for the EPA, except on tribal  
9 lands, and on tribal lands -- there are 22 Indian  
10 reservations in Colorado -- the EPA retains privacy on  
11 those injection wells.

12 Evaporation can occur at facilities that are  
13 permitted by the Oil and Gas Conservation Commission,  
14 either individual well site pits or what we call  
15 centralized exploration and prevention risk management  
16 facilities, large facilities being operated will bring  
17 waste from many wells and manage those wastes in a  
18 centralized area.

19 The water -- the Colorado Department of  
20 Public Health and the Environment Solid Waste Group  
21 oversees and permits the commercial disposal  
22 facilities, so there are a number of commercial  
23 disposal facilities in Colorado, and those are  
24 permitted by the solid waste group, not by us.

25 There are a few cases where operators may use

1 produced water for dust suppression on leased roads.  
2 The water quality of that water has to be less than  
3 3,500 milligrams per liter total dissolved solids.

4 Produced water in some instances is actually  
5 discharged to surface water and those discharged  
6 permits are obtained from the Colorado Department of  
7 Public Health and Environment Water Quality Control  
8 Division.

9 And then we -- the final thing that we like  
10 to see is to reuse and recycling produced water rather  
11 than obtaining water -- fresh water, to reuse and  
12 recycle whenever possible, and that's strongly  
13 encouraged.

14 There are other wastes that occur from the  
15 oil and gas industry. There are drilling fluids,  
16 flowback fluids that include the frac fluids and other  
17 oil and waste. Those can be depending upon what it is.  
18 I'm just -- they can be injected into, again, an  
19 underground injection control well. They can be  
20 disposed at commercial disposal facilities. Certain  
21 waste can be land treated, land farmed.

22 They can also be disposed of at centralized E  
23 and P waste management facilities, and again, we  
24 encourage the reuse and recycling of those wastes to  
25 minimize part of the waste minimization programs.

1           We have a large body of rules, and the 950  
2 series of rules, as Dave mentioned, covered a  
3 management of exploration and production of wastes.  
4 Rules -- Rule 20- -- 902 to 905 covered the permitting,  
5 lining and operation and maintenance of pits. Pits  
6 still are an important plan -- play an important role  
7 in this industry. Sometimes they're the safest way to  
8 manage fluids.

9           There are requirements for reporting spills  
10 and releases, and cleaning up those spills and releases  
11 that occur, because operators handle large volumes of  
12 fluids and spills and releases do occur. And that the  
13 landowner notification, in the case there's a spill and  
14 release, is required.

15           The 907 rule covers, again, the management of  
16 exploration production waste and includes reuse and  
17 recycling. Requirements of operators to track their  
18 waste and make sure they know where their waste is  
19 going and who is handling them.

20           We encourage the operators to create what we  
21 call waste management plans or comprehensive review of  
22 what are you going to be doing with your waste, how  
23 will you be managing them, how are you to reuse and  
24 recycle.

25           It also covers disposal methods and that

1 would include -- this water bill includes quite a list  
2 of frac'ing fluids.

3 The Rule 908 covers the permitting of the  
4 centralized exploration and production of waste  
5 management facilities. And a number of the larger  
6 operators have these centralized facilities, and it's a  
7 good way for operators to keep track of their own waste  
8 to make sure that they're properly treated and being  
9 disposed of.

10 We also do have still some releases that  
11 occur, and those spills and releases, in addition to  
12 being reported to us, do have to be cleaned up.

13 So we have a program for conducting what we  
14 call site investigations, remediations, enclosure of  
15 exploration of production waste management facilities,  
16 as well as spills and releases.

17 And then the standards that -- or the  
18 concentrations that have to be met are spelled out in  
19 our Rule 910. I'd like to say that the Oil and Gas  
20 Conservation Commission does implement the groundwater  
21 standards and classifications that are set by the  
22 Colorado Department of Public Health and the  
23 Environment, the Water Quality Control Commissions. We  
24 don't set those standards, but we do implement them and  
25 have regulatory authority to implement those standards

1 and make sure that any impacts to groundwater are  
2 cleaned up to meet those standards.

3 We report to the Water Quality Control  
4 Commission annually, every year, at one of their public  
5 hearings. We make a presentation. We present not only  
6 oral presentation but a written presentation.

7 And in addition to that, we meet with the  
8 Water Quality Control Commission representatives and  
9 the Water Control Quality Division staff on a quarterly  
10 basis to discuss issues related to oil and gas  
11 development, but also to explain how we are  
12 implementing their standards and classifications.

13 All of those reports are available on our  
14 website, and I strongly recommend if you haven't had a  
15 chance to look at the COGCC website, take a look at it  
16 because there's a lot of good information there.

17 And so far as groundwater protection, Jerry  
18 covered it. Number one, most important is the properly  
19 drilling, completing, operating and plugging abandoned  
20 oil and gas wells to ensure and that -- and to  
21 maintain -- to maintain the isolation of the productive  
22 zones from groundwater and surface water.

23 That's foremost and we have an engineering  
24 staff that reviews our applications -- or the  
25 application for permits to drill to make sure those

1 wells are constructed properly, achieve that. We have  
2 to make sure that all these wastes are properly stored,  
3 treated, reused, recycled, transported appropriately to  
4 protect groundwater and surface water resources.

5 We have to make sure that not only the wells  
6 but that other equipment that's used in the waste  
7 management facilities are properly installed and  
8 properly maintained and properly managed that include  
9 separators, pipelines, tank batteries. Those are the  
10 facilities that often have leaks associated with them,  
11 so those -- those -- that -- those equipment -- in  
12 addition to wells, that equipment must be maintained  
13 properly.

14 And then another extremely important part is,  
15 as I said, spills and releases do occur. There's no --  
16 they do happen, and we have to have rapid response to  
17 and through remediation of impacts from spills and  
18 releases. We do have standards that have to be met.  
19 Those spills and releases have to be reported to us,  
20 and we do oversee the clean-up and mediation of those  
21 spills and releases.

22 So how do we show that the groundwater has  
23 been protected? The Oil and Gas Conservation  
24 Commission has had analytical results from over 5,000  
25 water wells, and Dave went over a variety of ways we

1 get those -- why those samples have been collected.  
2 They've been collected by COGCC staff, third-party  
3 contractors, operators in other agencies.

4 We've selected samples as part of our studies  
5 that we do in what we call baseline or current  
6 conditions, studies where we go into areas where oil  
7 and gas development may be expanding, and contact  
8 private water well owners and get their permission to  
9 sample their water -- or water wells, do extensive  
10 sweep of analytical laboratory analysis.

11 We also collect samples in response to  
12 complaints and requests from landowners for baseline  
13 sampling. Some of this sampling is required by order  
14 of the Colorado Oil and Gas Conservation Commission.  
15 One order -- one cause in particular, 112, is the --  
16 relates to the Ignacia Blanco field down in the San  
17 Juan Basin.

18 We also have sampling that's required by  
19 various rules, 317 B, Public Drinking Waters Protection  
20 Rule. 318 A, it's an infill drilling of the Wattenburg  
21 Field. Rule 608 are the rules for the coal-bed methane  
22 development. And our -- our Rule 908 for the  
23 sandblasting waste management facilities, EPA does  
24 require groundwater monitoring.

25 And then in addition to all that, we also

1 have it so operators also are required to provide  
2 samples to demonstrate that remediation of -- of their  
3 spill -- spills and releases were adequate and do meet  
4 our standards.

5 This is a map of the state of Colorado, and  
6 just the blue squares are water wells -- primarily  
7 water wells that -- where we have analytical data that  
8 we've collected either ourselves or operators have  
9 provided it to us from other sources.

10 The green diamonds are oil and gas wells that  
11 we have analytical data for. So really, we have a huge  
12 volume of data that we use to begin our investigations  
13 of -- of allegations of impact.

14 We also respond to complaints, and when we  
15 get complaints, somebody alleges that their water or  
16 they believe their water well has been impacted or the  
17 soil has been impacted or some other media has been  
18 impacted, we respond as quickly as we can.

19 We collect samples of -- typically, if  
20 they're the water or the soil or whatever the media is  
21 that they're concerned about, we'll collect samples  
22 from the water and gas wells, we'll collect oil -- oil  
23 samples, gas samples, condensate samples, produced  
24 water samples, flowback, depends on what -- what the  
25 concern is.

1           We compare the analytical data from the water  
2 wells to the background and regional water quality.  
3 But we also compare that -- like in the case of --  
4 really, most of the complaints we get really do revolve  
5 around the presence of methane in their -- in water or  
6 gas in water.

7           And so I think it was Rich that was  
8 mentioning, how do we determine if a water well has gas  
9 in it? How do you know whether it's coming from a gas  
10 well or whether it's naturally occurring? And we do --  
11 do stabilize and pull up an analysis and --  
12 compositional analysis of gas samples to determine what  
13 the source is.

14           And if the complaint is verified, if we find  
15 that a water well or soil or whatever has been  
16 impacted, operators must remediate those impacts to  
17 meet the standards and operators must mitigate the  
18 impacts.

19           And this is our website address, and if you  
20 haven't had a chance to go to the Oil and Gas  
21 Conservation Commissions' website, I'd recommend doing  
22 it.

23           RICHARD WARD: Thank you, Debbie.

24           So that wraps the state's perspective.

25           What we'll do now is hear from industry,

1 and -- and we've given Dave Cesark sort of a -- a  
2 tough -- tough task here to speak to all of you in  
3 industry. And equally the people who are representing  
4 civil society will have that -- that -- that task as  
5 well.

6 So let's bring it up here. So for Mesa  
7 Energy.

8 DAVE CESARK: Good evening and welcome. And  
9 thanks for allowing me the opportunity to speak. I  
10 guess the BLM must have been desperate to drag me up  
11 here.

12 As Rich mentioned, my name is Dave Cesark,  
13 and I reside on the West Slope in Grand Junction. My  
14 life story actually started out similarly to our new  
15 governor, Hickenlooper, here in Colorado.

16 We both -- both grew up in the Northeast. We  
17 both went to school and studied geology, got geology  
18 degrees. Both moved to Denver to work in the oil and  
19 gas business. Both got laid off in 1986, but  
20 unfortunately, that's where the similarities end. He  
21 got out of oil and gas and his career went up from  
22 there, and I stayed in it, and mine went downhill so --  
23 but I just thought it was interesting to provide that  
24 perspective.

25 Anyway, I guess the rest is history. As I

1 said, I reside in the West Slope. I've got about  
2 28 years of oil and gas experience, either directly or  
3 indirectly in oil and gas. About half of that was done  
4 as an environmental consultant to the industry.

5 And very active in the West Slope community.  
6 Was fortunate enough to serve with many of the BLM  
7 folks on the BLM Northwest Resource Advisory Council  
8 for Colorado for six years, and -- and served those  
9 last two years as chairman.

10 And also served on a number of boards and  
11 commissions on the West Slope, including Club 20 and  
12 the Grand Junction Chamber and West Slope COGA, and  
13 Hospice & Paliative Care, I'm on their board as well.

14 Love to get out and -- and recreate, hike --  
15 hike and bike and ski and camp and just enjoy the  
16 outdoors.

17 Anyway, enough about me. I'll get on with  
18 the first slide.

19 This is a cover story that just appeared two  
20 weeks ago today in Time Magazine. Many of you have  
21 probably seen it. But the -- the rock on -- on the  
22 cover is -- is shale. And basically this is a very low  
23 porosity, permeability rock, very -- very low porosity,  
24 low permeability.

25 A ton of gas and oil in it, but very

1 difficult to extract without new technological  
2 advances. And those new advances have been in -- in  
3 hydraulic fracturing and in horizontal drilling.

4 And -- and being able to use those  
5 technological advances on this rock has basically  
6 increased the natural gas supply in the United States  
7 to over a hundred year supply right now. And that's  
8 really all happened in just the last five years. We've  
9 seen a 39 percent decrease in gas reserves in just the  
10 last five years, largely due to this rock.

11 Frac'ing has been performed for over 60 years  
12 here in the U.S. on over a million wells. And so about  
13 nine of every ten wells currently in production have  
14 gone through hydraulic fracturing. And so far we've --  
15 we've had a pretty exemplary safety record.

16 I have to just touch briefly on the economic  
17 contribution regionally of the -- of the oil and gas  
18 industry. Really can't be understated.

19 This is a recent study done by Price, Coopers  
20 Waterhouse on oil and gas in the Rockies region, and  
21 you'll note that Colorado is a -- is a  
22 24 billion-dollar industry, oil and gas is. So it's a  
23 huge business in Colorado, and I believe it's the  
24 largest single business in the state. So just a  
25 tremendous economic impact.

1           This just kind of gives a -- a breakdown, and  
2 this is a great website. This is off the Energy  
3 In-depth Website, and a lot of good information on the  
4 oil and gas industry in general, but particularly in  
5 hydraulic fracturing.

6           What this illustrates is that the chemicals  
7 used in the hydraulic fracturing process are literally  
8 just a drop in the bucket compared to the vast high  
9 percentage of water and sand that's used. I mean,  
10 it's -- all hydraulic fracturing mixtures vary a little  
11 bit, but it's really on the order of about 99 and a  
12 half percent just sand and water.

13           Now, I'll kind of get into what some of the  
14 chemicals are a little bit later, but basically just  
15 water. I mean, this is -- this is what the water looks  
16 like right on the frac job on the well site.

17           Typically operators use produced water.  
18 Produced water is essentially a waste product that's  
19 not potable, very saline. It's hydrocarbon-bearing.  
20 So we try to recycle as much of this as possible so we  
21 don't have to use fresh water, because really fresh  
22 potable water is not necessary to perform hydraulic  
23 fracturing operations.

24           And the other huge portion is just sand.  
25 Really most, like I say, sand and water.

1           This just kind of gives a good overview of  
2 that very small approximately half a percent of the  
3 other mixture that makes up the hydraulic fracturing  
4 process. And, you know, as you can see if -- if you  
5 look at this table, and this is -- this comes from the  
6 U.S. Department of Energy office website.

7           But if you look at the chemicals that are --  
8 are used in hydraulic fracturing, really all of them  
9 have pretty common household uses. I can just kind of  
10 go down the list for you very briefly here. But, you  
11 know, acid is used on-site to help dissolve minerals  
12 and initiate cracks in the rock, and it's similar to  
13 the dilution that you would use in your -- in your hot  
14 tub or your swimming pool to -- basically, as a  
15 cleaner, to prevent scaling.

16           There's an antibacterial agent, and basically  
17 that's -- that's a disinfectant or uses a sterilizer  
18 for medical and dental equipment. So like I say, if  
19 you go down the list, all the chemicals here are -- are  
20 used, you know, in the home.

21           So the purpose of this slide -- and I don't  
22 want to, you know, repeat too much of what's already  
23 been said -- but this basically just shows the huge  
24 separation, and has the Empire State Building kind of  
25 shown for scale.

1           But just a huge separation between the  
2 shallow potable water aquifer and where the actual  
3 hydraulic fracturing is taking place. And we're  
4 talking really a mile to two miles of separation, you  
5 know, literally thousands of feet and millions of tons,  
6 essentially, of impermeable rock. So there's kind of a  
7 huge safety net there.

8           This was mentioned earlier by Rich and -- and  
9 by David, there's multiple layers that surround and  
10 protect the aquifer, so basically multiple layers of  
11 steel and concrete, essentially. So really great care  
12 is taken to carefully seal off and protect the fresh  
13 water aquifers and keep them separate from the oil- and  
14 gas-bearing zones.

15           The risk of frac fluid coming in contact with  
16 an aquifer is not impossible. You know, nothing is  
17 impossible, guys. I'm not going to stand up here and  
18 say it is. It's extremely remote. And there really  
19 are a lot of great precautions that are taken to  
20 prevent it.

21           Frac fluid, as was mentioned earlier, is  
22 pumped into the formation at high pressure, typically a  
23 period of several hours. And then as production is  
24 initiated, the flow reverses, and the gas flow comes  
25 back up the wellbore along with the produced fluids.

1 So again, that lessens the likelihood of contamination  
2 occurring. As was mentioned earlier by the COGCC and  
3 the BLM, industry is heavily regulated.

4 And really, the key -- you know, the key  
5 point is getting the casing and cement in place  
6 properly and verifying the integrity of those seals.

7 These are just some interesting fairly recent  
8 quotes that I wanted to share. The first one is from  
9 Carol Browner, who was -- she was an EPA administrator  
10 under President Clinton back in the mid '90s and  
11 recently served in President Obama's cabinet. She may  
12 have left recently. I -- I don't keep track of that  
13 that well. I apologize for that.

14 But she basically said as EPA administrator  
15 that there's -- there is no evidence of a hydraulic  
16 fracturing issue that has resulted in any contamination  
17 or endangerment of underground sources of drinking  
18 water.

19 But, you know, that being said, there is a  
20 follow-up EPA study going on right now, and it will be  
21 curious to see how that turns out.

22 Jeff Bingaman is a senator from New Mexico  
23 and chairman of the Senate Energy Committee, stated  
24 that hydraulic fracturing is a valuable tool in  
25 reducing our dependence on foreign energy supplies.

1 During both the Clinton administration and the current  
2 administration -- which at the time was the Bush  
3 administration -- the EPA has maintained that federal  
4 regulation of hydraulic fracturing is not required.

5 And then testifying before the Senate  
6 Environment and Public Works Committee, EPA officials,  
7 Peter Silva and Cynthia Giles, confirmed that they know  
8 of no cases of groundwater contamination from hydraulic  
9 fracturing. That was back in 2009.

10 I just pulled this quote out of the Denver  
11 Post just yesterday, actually. There was an editorial  
12 in the Denver Post on hydraulic fracturing. Seems to  
13 make the news on a daily basis these days, but I  
14 thought this was interesting, and it was a good  
15 editorial.

16 But it concluded, basically, saying that  
17 having an outside look at Colorado's practices would be  
18 a benefit to this state, referring to the new EPA study  
19 currently under way. In the meantime, we would hope  
20 that federal lawmakers would hold off on applying  
21 additional regulations to the industry unless and until  
22 problems caused by frac'ing are clearly articulated.  
23 And that was from yesterday's Denver Post.

24 So the question is, I guess, is why is BLM  
25 contemplating federal regulations? As -- as been

1 demonstrated, the EPA has found no evidence that water  
2 quality degradation that resulted from frac'ing, but is  
3 conducting another study, as I said, to be completed  
4 next year.

5           So the point is, you know, let's not rush.  
6 Let's hold off and see how this study turns out. And  
7 as the COGCC mentioned, both David and Debbie, the  
8 state regulation is very strong. And the reason it  
9 needs to be strong and not painted with a broad brush  
10 at the federal level is because the oil and gas  
11 industry is very technical, and there's a lot of  
12 variation from state to state and even region to region  
13 within that state.

14           And so there's a lot of different types of  
15 hydraulic fracturing technologies that are performed,  
16 and -- and the regulators working within those states  
17 really know better than -- than someone at -- dealing  
18 in a very high federal level.

19           So basically, in wrapping up, U.S. oil and  
20 gas companies, to me, epitomize American ingenuity.  
21 We're -- we're constantly growing technologically.  
22 We're constantly working hard to try to improve  
23 environmental practices and safety, trying to lessen  
24 our footprint on the environment.

25           Affordable and reliable energy is the basic

1     cornerstone of prosperity.  Essentially go hand and  
2     hand.  And energy use and prosperity really go hand in  
3     hand.

4             And all energy sources having environmental  
5     impacts, not just energy sources, but all types of  
6     development.  I don't care if it's commercial,  
7     industrial, residential, energy.  Any type of  
8     development is going to cause an impact to the  
9     environment.

10            And so we need to balance those risks that  
11     are going to come with those impacts, minimize our  
12     risks, obviously, and -- and certainly see what our  
13     benefits are that are coming out of those risks.

14            So just again, in summary, there's great  
15     separation between the aquifer and the  
16     hydrocarbon-bearing zones in a hydraulic field.  
17     Chemicals used in the process while potentially  
18     dangerous in concentrate, are diluted to safe levels  
19     and they're carefully injected into  
20     hydrocarbon-bearing, nonpotable zones.

21            It's very important that you realize, again,  
22     we're -- we're injecting chemicals into zones that are  
23     not pristine, okay?  These zones contain hydrocarbon  
24     and very salty water.

25            There's very high casing and cementing

1 standards that are in place to protect shallow potable  
2 groundwater bearing zones with integrity verification  
3 procedures in place, and again, that's critical to  
4 verify the integrity of the cement and the casing in  
5 place before initiating hydraulic fracturing  
6 operations.

7 So in my mind the more critical the focus  
8 needs to be for industry to protect underground sources  
9 of drinking water is that we continue to prevent  
10 surface spills and that's critical. And then we  
11 ensure, as I mentioned, we have adequate casing  
12 protection, and that we continue to work to develop  
13 more environmentally friendly benefits.

14 Thank you. That's it. Thanks, Rich.

15 RICHARD WARD: Thank you, Dave.

16 Our next speaker is Mike Eberhard with  
17 Halliburton representing the service companies'  
18 perspective. Okay. Take it away, Mike.

19 MIKE EBERHARD: Thank you, Richard.

20 First, I'd like to thank the BLM for the  
21 invitation to present at this forum and participate in  
22 the panel session a little bit later. I'd also like to  
23 thank all of you -- all of you in attendance that came  
24 here tonight to learn a little bit more about hydraulic  
25 fracturing.

1           My name is Mike Eberhard. I'm the technical  
2 manager for Halliburton, located here in Denver,  
3 Colorado. I've been with Halliburton only 30 years so  
4 far, and I've been in the oil business for 30 years.

5           Grew up in Western Montana. I didn't know  
6 what a drilling rig was or an oil well was until I went  
7 to work for the company. But I've learned a lot since  
8 then, and my hope is that you continue to learn also.

9           So with that, you gave me a beautiful  
10 lead-in, Dave. We're going to go into green chemicals  
11 here in a second, but first, I'd like to say that  
12 Halliburton has been in Colorado for over 50 years. We  
13 have a regional office in Denver, and we have district  
14 offices in Grand Junction and out here in Brighton. We  
15 also have several remote facilities.

16           This is a recap of some of the financial  
17 impact we've had with salaries, taxes and what we spend  
18 in local communities to keep the operation going.  
19 There's a lot of money, as you've seen, just in tax  
20 revenue, but there's also a lot of money that goes into  
21 supporting the local areas.

22           So as Dave said earlier, we need to continue  
23 to develop green. And since we've had a presentation  
24 on what is hydraulic fracturing, that Richard gave us,  
25 I'm not going to into that in great detail, but I would

1 like to talk about where is the industry going,  
2 especially where's Halliburton going.

3 All industries continue to prove -- improve  
4 over time. We have to. And the oil and gas industry  
5 is no exception. Here are just a few of the areas  
6 Halliburton is continuing to make some improvements.

7 First, fluid technology. Halliburton has  
8 taken the commitment upon themselves to come up with  
9 greener chemicals. Obviously, it's a very hot subject,  
10 so it's in everybody's best interest to continue to  
11 improve and we have over the last several years. We've  
12 actually developed a food-grade fracturing fluid.

13 Now, when you start getting into food-grade  
14 type of systems, then obviously cost becomes a little  
15 bit of a concern because you have a lot more  
16 refinement. You can take the same water that we can  
17 use in the oil field, turn it into food-grade, that  
18 just means you have to refine it further, and you have  
19 guarantee that -- that it's very consistent. So that  
20 just adds a layer of cost and a layer of manufacturing,  
21 but can be done.

22 In addition to this, it's a Halliburton  
23 mandate that any chemicals that we introduce is a  
24 greener chemical than the one we're replacing it with.

25 And that's done when we have what we call a

1 chemical scoring index -- it's been written up in  
2 journals and such -- that allows us to track the  
3 toxicity of the chemical based on environmental, based  
4 on health, based on constituents of the chemicals  
5 themselves. And we can rank them accordingly. And  
6 every time we introduce a new chemical, it's better  
7 than the last one we had.

8 I would like to point out also at this time  
9 that Halliburton does not manufacture these chemicals.  
10 And when you hear some of the discussions about  
11 chemicals, these are chemicals, as -- as Dave showed  
12 earlier, that are used in household situations,  
13 industrial situations, and what we do is we tweak them.

14 We can take a surfactant, soap, Palmolive,  
15 tweak it a little bit and make it a little more  
16 effective and use that to help flowback and help  
17 prevent emulsion when our fluids contact the oil.

18 So they're not -- in most cases they're very  
19 benign type of chemicals, but there's a lot of research  
20 that goes into developing those little tweaks.

21 In addition to fluid technology, we're also  
22 looking at mechanical solutions. We're trying to  
23 eliminate chemicals wherever we can. One example of  
24 that is, we have our clean-screen technology, and  
25 that's a UV light. And what the UV light allows us to

1 do is to eliminate the use of biocides. It's not  
2 applicable -- applicable to all situations, but in a  
3 lot of areas we can use this. That eliminates the  
4 chemical.

5 Another example is a new mixing process that  
6 we have that allows us to get rid of a carrier for the  
7 guar. We can just go with dry guar, so we completely  
8 eliminated the need for the carrier fluids in the guar  
9 systems. So we continue to do that and continue to  
10 look for mechanical situations.

11 Next in line is fracture optimization. I  
12 want to stress it is very important that nobody in the  
13 industry wants to pump anything that they don't have to  
14 pump down any well.

15 We spend a lot of time and money. And  
16 Richard touched on it earlier, and left the  
17 microseismic discussion to me, but I don't have a real  
18 good slide that -- that describes it. But we can go in  
19 and kind of measure the overall height, lengths and  
20 widths of some of these fracture treatments and get an  
21 idea of where they go and how they go and how they  
22 develop over time in the fluid.

23 We spend a lot of time analyzing that so that  
24 we can minimize what we need to pump. It's in the  
25 operator's best interest. It's in everybody's best

1 interest to put less fluid down there -- the least  
2 amount of fluid and the least amount of chemicals that  
3 we can. It just makes good business sense.

4 So we spend a lot of time and effort in  
5 evaluating fracturing and trying to optimize it. You  
6 try and optimize two ways. Number one, you want to  
7 optimize the amount of fluid you use and you also want  
8 to optimize the amount of production coming out of that  
9 well.

10 If we're going to drill a well, we want to  
11 impact as much reservoir around that well, as much rock  
12 as we can to maximize production so we don't have to  
13 drill another well right next to it. One well will  
14 drain a larger area. That's what hydraulic fracturing,  
15 in essence, does; allows us to take one well and drain  
16 a much larger area so we don't have to drill many more  
17 wells.

18 This is an example of the Barnett, and just  
19 kind of shows you -- it's a little bit difficult and I  
20 apologize for that. But what this is, is there's about  
21 2,500 wells represented here, and these were all  
22 fraction-mapped using microseismic technology. And  
23 this, for example, is the top of what they measure for  
24 microseismic activity and the bottom for this  
25 particular well, and this is where the water wells are

1 offsetting that particular location.

2           So, as you can see, across the Barnett  
3 formation, this is kind of the average depth of where  
4 the fracture treatments are going, where the maximum  
5 height, here's the maximum height, here's the maximum  
6 height. This is where the water zones are. So there's  
7 great separation between these hydraulic fracturing  
8 treatments and the aquifers. It's the same we see  
9 throughout the United States.

10           Water management, we heard the COGCC talk a  
11 little bit about that. That's also a major concern.  
12 We want to minimize the amount of water we use. We  
13 want to reuse as much water as we can.

14           Colorado is kind of blessed in the Piceance  
15 Basin that we are able to reuse that water over and  
16 over and over, and we've learned how to do that. And  
17 that significantly reduced the amount of fresh water we  
18 use in those areas, so we continue to improve in these  
19 areas.

20           The other area that Richard talked about  
21 briefly earlier is the surface impact. Not only trying  
22 to get better at the fluids that we use but also  
23 minimize our surface disturbance as it relates to  
24 hydraulic fracturing and also the drilling operations.  
25 We're continuously trying to, number one, improve

1 safety. That's number one within our company and most  
2 everybody's company, how can we do things safely.

3 Number two, how do we reduce truck traffic?  
4 How can we keep from putting as many tractor-trailer  
5 units down the road as we can? That takes horsepower,  
6 design. That takes material design. There's a lot of  
7 things that goes into that. And we also want to just  
8 reduce the overall surface impact. We've come a long  
9 way over the years.

10 The other thing, you heard Dave Neslin  
11 mentioned this earlier that InFocus -- InFocus.org  
12 site. This is sponsored by the Groundwater Protection  
13 Council and the IOGCC. This is voluntary, but most  
14 everybody is complying with it. It's a voluntary  
15 disclosure site that you can go to, and you notice that  
16 frac does not have a K in it. You want to type in Frac  
17 Focus -- no K in frac.

18 It will allow you to find out what's pumped  
19 in the areas and -- in the specific well and in the  
20 areas that you're pumping. So that's a good resource  
21 for you, and as you heard, there are also other  
22 resources that are available at that site.

23 What it shows also is that this is still a  
24 very highly regulated industry, and you saw some of  
25 those regulations just for Colorado and there are

1 numerous federal agencies that oversee different  
2 aspects of the operation.

3 I'd like to stress also that Halliburton is a  
4 supporter of this site and the Groundwater Protection  
5 Council.

6 In addition to the GWPC site, Halliburton has  
7 also launched its own microsite. Microsite allows you  
8 to go and find out, number one, what is in -- what is  
9 hydraulic fracturing, and some of the fluids in  
10 specific areas, what's in our fluid. Expands on what  
11 Dave showed you a little bit earlier. What are these  
12 chemicals, what do they do, and why do we put them in  
13 there.

14 And for example, you can go into some fairly  
15 specific regions also. Come in to the Piceance Basin,  
16 look up what's being used, what it is and why it's  
17 used.

18 So with that, in closing, I'd like to say  
19 that hydraulic fracturing is not a new process. As  
20 you've already heard, it's been around for 60 years.  
21 Halliburton didn't invent it. Actually, Stanolind Oil  
22 Company invented it. We're just the first to license  
23 it.

24 There have been millions of frac jobs and  
25 over a million wells. Many wells have numerous frac

1 jobs pumping through them.

2 Over the last ten years there have been  
3 several studies. You've seen references to some of  
4 them today, from the EPA, Department of Energy, and the  
5 states, so continuously investigating claims.

6 Not once has there been a confirmed case from  
7 the process of hydraulic fracturing that has caused  
8 groundwater contamination. That's not to say oil and  
9 gas operations haven't, but the process of hydraulic  
10 fracturing has not.

11 In addition, the history -- this history, the  
12 science also supports the safety of this process.  
13 There are rock mechanics. There's a lot of knows that  
14 go into hydraulic fracturing, so it's not -- there's a  
15 lot of science there. There's geology. There's rock  
16 mechanics. There a lot of science that backs up the  
17 claim also.

18 Proper well construction, as you've heard  
19 already, is the key to protecting underground sources  
20 of drinking water for all oil and gas operations, not  
21 just hydraulic fracturing.

22 And finally, the states are the best equipped  
23 to regulate oil and gas operations within their --  
24 within their states. They're the ones that know what's  
25 going on and can react responsibly to the landowners,

1 to the mineral owners, to the advocate groups in a  
2 timely fashion.

3 Thank you for your attention. I look forward  
4 to questions a little bit later. Thanks.

5 RICHARD WARD: Thank you, Mike.

6 Now, we'll move into the third section of  
7 this -- this panel or this series of presentations, and  
8 ask Cathy Purves from -- who is the technical advisor  
9 of public lands for Trout Unlimited to come up.

10 I should point out, because this is a BLM  
11 conference, that the groundwater protection site is  
12 sponsored by part of the federal family, the DOE. And  
13 I think Halliburton supports it in using it but does  
14 not fund it.

15 Take it away, Cathy.

16 CATHY PURVES: Thank you, Richard. And I'd  
17 like to extend my thanks to the BLM for hosting this  
18 forum.

19 I wasn't aware that there were three. I was  
20 aware this was a second, and I promote future forums on  
21 this, particularly for the public's benefit.

22 I was asked to speak from the sportsmen's  
23 perspective and give you a little background. As you  
24 can see, I'm am a science and technical advisor for  
25 Trout Unlimited and have been for the last six years.

1 I work on public land issues, energy development,  
2 advocacy and policy, so I go from the ground all the  
3 way up to the federal D.C. policy level.

4 I have a background in wildlife issues and  
5 natural resource planning. I live in Wyoming now, and  
6 I have been -- and I attended the University of Wyoming  
7 in resource management, resource planning, wildlife  
8 issues. My degrees are from there.

9 I worked -- in my career, I've worked for the  
10 state wildlife agencies, federal wildlife agencies.  
11 I've had my own consulting business for over a decade  
12 where industry was part of my clientele, and for the  
13 last almost decade I've worked for NGOs.

14 For Trout Unlimited, a cold water  
15 conservation organization, it's been around for over  
16 50 years. Primarily our goal and mission is to protect  
17 and reconnect and restore vital trout and salmon  
18 fisheries habitat, and water, that's what it's all  
19 about. Obviously, we have big concerns with anything  
20 that impacts our water resources.

21 I work under a program called the Sportsmen's  
22 Conservation Project, and has been around since 2004,  
23 and it was previously called the Public Land -- Public  
24 Lands Initiative. And it's a way to seek responsible  
25 energy development on public land resources.

1           It's all about habitat, and we can't ignore  
2           that. And for Trout Unlimited, our concern is the head  
3           waters originate on public lands, clean cold water for  
4           trout, recreation opportunities and some places we  
5           believe are just too special to develop.

6           But there are other places, and Trout  
7           Unlimited firmly supports the exploration and  
8           development with acceptable limitations. We have  
9           guidelines with federal agencies and partnerships with  
10          industry.

11          Fish and wildlife depend, obviously, on clean  
12          water, clean air and keeping an intact habitat. And  
13          the irresponsible development that causes harm and  
14          raises a concern from this public standpoint, from  
15          obviously state agency standpoint, from industry too.

16          And we can't -- we can't ignore the fact that  
17          sometimes all the work that we work either  
18          independently or as partners gets canceled out by  
19          mistakes that are made by, you know, industry error or  
20          just damage from stormwater events that happen to  
21          impact the surface land where industry is doing their  
22          work.

23          Some of the concerns -- I'm just going to  
24          list some of these here. They're obviously many  
25          concerns from the sportsmen's standpoint, but the

1 biggest one that I just can't ignore that industry --  
2 and with all due respect to industry, sometimes they  
3 appear to give total disregard for the public's concern  
4 about the possible fracturing impacts and other  
5 contamination impacts.

6 And by saying, as we just heard, that  
7 chemicals, for instance, are no more harmful than  
8 household products, there is disconnect with the public  
9 in trying to understand why industry then won't  
10 disclose what these household products are.

11 And I think industry could really gain a lot  
12 of traction by being more open, having a better media  
13 front and by communicating better as to helping the  
14 public understand what it is that if it's not  
15 fracturing fluid, what is it that's causing the  
16 problems.

17 We know that water resources are required for  
18 drilling, and this often decreases stream flows, and it  
19 affects, obviously, fish and other aquatic-dependent  
20 life. This also impacts wildlife as we know too.

21 Spills, leaks and discharges are increasing  
22 with the increased drilling rush, and this also raises  
23 concern. Ten years ago, we had the natural gas  
24 development rush. Now we're having the shale gas  
25 development rush. And when all this happens, it often

1 seems that the public is left out. The public from --  
2 whether it's on public lands or private landowners.

3 And the sportsman is definitely an interested  
4 stakeholder at this place. But also so are those that  
5 use the public lands for their businesses, such as  
6 livestock operators. They're equally impacted when  
7 their water resources are contaminated.

8 The wastewater management needs stricter  
9 oversight, and this is a concern we've noticed in the  
10 past. I think it's getting a little better, but, you  
11 know, this -- we're talking here about the West and  
12 not -- not just Colorado. So I represent the entire  
13 West in the -- in the work that I do for Trout  
14 Unlimited. And I see that we do have wastewater  
15 management needs to address.

16 The nation's increase in developing our own  
17 energy resources has -- places a tremendous burden on  
18 our public lands. It's just not nonrenewable resources  
19 development.

20 When you start adding in just the energy  
21 development types of projects that are going on, coal  
22 classification, uranium development and oil and gas --  
23 nontraditional oil and gas development, these -- carbon  
24 sequestration and coal itself, and then you add on the  
25 renewables on top of that, you're starting to -- to

1 come up with a tremendous amount of impact to the  
2 public lands.

3 And this has to be viewed from a whole  
4 landscape perspective and incumbent on the industry,  
5 incumbent on federal regulators and the public to be  
6 involved as a whole and make sure that we consider not  
7 just piecemeal portions of how development occurs but  
8 the entire landscape portion.

9 There is inadequate wildlife habitat  
10 conservation that occurs, and sometimes this is  
11 overlooked. I think reclamation -- and I used the word  
12 "reclamation" -- I think it's a -- a stepchild of --  
13 of -- of applications when it comes to the oil and gas  
14 development processes. Left on the end, quite often  
15 it's just a farming operation that occurs.

16 We're trying to get better at it so that we  
17 include species and revegetation of species that are  
18 specific to wildlife needs. But for the most part, we  
19 have invasive weeds come in when you don't have the  
20 right seed mix, when it's not approved correctly. Once  
21 again, you still have problems with making sure that  
22 that habitat is reclaimed and restored.

23 And in the arid west, when we have little  
24 rain as it is and snow cover, we have a problem with  
25 growth and getting it to be -- getting that vegetation

1 to get to a point where wildlife can depend on it for  
2 survival and critical winter habitat.

3 We have increased need for monitoring and  
4 inspection and enforcement on our water and land  
5 resources. And this is something if when agencies are  
6 underfunded, they don't have the staff to get out there  
7 and do the monitoring.

8 And to have industry self-monitor themselves,  
9 while it can be done and while sometimes it is done and  
10 I've seen some companies do it very well, it's -- it's  
11 often not the thing that gets done the best when  
12 industry has a different bottom line than what the  
13 resource management agency has or even maybe the  
14 public.

15 So we know that the outdoor recreation  
16 industry is vital to the economy, just as the oil and  
17 gas industry is. Hunting and angling is an important  
18 commodity in the west and recreation. 4 million people  
19 in these states and the Rockies are hunters, anglers or  
20 wildlife enthusiasts.

21 And nearly 6 million people from 2006's U.S.  
22 Fish and Wildlife Services annual five-year survey,  
23 nearly 6 million people participated in contributing  
24 nearly \$7.3 billion to state and local economies. In  
25 Colorado that number of 7.3 billion was 1.89 billion,

1 so it's no small amount of money, and it needs to be at  
2 the playing table when consideration of who contributes  
3 funding to local economies and state economies.

4 The public supports responsible energy  
5 development, and -- and an organization that was formed  
6 in 2006 called the Sportsmen for Responsible Energy  
7 Development formed from a coalition of three  
8 organizations when they started seeing problems, and  
9 that was Trout Unlimited, National Wildlife Federation,  
10 and the Teddy Roosevelt Partnership. We got together  
11 and formed this coalition of sportsmen who supported  
12 our efforts to come up with some guidelines for  
13 responsible energy development.

14 So we want to be a self-sufficient nation,  
15 and I think that's good. I think we should go in that  
16 direction. But we need to recognize, as I said  
17 earlier, some places are too special to develop.

18 Industry has to acknowledge the public  
19 concern for the values that our public lands have for  
20 them. And industry and agencies must create a level  
21 playing field that is transparent, and trust.

22 The lack of trust is amazing to me. Trust  
23 must be developed, and it starts as we were told at the  
24 beginning of the -- as the talk today, opening remarks,  
25 it begins with an open dialogue that involves the

1 public as well, and it's just not a listening dialogue  
2 where are the public has to listen to the agencies. It  
3 has to be a cooperative exchange.

4           The use of new, greenery, safer technology,  
5 and, you know, I applaud Halliburton. I think that's  
6 great. I've just been reading about some of their new  
7 green technology as is several other companies are  
8 coming up with it. And the more we can do that, the  
9 better it is going to be, and the other -- we need  
10 increased accountability from industry and federal  
11 agencies. And this is one of them. This is a good way  
12 to start that dialogue.

13           We also need partnerships. We need  
14 partnerships. You know, conservations, Trout  
15 Unlimited, in particular, is constantly seeking  
16 partnerships with industry to sit down and -- and come  
17 up with some recommended development alternatives that  
18 involve items such as the following. Protective lease  
19 stipulations. Then perhaps increase the stream buffers  
20 100 feet from the stream for a drilling rig, which  
21 occurs in many places. Sometimes even 50 feet. It's  
22 not adequate.

23           Oil and gas industry extraction is a dirty  
24 business. That's just the bottom line. And we know  
25 what -- what is being done, and the whole act of

1 drilling is -- involves mechanical, chemical and other  
2 types of service disturbances.

3           So we need increased and improved fish and  
4 wildlife monitoring as well. Annual reports must be  
5 available to the public. And just as the chemical  
6 disclosure is now becoming more and more available, the  
7 reports on any type of permits that are -- are getting  
8 lenient in critical wildlife habitat. That's why an  
9 agency promotes that or allows that -- exceptions to  
10 drilling in critical wildlife habitat, and here in  
11 streams that contain critical trout species, sensitive  
12 trout species, we need to understand and -- and that  
13 information has to be available to the public.

14           We need better implementation of the API,  
15 American Petroleum Institute's industrial drilling  
16 practices. They have a good set of drilling practices,  
17 and not all companies abide by them.

18           So the Wyoming oil and gas rules, some  
19 changes were made last year in an effort to meet some  
20 of the concerns from the state. So on September 15th,  
21 2010, they were implemented, and the chemicals are to  
22 be identified that companies use.

23           There's a well integrity emphasis, which is  
24 excellent. Stronger surface casings, well casings,  
25 well cementing rules were developed. The cast number

1 is required, which allows much better tracking than in  
2 the past for specific chemical ID when you have  
3 incidents.

4           Frac'ing tanks must be used rather than pit  
5 liners in areas where the aquifer is 60 feet or less.  
6 60 feet isn't very deep and, you know, I have kind of  
7 some issues with that, perhaps, but it's a start. And  
8 from Wyoming, which is a very conservative state, and  
9 oil and gas industry is king, this is a good start.

10           Groundwater control areas must be identified  
11 and recorded prior to drilling, and this involves  
12 the -- companies are obligated to do this. Disclosure  
13 is required for the status of used frac'ing fluid. We  
14 need to know how much -- what percentage of the fluid  
15 is flowback and what's happening to that.

16           And increase communication and regular best  
17 management practice meetings. The turnout during the  
18 development of these Wyoming oil and gas rules, people  
19 that were sitting at the table developing them were the  
20 attorneys for the industry and then state regulators.  
21 And once these rules were implemented, it turns out,  
22 that on-the-ground people, subcontractors, had no idea  
23 what these new rules were. And the communication did  
24 not trickle down, so that's an issue.

25           And to our credit, Tom Dahl, our supervisor

1 of Oil and Gas Commission, he -- he implemented these  
2 monthly meetings or annual -- monthly meetings, as I  
3 understand it, he's increased the coordination and the  
4 effort to make sure that people understand these new  
5 rules.

6 And there is the coordination effort among  
7 the Wyoming's three regulatory agencies, which hadn't  
8 been in the past. And that is absolutely critical to  
9 make sure we understand what's going on. But there's  
10 still improvements that are needed. These rules  
11 reflected a need to update decade-old rules that hadn't  
12 been touched, and so small steps.

13 But some -- some of the improvements that are  
14 needed are -- complete disclosure of the chemicals  
15 should be required. Right now the companies can claim  
16 trade secret, and that option is now becoming the norm  
17 rather than the exception. As of February, 24 out of  
18 25 companies have claimed trade secrets and don't have  
19 them listed their site.

20 So there's a predrilling baseline that -- for  
21 water sampling that should be required. I know the  
22 supervisor can -- can require it. He can, of course,  
23 suggest it rather, but it's not required. And it's the  
24 same with monitoring. It should be required but it's  
25 not. It's recommended only.

1           There's a -- there's a lack of healthcare  
2 professional exemption. And finally, the DEQ is  
3 involved only after the fact. And this is a problem  
4 and the DEQ should be involved, Department of  
5 Environment Quality, should be involved during the  
6 drilling stages. And in the case of any type of  
7 incident, be right at the front with the industry.

8           But there's progress. And I applaud this --  
9 the new FracFocus.org. I think that's a tremendous  
10 stride. The DOI's onshore oil and gas leasing reforms,  
11 DU worked hand in hand with federal agencies to work on  
12 this and to improve public participation, get better  
13 environmental analysis.

14           And in our case, for DU, we actually have  
15 seen a decrease in our protest issues since these  
16 reforms were issued last summer and -- which is exactly  
17 what it was supposed to do for the state of Montana,  
18 Wyoming and Colorado. We -- our -- I'm not sure of the  
19 percentages, but our protests have decreased  
20 significantly.

21           EPA's research study on hydraulic fracturing  
22 and -- and drinking water, we support that. We  
23 participated in that, and we think that's a great  
24 start. Because we need to know if it's not fracturing  
25 that is the problem, what is, and how can we do a

1 better job of -- of monitoring and managing it?

2 The formation of secretary of energy's  
3 subcommittee to study hydraulic fracturing, that would  
4 include the DOI, the DOE and one other organization  
5 that is involved in that, and I think that's an  
6 excellent progress for -- the results of that are  
7 supposed to be in the next 12 months, I believe.

8 And then organized sportsmen's coalition,  
9 because there's a need. Coalitions like this start,  
10 and as I said, that's -- we handle 500 businesses and  
11 organizations. We've convened a symposium in 2008 and  
12 came up with a list of recommendations. In addition to  
13 that, we've developed a sportsmen's bill of rights,  
14 we're developing on our public lands.

15 And then because of the increased development  
16 in the Marcellus shale, and the east side of the United  
17 States, we've formed a sportsmen's alliance for the  
18 Marcellus conservation.

19 So in summary, I want to say that oil and gas  
20 is a part of the heritage of the West, and we  
21 acknowledge that. And responsible energy development  
22 when done right, you know, is perfectly acceptable.  
23 But also the use of our public lands historically are  
24 sportsmen. It's part of the sportsmen's culture and  
25 custom.

1 I grew up hunting and fishing across the  
2 west, hiking and riding, and I still do. And the --  
3 there are places where we just need to expend some  
4 extra energy in making sure that it's done right and  
5 other places that it shouldn't be done at all.

6 Thank you.

7 (Applause.)

8 RICHARD WARD: Thank you, Michelle, for the  
9 sportsmen's perspective. Next is -- I'm sorry, Cathy,  
10 with the sportsmen's perspective.

11 The next is Michelle Haefele, economist for  
12 the Wilderness Society.

13 And following this presentation, we'll have a  
14 break.

15 MICHELLE HAEFELE: Thanks for having me  
16 tonight.

17 As Rich said, I'm Michelle Haefele. I'm an  
18 economist for the Wilderness Society. I've been  
19 working here since 2003. I'm also a fourth-generation  
20 Coloradoan. I grew up camping and hiking on our public  
21 lands.

22 I got my bachelor's degree at Colorado State,  
23 and then I went out East, as we say, if we're from the  
24 West. I have a master's degree from Duke University in  
25 environmental natural resources economics policy. I

1 came back west and got my doctorate at Colorado State  
2 in environmental and natural resource economics.

3 And my work at the Wilderness Society, I look  
4 at the valuation -- economic valuation of public goods,  
5 including public land. I do a lot of work on the  
6 benefits that gateway communities receive from  
7 protected public lands, and I've also done a lot of  
8 work on environmental and economic impacts of oil and  
9 gas on local communities.

10 Today I'll focus on the environmental and  
11 public health impacts associated with natural gas  
12 development on public lands and some policies that BLM  
13 and other land management agencies can put in place in  
14 order to address these increasing concerns.

15 The Wilderness Society is not opposed to  
16 natural gas drilling on public lands; however, the  
17 drilling, extraction and processing of natural gas has  
18 had and is continuing to have significant impacts on  
19 our land, water, air, wildlife, habitat, human safety  
20 and communities.

21 I'm having trouble reading my notes.

22 These impacts are made worse because the  
23 industry enjoys weak regulations, unmerited exemptions  
24 from important federal environmental laws, understaffed  
25 state and regulatory agencies. We support the agency's

1 proposals to increase funding for oversight.

2 We believe that natural gas development can  
3 be done on our public lands, but that it must be done  
4 right. This means that certain areas, including those  
5 that are unprotected wild lands, important sensitive  
6 wildlife habitat, cultural sites, and other areas  
7 should be put off limits.

8 Loopholes in federal laws that protect our  
9 air and water quality should be closed. The rights of  
10 surface owners to protect their land and water in split  
11 state situations should be honored.

12 Sufficient agency staffing and resources for  
13 monitoring, inspection and the monitoring of  
14 reclamation need to be improved.

15 The pace of oil and gas development must be  
16 slow enough and the scale must be compact enough that  
17 the adverse economic impacts and environmental impacts  
18 on communities can be minimized.

19 And finally, we strongly recommend that the  
20 BLM require full public disclosure of all the chemicals  
21 used in oil and gas operations, including those used in  
22 hydraulic fracturing.

23 A recent report from the U.S. House of  
24 Representatives Committee on Energy and Commerce found  
25 that 14 hydraulic fracturing service companies used a

1 total of 2,500 different chemical compounds that  
2 contain 750 different chemicals, some of which are  
3 known carcinogens.

4 Currently out of 35 states where drilling  
5 occurs, only one, Wyoming, requires full public  
6 disclosure of chemical compounds used in hydraulic  
7 fracturing. Two others have weak requirements.  
8 Clearly, the states are not doing enough. Most states  
9 don't require any disclosure.

10 Communities and residents living near these  
11 drilling sites deserve to know what's being injected  
12 underground, what is being hauled across their roads,  
13 and what is being stored at the drill sites next to  
14 their homes and communities.

15 Accidents occur. We know these do occur.  
16 And when this happens, knowledge of chemical components  
17 that are spilled helps improve appropriate response,  
18 ensures that there's adequate response.

19 If there's nothing in there except chamomile  
20 tea, we don't need to call out the HazMat team, okay?  
21 And Mr. Cesark showed us, there are several chemicals  
22 that are in these fluids that are in household items,  
23 like shampoo.

24 But I can tell you, although I can't read it  
25 anymore in the shower without my glasses, but there is

1 a long list of chemicals listed on my shampoo bottle,  
2 okay? And for that matter, chamomile tea box lists all  
3 ingredients. So if these chemicals are so safe, the  
4 industry shouldn't have a problem disclosing what they  
5 are to us.

6 (Applause.)

7 MICHELLE HAEFELE: There's also been a lot of  
8 discussion about the fact there has not been a  
9 documented case of hydraulic fracturing that has caused  
10 groundwater contamination. But waiting until there is  
11 one to put in to place safety and health protections is  
12 like closing the barn door after the horses left.

13 If we learned nothing from the disaster in  
14 the Gulf that happened one year ago is that accidents  
15 happen and they can have disastrous consequences.

16 I'd just like to conclude with pointing out  
17 there were lots of points about economic benefits of  
18 oil and gas, and water in the West is our most valuable  
19 precious commodity. Spending the resources necessary  
20 to ensure that water is protected is well worth the  
21 extra cost.

22 Thank you.

23 (Applause.)

24 RICHARD WARD: Thank you.

25 So that concludes Act 2. Act 3 will begin in

1 three -- in ten minutes. So I have 6:35. We'll meet  
2 at quarter of.

3 And while you're away, you can get cards or  
4 if you've already filled out cards, you can bring them  
5 up and put them on the dais here. I'm going to ask the  
6 panel members to come to the front and be seated five  
7 minutes before we begin.

8 (Recess from 6:36 p.m. to 6:47 p.m.)

9 SU RYDEN: I'm Su Ryden, and I am a state  
10 representative representing Aurora in House  
11 District 36. I sit on the Natural Resources Committee  
12 at the legislature in the house. And so this has  
13 certainly been a topic of great interest for us this  
14 year, and it's a real learning curve.

15 So I've been telling these folks that after  
16 about the 40th time of hearing the frac'ing lecture,  
17 I'm finally starting to get it. And it does take, I  
18 think, a few times for some of us for all of the  
19 processes to sort of sink in and to understand what  
20 that process is.

21 I really just want to say thank you for  
22 everyone to be here tonight, and for you all to take  
23 your time to make yourselves available to the public.  
24 I think this is what most people just want to have a  
25 opportunity to get together, discuss these issues,

1 learn, understand, talk, listen, and hopefully come  
2 together on common ground and make Colorado, you know,  
3 even better than it already is.

4 So thanks a lot for being here tonight.

5 RICHARD WARD: Thank you. And Roger Wilson,  
6 also a state representative.

7 ROGER WILSON: Thank you. So I represent the  
8 area of Garfield County, Roaring Fork Valley area,  
9 Gunnison County. That's District 61. And I was -- I'm  
10 a first-time legislature. I'm a freshman legislature  
11 this time.

12 My background is I have a degree in physics.  
13 I did a lot of the work in Lockheed Martin, remote  
14 sensing, this stuff.

15 And so when I got into the legislature, and  
16 also I know about this issue, I immediately started  
17 designing solutions. And it took a little while once I  
18 was in the legislature to realize that. As a  
19 politician, I can't design and implement the solutions  
20 myself. I have to work with a lot of people to do  
21 that. Other people have to do that, but I have to  
22 facilitate it and listen.

23 And it really takes a big effort, such as the  
24 kind of thing we're seeing here today, and many of  
25 these things over and over again, working with many

1 different stakeholders to get things to move along  
2 sometimes. That's humbling to realize that, but that's  
3 what we have to do, because we are the public.

4           There are some things that I do envision, and  
5 I think many people might share that vision. So I'll  
6 give you my engineering vision a little bit as well as  
7 my political vision. And part of that is I would like  
8 to see much more real-time in-situ monitoring of our  
9 water systems.

10           I think only when we have that, in addition  
11 to everything we've seen today and the directions that  
12 companies are going in, will we have complete public  
13 trust. So that we don't have to have an incident occur  
14 and somebody to find out about it in order to know  
15 something is an issue, but rather we can trust our  
16 monitoring systems to tell us if something has occurred  
17 and also the limitations of what did occur or did not  
18 occur.

19           I think that's in the interest of both the  
20 oil and gas companies and the public in general.

21           I would also like to see more biological  
22 types of measurements in terms of the fish and the --  
23 also the people that work on these systems. I think we  
24 need some sort of trust that endocrine systems are not  
25 being screwed up or that sort of thing. We've heard

1 about these things.

2 I'm not saying that anything is an issue, but  
3 I'm saying that in order to have public trust, we need  
4 a thorough, technological evaluation of what's going on  
5 all the time. So that's my vision. We'll see if it  
6 pans out over the long term.

7 One of the things we can ask for is to simply  
8 identify in the meantime the methodologies to do this  
9 kind of stuff, and I would like to see progress made  
10 along those lines. How can we do it cheaply without a  
11 lot of expense, and I think that can be done, and we  
12 can look forward to that.

13 Thank you.

14 RICHARD WARD: Thank you for that  
15 perspective.

16 We have a number of county commissioners here  
17 tonight, Wally White, John Tye, John Martin, Mike  
18 Sampson, and Tom Jankousky, I guess.

19 If any of you would like to speak at this  
20 point, please come to the mic.

21 All right. Then we'll start with -- yeah.  
22 Sorry.

23 WALLY WHITE: It's all right.

24 My name is Wally White. I'm a county  
25 commissioner in La Plata County, and as many of you

1 know, La Plata County produces the most coal-bed  
2 methane gas in the state.

3 I was very interested to listen to the  
4 chemical comments by Mr. Cesark tonight, and I would  
5 like to say that I am not against hydraulic fracturing.  
6 Coal-bed methane gas brings in about 40 percent of our  
7 property tax revenues. We're highly dependent on it,  
8 and we welcome the work that goes on in La Plata  
9 County.

10 However, we would like to see the best  
11 management practices. And chemicals that have been  
12 used -- and I'm not saying they're in use today. I  
13 think I've had this conversation with Mr. Eberhard at  
14 some point. But I do have a list of the chemicals from  
15 a compound that almost caused the death of a nurse --  
16 an emergency room nurse at Mercy Hospital in Durango.

17 And I'm not very good at chemical  
18 pronunciations, but I would like to read these the best  
19 I can.

20 Alkyl pyridines, they comprise 59 to 65  
21 percent of this fluid. They have nauseating fish-like  
22 odors. Symptoms include headache, dizziness, insomnia,  
23 nausea, anorexia, eye irritation, dermatitis, liver and  
24 kidney damage.

25 Methanol, which comprised 20 to 25 percent.

1 It's a solvent gel.

2 Ethylene glycol polyphosphates, 5 to 8  
3 percent. These are known to create endocrine system  
4 dysfunctions.

5 Then we have five other chemicals; quinoline,  
6 aniline, enolase, pyrrolase and pyrimidine. These five  
7 chemicals comprise another 5 to 8 percent. And all of  
8 the above are flammable and toxic.

9 Now, those are the kinds of chemicals that we  
10 worry about that can poison the environment. They can  
11 poison you. They can poison our children.

12 I appreciate Halliburton's work in trying to  
13 develop the green frac'ing fluid, but these fluids that  
14 have been in use and many that are in use today follow  
15 under the Halliburton exception of '05. And the  
16 industry is the only industry in the United States,  
17 that I know of, that has an unregulated ability to pump  
18 toxic chemicals into our ground. And I think we need  
19 to take a much closer look at this and see what we can  
20 do about it.

21 Thank you.

22 (Applause.)

23 RICHARD WARD: Do any of the other  
24 commissioners want to share perspective before we start  
25 with the list?

1           Okay. Dan Drucker is first on the list.

2           DAN DRUCKER: I'm Dan Drucker. I've served  
3 on the Center of Colorado Water Conservancy District  
4 for 13 years. I'm currently its operations manager. I  
5 also serve on the Park County Water and Land -- Land  
6 and Water Trust Fund Board.

7           We've recently allocated -- suggested to  
8 the -- to our county commissioners that they spend  
9 72 -- approximately \$73,000 in getting a baseline study  
10 of the South Park area where oil and gas -- or rather  
11 gas drilling and hydrofrac'ing are proposed in our area  
12 so that we can be sure, at least what we have there now  
13 and what will perhaps be there in the future, but who  
14 will have put it there.

15           The other problems we have -- I have with  
16 this entire process is that the oil and gas industry is  
17 self-regulating by and large because the moneys that  
18 the state and the feds allocate to inspectors and  
19 inspection of sites and monitoring isn't sufficient to  
20 give us adequate assurance that things are being  
21 properly studied on -- on an ongoing basis in  
22 real-time.

23           We don't want to wait for 30 years to find  
24 out, oops, they made a mistake, the casing leaked and  
25 now our aquifers have chemicals that shouldn't be

1 there. That's basically what I'd like to see, some  
2 tightening up of the entire system. Unfortunately, the  
3 government has to come in and regulate those.

4 The oil and gas industry, by and large,  
5 hasn't done the best job.

6 Thank you.

7 RICHARD WARD: We'll try to keep our comments  
8 or questions to two minutes.

9 Mike Chiropolos.

10 MIKE CHIROPOLOS: Chiropolos.

11 RICHARD WARD: Thank you.

12 While he's coming up, there was a question  
13 for the Colorado BLM director. When the -- when the  
14 country is broken, BLM's budget is being cut, why is  
15 BLM standing up a redundant bureaucracy that duplicates  
16 what the states already do? How will it be paid for?

17 RICHARD WARD: Yeah. Go ahead and take the  
18 mic.

19 I'm sorry. It will just be a minute.

20 HELEN HANKINS: Clearly, we are in difficult  
21 budgeted times, not only in our country but in many of  
22 the states, including Colorado. And I think we heard  
23 from some of the speakers today the efforts we are  
24 making between the state of Colorado and the BLM to  
25 partner so that we don't duplicate inspections and so

1     forth.

2                   I think there's room to do more of that.  And  
3     I'm certainly interested in working with the Department  
4     of Natural Resources and its subdivisions to do that.  
5     And we will do everything we can to minimize and  
6     duplicate, to the extent that occurs, some of those  
7     activities, and we will also have to work within the  
8     constraints that we have.

9                   RICHARD WARD:  Thank you.

10                  MIKE CHIROPOLOS:  Mike Chiropolos, Western  
11     Resource Advocate here in Colorado.  I want to thank  
12     the BLM, and I want to throw out five questions and  
13     offer a few recommendations.

14                  First, does everything always go according to  
15     plan when we're drilling and operating wells in the gas  
16     patch?  What if it doesn't and it didn't go according  
17     to plan outside your kitchen window within a few  
18     hundred feet of your domestic water well, and you can't  
19     afford to have water trucked in?

20                  Second, are frac'ing fluids really getting  
21     greener all the time, and is industry really a credible  
22     source as to just how green frac'ing operations are,  
23     what the constituents are in the fluids?

24                  Third, does frac'ing allow drilling at lower  
25     densities or make it possible to drill at previously

1 undreamed-of down-hole densities of 10 acres per  
2 downhill bore in the Piceance here in Colorado, or  
3 5 acres in the Jonah in Wyoming?

4           Number four, when we're talking causation,  
5 methane in the groundwater well, how did naturally  
6 occurring methane reach the groundwater in the first  
7 instance? Was it always there or did it migrate to the  
8 groundwater formation?

9           Fifth, has the panel heard of the EPA's  
10 preliminary conclusions on what happened to Louis Meeks  
11 in Pavillion, Wyoming, or what happened about seven  
12 days ago to the Chesapeake well in Pennsylvania?

13           Briefly, on the recommendations, first, huge  
14 thumbs up to BLM on the new leasing policies, and I  
15 hope they work for all stakeholders as a more rational  
16 approach.

17           Second, I hope BLM doesn't limit its review  
18 of oil and gas management to just hydraulic fracturing,  
19 and that it looks at crucial issues beyond the  
20 hydraulic fracturing issue.

21           Number three, I think there's a consensus  
22 that the scope of issues -- the scope of the issue with  
23 regard to frac'ing shouldn't be narrowly defined and  
24 the stronger review that Mr. Neslin referenced, ticked  
25 off a few things, five things, like baseline surveys,

1 casing and cementing, chemical information or  
2 disclosure, prior notification of operations, pit  
3 construction. And I think that we can all agree, the  
4 less pits, the better.

5 Number four, the EPA is in a position to  
6 reestablish its credibility with the public and regain  
7 the public trust after backing away from the issue in  
8 2002.

9 And last, in terms of the frac'ing issue and  
10 BLM, just want to offer a few specific recommendations.  
11 First would be mandatory public disclosure, not a  
12 voluntary website that's an opt-in. Second would be  
13 tracers to track frac'ing constituents. Third would be  
14 mandatory offering procedures for a full sweep of  
15 frac'ing technologies and operations things.

16 And I've got a few recommendations from Steve  
17 Jones at Wyoming Outdoor Council, who is not here,  
18 recommended CAS numbers and setbacks from residences.

19 RICHARD WARD: Thank you very much.

20 As a point of order, I didn't want to  
21 interrupt that stream, but we won't do that again. You  
22 come, you have one question, one comment, and then --

23 (Applause.)

24 RICHARD WARD: -- you get back to the back of  
25 the queue. The reason for that is we only have two

1 minutes and -- and everybody's time.

2 Wallace White is on deck, and we'll start to  
3 address those -- those questions.

4 What happens when it goes wrong, BLM, state?  
5 How -- how -- how can individuals be made whole? That  
6 was the first point.

7 JERRY STRAHAN: I -- I could start and answer  
8 the first question. Probably it's the easiest one, do  
9 things go wrong. And I think everybody has agreed that  
10 these are mechanical systems, manmade systems, and  
11 there is a possibility that things can go wrong.

12 BLM's goal is, through our monitoring and our  
13 inspections, is to catch these failures as soon as  
14 possible, and then require repair and maintenance of  
15 them in order to bring the system back up to fully  
16 functioning capabilities.

17 RICHARD WARD: And would individuals who  
18 live -- live near who are impacted, are how are they  
19 made whole? I think that's what was implied.

20 JERRY STRAHAN: Well, you know, if there's  
21 proof -- again, there has to be some evidence beyond  
22 the scope of BLM's rules, but you know, if there's  
23 evidence that that -- that the company's efforts have  
24 caused some impact to an individual, I think there has  
25 been cases like that, where the company generally steps

1 up and makes the person whole.

2 RICHARD WARD: State response?

3 DAVE NESLIN: Yeah. The State's response  
4 would be similar. Where there's been a violation of  
5 our rules and an impact to the local property owner,  
6 we've worked with companies and property owners to  
7 provide mitigation whether it's replacement of water or  
8 some kind of water treatment system, as examples.

9 When we get complaints, someone alleging that  
10 there's been an impact, you know, we have inspectors in  
11 all the basins. They live in those basins. They're  
12 on-site usually within 24 hours; always within 48  
13 hours. Our inspect -- we have Ph.D. inspectors. Our  
14 inspectors are very well experienced, very well  
15 trained. They do very hard work.

16 And if the property owner's dissatisfied with  
17 our resolution to their complaint, they have a right to  
18 request a hearing before our commission, and can do so.  
19 And, you know, we get those hearings held within  
20 about 60 days.

21 So I think our process compares pretty well  
22 to any other federal or local processes I'm familiar  
23 with in terms of being transparent, being responsive,  
24 being timely.

25 RICHARD WARD: Okay. Thank you. We won't

1 answer any of the other questions because they weren't  
2 put in order, so we'll move on to the next.

3 Wallace White.

4 UNIDENTIFIED SPEAKER: What about --

5 RICHARD WARD: When he -- when we get to the  
6 end, he gets back to the back of the queue. So you  
7 can't ask six questions just because there's so many  
8 people. But we're going to be here all night, so come  
9 back; that's what I'm saying. We're going to move on  
10 to the next question.

11 So, Wallace White?

12 WALLY WHITE: I've already spoken.

13 RICHARD WARD: Okay. I'm sorry.

14 Mike Freeman, Earth Justice.

15 MIKE FREEMAN: Good evening. Mike Freeman  
16 from Earth Justice.

17 I have a question about the Safe Drinking  
18 Water Act. We've heard some detailed arguments and  
19 discussions from various speakers tonight about how  
20 hydraulic fracturing is safe and how existing  
21 regulations are more than sufficient to make sure it's  
22 done safely and without contaminating underground  
23 sources of drinking water.

24 But at the same time, as part of this larger  
25 debate, I think it's important to recognize that the

1 industry felt it necessary five, six years ago to get  
2 itself exempted from the Safe Drinking Water Act.

3 And during the debate we hear now, by  
4 appealing that exemption, you commonly hear the  
5 argument from the industry that if the industry is  
6 actually subject to the UIC program, it's going to shut  
7 down. Industry just can't operate under that kind of  
8 program.

9 I'd like to look at Colorado's UIC regs to  
10 get a sense of what the fuss is about. These are regs  
11 that apply to -- these are Colorado regs. They were  
12 developed by Colorado, not federal regulations. They  
13 were part of a federal project -- program, and these  
14 are regulations that industry -- oil and gas industry  
15 itself complies with.

16 In a number of context, companies get UIC  
17 permits for water disposal or for enhanced -- enhanced  
18 oil recovery. And they require things like -- during  
19 the permit review process, before frac'ing occurs, they  
20 require things like a demonstration that drinking water  
21 sources won't be affected, like they require analysis  
22 of fracturing radiants and the permeabilities of the  
23 formation in question.

24 And they require an analysis of what is  
25 actually being injected into the subsurface and how

1 much volume is actually injected -- injected.

2 My question for tonight is, I'd like to hear  
3 some comments from some of the panel members about what  
4 it is about sidereus (phonetic) -- about Colorado or  
5 sidereus UIC programs in general that's objectionable.  
6 And if the regulators in the industry have the  
7 information they need to draw a conclusion, this is a  
8 safe practice and doesn't pose a hazard on a  
9 well-by-well basis.

10 Why is it problematic to offer that  
11 information and get the permit?

12 RICHARD WARD: Thank you.

13 Who would like to take that first?

14 Speak to the state.

15 What we'll do is have the state speak, and  
16 then we'll have Halliburton speak because I think it's  
17 the Halliburton loophole that they're eluding to,  
18 so-called.

19 Just really quickly, we'll have Briggs  
20 Cunningham on deck, and following Briggs, we'll have  
21 Holly Black.

22 DEBBIE BALDWIN: When an application for  
23 permit to drill is received by the Oil and Gas  
24 Conservation Commission, one of the primary things that  
25 the engineering group does in the review of the

1 applications for permits to drill is to make sure that  
2 there's adequate surface casing cement to isolate the  
3 well water from producing formation.

4 So, in fact, the -- the protections or the  
5 consideration is given to every well that's drilled in  
6 the state to make sure that that well, whether it's an  
7 injection well or a production well, is isolated from  
8 the underground sources of drinking water. That's the  
9 bottom line.

10 But these chemicals are not being injected  
11 into underground sources of drinking water. They're  
12 being injected into hydrocarbon-bearing formations.

13 And so, again, it's the well design, well  
14 completions, monitoring, brain head pressures during  
15 simulation, monitoring the pressures during the  
16 simulation that ensures those fractures are going to  
17 stay -- stay within the formation trying to frac.

18 Refresh my memory about another question,  
19 because there were -- there were several questions.

20 RICHARD WARD: Well, it was a question, why  
21 not use -- why not use the underground injection  
22 program?

23 DEBBIE BALDWIN: And I believe I've finished.

24 MIKE EBERHARD: I think obviously the  
25 Halliburton loophole, everyone has heard that. Number

1 one, that's not an exemption. The exemption was, in  
2 fact, in place back in 1992 during the Clinton  
3 administration. It wasn't an exception. It was simply  
4 after investigation, the EPA determined that it was not  
5 a cause of concern so there was no reason to regulate  
6 the short-term event.

7 Keep in mind, hydraulic fracturing is a  
8 short-term event. It happens for a period of a day or  
9 two. Underground Injection Act, UIC, is for long-term,  
10 when you're injected into wells for months, years,  
11 decades, where there's a continuous injection program.  
12 This is very short-term event.

13 As you just heard from Deborah, we monitor.  
14 We know what the pressures are. We know what the rates  
15 are. We know what should be going on. If something  
16 happens, if it falls out of the norm, everything is  
17 shut down immediately until we figure out what the  
18 problem is and something needs to be fixed.

19 So there are really two different acts. One  
20 is a long-term injection that's going on time after  
21 time, over extended periods of time versus a very  
22 short-term injection act event.

23 The exemption is not an exemption. It was  
24 simply a clarification that hydraulic fracturing was  
25 not to be regulated as an underground injection --

1 long-term underground injection. So it's been one of  
2 those terms that's very misused. It was just simply a  
3 clarification of that fact to the rules.

4 RICHARD WARD: Okay. We'll move on.  
5 Briggs?

6 BRIGGS CUNNINGHAM: Yes. My name is Briggs  
7 Cunningham. I'm also a member of the CCWCD with Dan  
8 Drucker. I've only been a member for a year now.

9 Anyway, I guess from what I observed just  
10 hearing questions, it sounds to me the industry says  
11 that there's -- they think there's a minimal chance of  
12 anything going wrong, where the public out here is  
13 concerned that whatever can go wrong, will go wrong.

14 And there's no way that you're going to  
15 answer this question. They're not going to believe  
16 you, and they're not going to accept your word for it  
17 and vice-versa. They probably won't want to let you  
18 drill.

19 What I'm wondering is, if it is possible to  
20 set up a system where, okay, you guys get to drill but  
21 you have to set aside a certain amount of money to  
22 make -- whoever might get damaged to make them whole.

23 Now, the thing is, odds are if the industry  
24 and the government says it's not going to happen,  
25 they'll never have to spend that money.

1           If something does happen, the money will be  
2           there to make the people whole. But I think that would  
3           be the best way to get off the argument of -- that  
4           we're going in circles, get off the ball and start  
5           drilling and start producing gas and actually get  
6           results so that you guys can actually decide which side  
7           is right.

8           And I guess my question would be, can we  
9           actually produce a system like that?

10           RICHARD WARD: And that's above and beyond  
11           bonding? Do you want BLM to respond to the bonding?

12           BRIGGS CUNNINGHAM: What I got from the  
13           bonding was the fact that it sounds like the bonding  
14           only ensures that, yes, we -- we checked all the boxes  
15           on the form. The bonding I'm talking about is -- the  
16           well's here, the house over here, something goes bad --

17           RICHARD WARD: Maybe BLM can speak to that.

18           JERRY STRAHAN: Well, something like that  
19           certainly would be above my pay grade, I would think.  
20           I believe we focus -- we focus our efforts mostly on,  
21           you know, the protection of the resources there.

22           This idea of overall bond for some unforeseen  
23           event that we don't know what it's going to be yet, it  
24           would take, essentially, I would think an act of  
25           congress.

1           So we certainly will take a comment down, and  
2           that's what these hearings are all about. We want to  
3           hear ideas. We want to hear comments, and we want to  
4           say those back to Washington and process them.

5           RICHARD WARD: So Kathleen Sgamma is next.  
6           Is she in the house?

7           While she's coming up, why does the BLM allow  
8           leasing of large contiguous blocks of public land that  
9           precludes the public? Doesn't have a name on it.

10          JERRY STRAHAN: Well, I could try. I'm not  
11          quite sure what the meaning of that is.

12          BLM is a multiple-use agency, and leasing of  
13          land does not preclude the public.

14          RICHARD WARD: Okay. Kathleen?

15          KATHLEEN SGAMMA: Thank You.

16          Kathleen Sgamma with Western Energy Alliance.  
17          We represent about 300 companies -- over 300 companies  
18          throughout the West producing oil and gas.

19          And I'd just like to point out that we work  
20          very hard to make sure that our environmental footprint  
21          is as small as possible. And we support regulators,  
22          such as Debbie and Dave, in their quest to make sure  
23          that the risk from frac'ing is as minimal as possible.

24          I realize that there's -- we've talked a  
25          little about the lack of trust, and I think trust would

1 be served better if there weren't incorrect statements  
2 made about the fact that -- statements made that  
3 frac'ing is unregulated.

4 Obviously, frac'ing is very heavily  
5 regulated, as Debbie went through several of the  
6 regulations as well as many federal regulations, such  
7 as the Safe Drinking Water Act, which govern the use of  
8 water on the surface. So we're not exempt from all  
9 kinds of regulations. We're regulated very heavily.

10 My question is to Mr. Neslin, Debbie and Dave  
11 Cesark and Mike. Rich put into perspective -- well,  
12 Rich talked about some of the problems that can occur  
13 with well construction with the casing.

14 And I was just wondering if you could put  
15 that into perspective, how often do those types of  
16 problems occur, and how quickly do you know that those  
17 problems are occurring and what do you do to -- to  
18 correct those problems? So if we could have a  
19 perspective of both industry and regulators.

20 Thank you.

21 RICHARD WARD: So we'll start with industry.

22 DAVE CESARK: Unfortunately those types of  
23 accidents are very rare but they do happen.

24 You know, whenever, you know, mechanical  
25 goods are involved and whenever humans are involved,

1 quite frankly, human error factor is always a chance  
2 for an accident to occur.

3 But there are a lot of safeguards in place,  
4 particularly with all the integrity testing that's  
5 required to be done very early on in the process. And  
6 the COGCC and the BLM both have very strict rules that  
7 require pressure testing to be done and cement bond-log  
8 testing. So you know pretty early on if there's a  
9 problem. And there's -- there's the option of being  
10 able to shut in the well and repair it pretty quickly.

11 MIKE EBERHARD: I agree with what Dave said.  
12 It's -- on the well construction side, we have tools  
13 that go in and evaluate the integrity of the cement  
14 job, so we have a lot of testing that goes along during  
15 that process.

16 The wellbore itself is tested prior -- prior  
17 to commencing any kind of operation, whether there were  
18 any holes put in the casing. Casing's tested on the  
19 surface. The surface iron's tested prior to the job to  
20 say that the pressure is well above whatever the rating  
21 pressures are.

22 We spend a lot of time and money on  
23 safeguards for pop-offs, things on location to make  
24 sure we don't overpressure the systems.

25 I think the number of -- of jobs that there

1 are incidents on -- instances on, I don't have an  
2 actual percentage, but it is very minimal. The trouble  
3 is, it's kind of like a plane crash. When you hear of  
4 one, it makes the news. But there's thousands of  
5 thousands of jobs going on daily across the United  
6 States. You just don't hear about that because  
7 everything is going good.

8 So it's the decimal point with a bunch of  
9 zeros in front of it of jobs that there are problems,  
10 so it's very minimal. And again, these are generally  
11 surface incidents, or something along that line. It's  
12 not where you have an event where you're pumping and  
13 you don't know what's going on. It's usually something  
14 that happens on the surface, belt goes down a hole are  
15 very common.

16 RICHARD WARD: Okay. State's perspective.  
17 And while -- while we have a little pause, Josh Joswick  
18 and Gopa Ross are on deck.

19 DAVE NESLIN: You know, I would generally  
20 agree with what's been said by the last two speakers.  
21 There's generally problems that arise. It's a  
22 mechanical process, so some problems are going to  
23 arise.

24 And there are impacts, and when they occur,  
25 you know, we have a number of testing regimes. We

1 respond very quickly to complaints. We have a number  
2 of inspectors out in the field. We did 16,000  
3 inspections last year. We try to address issues  
4 immediately as they occur.

5           You know, keep in mind that over the past  
6 five years there's probably been on the order of  
7 somewhere between two and four thousand wells drilled a  
8 year, so you may read about a particular event in the  
9 newspaper. There's been some significant events, but  
10 that would still represent a relatively small  
11 percentage of the activity that's being undertaken in  
12 the state.

13           RICHARD WARD: Okay. So is Josh in the  
14 house?

15           JOSH JOSWICK: I submitted a question so I  
16 won't ask a question. I just want to make a brief  
17 comment. Is that's all right?

18           My name is Josh Joswick. I'm from Durango,  
19 Colorado. I've been dealing with oil and gas  
20 development in La Plata County for over 30 years. And  
21 this is kind of deja vu every time I come to one of  
22 these things, because I continue to hear that  
23 there's -- from the industry that there's no problem.  
24 They need as little regulation as possible and trust  
25 us.

1           And that hasn't necessarily been the way this  
2 whole thing has worked -- turned out down in La Plata  
3 County. I guess what I would do for the BLM is just a  
4 reminder, why exactly is it that you do regulation when  
5 there's no reason for regulation or oversight?

6           It's not for any of the operators who are  
7 here today, none of the companies that are here today.  
8 None of the good companies.

9           I'm talking about companies that perhaps  
10 might just look out for their bottom line. Don't  
11 particularly have any care about what happens in the  
12 communities that they work in or the common good. That  
13 is why you have regulation. It is for the operators  
14 that are not good operators. That's what I would like  
15 to remind you of.

16           And BLM is in a position to set pretty high  
17 standards, and I would encourage you to do that.

18           I guess I would just make one comment  
19 about -- I believe it was Mr. Cesark's comment about  
20 affordable and reliable energy is the basic cornerstone  
21 of prosperity, and that does not take into account the  
22 impact of development or consideration of the  
23 by-product of its use.

24           And I guess I would just offer this, that --  
25 excuse me -- reliable energy is energy that is produced

1     cleanly and preferably it's renewable, and that is the  
2     basic cornerstone of our future and prosperity.

3             Thank you very much.

4             (Applause.)

5             RICHARD WARD: Thank you.

6             While Ross is coming up, is there a  
7     difference between the lease price paid by oil and gas  
8     companies to private landowner and to the BLM? If yes,  
9     what is the differential? If yes, why?

10            JERRY STRAHAN: I guess I can take that one.

11            Our lease process is an open competitive bid,  
12     so the market essentially sets the price.

13            As far as there being a difference in the  
14     prices, we are -- we are seeing a little bit of a  
15     separation with the federal prices going down. It  
16     would be speculation for me to say why that's  
17     happening. I'll leave that speculation to others.

18            RICHARD WARD: Okay.

19            GOPA ROSS: Hello. I'm Gopa Ross. I am the  
20     Sierra Club oil and gas chair for the Rocky Mountain  
21     Region Chapter.

22            It's really good to hear that you're all  
23     working hard to try to keep us safe. But I want to  
24     tell a story and flip the coin the other way, because  
25     there are people repeatedly that are putting in

1 complaints. We hear it over and over again, and this  
2 has been going on for years.

3 So I would appeal to you to please connect  
4 with all of your industry workers and try to do a  
5 better job, because there's something very wrong here.

6 And so I come to another thought recently in  
7 hearings -- that are COGCC. In the hearings -- that  
8 oil and gas industry representatives have been upset  
9 that when landowners bring forth information and they  
10 don't have a lawyer and they don't have consultants  
11 that are present, and they try to present their side of  
12 the story, the industry has cried that it is hearsay.

13 So what comes to mind to me, if people cannot  
14 present their side of the story without a lawyer,  
15 without representation, without their consultants  
16 there, and it's turned into a legal hearing, how much  
17 does that go on? I don't know. I'm not at all the  
18 hearings.

19 But I was at a hearing like that recently,  
20 and I was very, very disturbed, because my concern is  
21 how much do we not hear.

22 And here's the question for all of you. If  
23 people can't present their side of the story without  
24 feeling that way, often they will not come. They think  
25 it's a waste of time and they're not going to be

1 listened to, and that's prevalent. They don't feel  
2 safe.

3 So how would we know? How would we know  
4 throughout Colorado who is really impacted, who is not  
5 if they cannot tell their side of the story? And do we  
6 have to come to this point where we have industry there  
7 not allowing us to do that legally within a hearing?  
8 And we cannot represent our 510 comments. I'm very  
9 concerned about this.

10 And I want to say that Sierra Club does  
11 support the Frac Act. We want to know what's in that  
12 water. It's only fair that the public knows that.  
13 Because if there is an impact, then they'd know what to  
14 look for. They would know what to do if they want to  
15 stay on their property and have a filter and what to  
16 filter for.

17 So I'm just going to ask you, how do we make  
18 this work in an equitable way between the industry, our  
19 regulatory agencies and the public? Because it's not  
20 working right now. I will tell you that.

21 RICHARD WARD: Okay. Thank you.

22 GOPA ROSS: We have a problem.

23 RICHARD WARD: Thank you for that.

24 So I guess what -- what that -- that question  
25 begs something about inspections.

1           Can the state respond and BLM respond to --  
2   are there -- are there people out there who have been  
3   impacted who have not come forward, the wells are  
4   bleeding, but we don't know about?

5           And do you have provisions and controls in  
6   place efficient to assure yourself that -- that this  
7   isn't something that's happening or systemic?

8           DAVE NESLIN: Well, let me begin by saying  
9   that I agree with Ms. Ross, and I think it's very  
10   important that members of the public be able to raise  
11   concerns with the staff. And if they're not satisfied  
12   with the staff, then they will be able to raise their  
13   concerns with the commission.

14           I think where we disagree is I believe the  
15   hearing in question that the complainant had a full and  
16   fair opportunity to do so. And while the company  
17   involved objected on grounds of hearsay, no evidence  
18   was excluded from that hearing.

19           The complainant was able to put in all  
20   information and all testimony that he wished to and  
21   received more opportunity to testify than the staff  
22   did. So he received a full opportunity to provide the  
23   testimony that he wished to provide to the commission,  
24   and it was not limited in any respect.

25           GOPA ROSS: Can I respond to that?

1           RICHARD WARD: No. We can't have a  
2 back-and-forth. What we'll do, though, is have you --  
3 have time -- have time to have a conversation  
4 afterwards.

5           We've had three of these, and what happens  
6 with these back-and-forths, it's just --

7           GOPA ROSS: We don't really want to waste  
8 your time. I don't want to waste your time.

9           Thank you.

10          RICHARD WARD: No, no, no. It's not a matter  
11 of wasting time. What we suggest is we have to get  
12 through a long agenda, and so please, please stay  
13 afterwards and have a conversation.

14          Over to BLM in terms of the -- the issue of  
15 this being a systemic problem that people are  
16 contaminated without coming forward, and do we have --  
17 have assurance that this is not occurring or is  
18 occurring, or what are your mechanisms?

19          JERRY STRAHAN: Well, the one point that I  
20 would like to address is that the BLM is always open  
21 for people to come in and discuss a problem that they  
22 note on -- on any BLM project. The door is always  
23 open.

24          If you're not getting an adequate answer from  
25 a staffer, then like Dave said, elevate it up to the

1 local field manager.

2 We -- we welcome the public when you have  
3 issues. And every field office I've ever been in,  
4 that's always been the case.

5 RICHARD WARD: Okay. And one more  
6 perspective from the state.

7 DEBBIE BALDWIN: I mentioned in my little  
8 presentation that the Oil and Gas Conservation  
9 Commission does have resources, technical and financial  
10 resources to investigate complaints alleging an impact  
11 of groundwater, surface water soils.

12 We take those -- our responsibility to  
13 investigate those very seriously. We've got -- there  
14 are 13 people in the environmental group, plus we've  
15 got engineers and field inspectors. And all the people  
16 in the environmental group have backgrounds in geology,  
17 hydrogeology, geochemistry, environmental science.

18 So we do have the resources to respond to  
19 complaints when we get them and we attempt to do that.  
20 If somebody doesn't complain to us, then it's difficult  
21 for us to know if they've been impacted or not.

22 If anybody feels that they've been impacted  
23 and contacts the Oil and Gas Conservation Commission,  
24 we will do our utmost to completely investigate that  
25 complaint and try and gather the data that's necessary

1 to determine whether or not the impact is being  
2 alleged, is true or not, and if it is, in fact, a  
3 situation where an impact has occurred, we'll take it  
4 on to an enforcement hearing.

5 If it's not true, if we can't find any  
6 evidence to show that an impact has occurred, then  
7 we'll close that complaint with a letter to the  
8 landowner that explains -- provides them with all the  
9 analytical data that we've collected, provides them  
10 with an explanation with the conclusions we've reached.

11 RICHARD WARD: Randy Verret is next.

12 And question to the panel. How do you  
13 contain a surface pit with 60- to 100-mile-an-hour  
14 winds? Why don't we mandate pitless systems?

15 DEBBIE BALDWIN: That's a good point. We do  
16 require pits to have at least 2 feet of free-bore.  
17 That's from the top of the pit to the depth of the  
18 fluid, so that's something that is required.

19 Mandated -- I'd say overall there are more --  
20 the use of pitless drilling is increasing dramatically.  
21 I think lots of operators are turning to that. Do we  
22 mandate it, no. We don't have a rule that requires  
23 that. Is it a good idea in lots of instances? It's a  
24 good idea and we certainly support them.

25 RICHARD WARD: Okay.

1           RANDY VERRET: Randy Verret with Baytex  
2 Energy here in Denver.

3           I was wondering at the state -- I thought  
4 about what my question would be.

5           I don't think a lot of people are familiar  
6 with the paper that the COGCC put out on that water  
7 well in Weld County, so I think it might be beneficial  
8 if you folks would address some of the major points on  
9 that. Because I think a lot of that has been  
10 misrepresented on the documentary, Gasland, was put out  
11 here recently that's been misused, to some degree, and  
12 misrepresented. Please.

13           RICHARD WARD: So who is familiar with the  
14 well in Weld County?

15           DAVE NESLIN: That would be the state. I'll  
16 just respond briefly.

17           The commission issued a four-page what we  
18 call a correction document. You know, the Gasland  
19 film, which many people have seen, I think raises  
20 important issues. But they're issues that need to be  
21 dealt with seriously. There were some factual  
22 misstatements in the Gasland film, and our memo  
23 identifies those statements and corrects them.

24           Let me just refer to one. There were a  
25 couple of water wells up in Weld County, and you've

1 seen some of the footage on Fox News, it's very  
2 dramatic, being able to light their water wells on  
3 fire.

4 In one instance the impact was in part  
5 attributable to oil and gas development, in part. I  
6 want to emphasize that in the other two instances it  
7 was not related to oil and gas development.

8 It was caused by the kind of process that  
9 Brad talked about as part of his presentation where the  
10 water wells had been completed into coal-bearing  
11 formations that we had what's called biogenic methane  
12 in them. And we knew this because there are reports  
13 from the U.S. Geological Survey and the Colorado  
14 Geological Survey indicating back decades talking about  
15 this.

16 And Debbie's group had an isotopic analysis  
17 done, fingerprinting the natural gas. You can  
18 fingerprint the gas and determine whether it's  
19 thermogenic and attributable to the oil gas, biogenic  
20 and swamp gas and gas that's naturally in the  
21 formation.

22 In this case it's, based on the laboratory  
23 analysis, biogenic gas. So, you know, those were  
24 inaccuracies. The movie depicted most of those  
25 incidents being attributable to the oil and gas

1 development, suggesting that the commissioners have  
2 done nothing about it.

3 In fact, this commission investigated both  
4 instances, made the determination as described. Now,  
5 the entire memo is on our website. If anybody is  
6 interested in this, you go to our website and look  
7 under library and you'll find it.

8 RICHARD WARD: Thank you.

9 Joshua Rouschhopt is up next and Bill  
10 Dvorak.

11 RICHARD WARD: Pooling unitization, please  
12 explain.

13 Who would like to take that up? And I guess,  
14 benefits, pros cons.

15 JERRY STRAHAN: I'll -- I'll take that one.  
16 Unitization is a conservation of resource measure.

17 In the old days of oil and gas industry,  
18 basically it was first come, first serve. You drill  
19 close to the property line and suck the other guy's oil  
20 and gas out, you get it. It's called the rule of  
21 capture.

22 And unitization, it led to a lot of waste and  
23 often a lot of wells being drilled. Unitization was  
24 developed as a process to try and provide for an  
25 orderly development of an oil and gas field. It's

1 strictly an administrative action that lets oil and gas  
2 mineral owners, whether it's the public or federal  
3 government, join together to develop an area in a  
4 logical, orderly manner.

5 RICHARD WARD: Did you want to speak to  
6 pooling, or anybody want to speak to pooling?

7 JERRY STRAHAN: Pooling is a subset of that,  
8 and it has to do with when there's multiple property  
9 owners in an area.

10 The simplest way to explain it is that if you  
11 drill a well in an area with multiple mineral owners,  
12 which is not uncommon, you need to share the revenue  
13 from that, because you have one well and you're  
14 draining an area that might encompass many properties.  
15 Pooling is a way of making calculations so that the  
16 people that have minerals in that area get their fair  
17 share.

18 RICHARD WARD: Okay. Thank you.

19 JOSHUA RUSCHHOUP: I actually would like to  
20 hear a response to Gopa's follow-up question, and --

21 RICHARD WARD: That's fine. That's fine.  
22 That's part of the process. I'm all for process.

23 JOSHUA RUSCHHOUP: So you can ask another  
24 question while she's coming up, if you want.

25 RICHARD WARD: How do you work with the COGCC

1 on water testing baseline and other -- I think we've  
2 already answered that.

3 Okay. That's right. So how does one get the  
4 COGCC to do the water testing? I guess it refers back  
5 to the consultant. How do we get a free consultant to  
6 help us?

7 DEBBIE BALDWIN: We're -- if the landowner,  
8 if there's oil and gas development going on in the  
9 area, if we have permits, applications for permits to  
10 drill and operate, if you're a landowner, you can  
11 contact the Oil and Gas Conservation Commission and ask  
12 for a baseline water sample.

13 Now, in certain places -- that used to work  
14 very well, but with shale, Niobrara plate, we're moving  
15 out of the areas where there has been no oil and gas  
16 development historically, and there's a lot of leasing  
17 going on because some counties, we don't have any  
18 permits to drill yet, but people -- operators are  
19 getting leases.

20 So that's caused people to get concerned and  
21 understandably. And so in certain counties we've  
22 gotten huge numbers of requests, and it's not --  
23 although we have resources to collect samples, we don't  
24 have a cornucopia of money.

25 And so what we try to do is baseline studies

1 where we do a more orderly study throughout a whole  
2 region, and then as that -- as development actually  
3 occurs, when there really are wells being drilled, a  
4 landowner can contact us and we'll go out and collect  
5 water samples.

6 RICHARD WARD: Okay.

7 DAVE NESLIN: Let me just be specific here.  
8 By contact us, if you go to our website, there's a  
9 contact list. If you contact the environmental  
10 specialist for your area -- there's a map of the  
11 state -- and identify who the environmental specialist  
12 is for your area and their phone number, call that  
13 person and explain, you know, where you're situated and  
14 what you're requesting.

15 RICHARD WARD: Okay. Second half of the  
16 question was about particular --

17 GOPA ROSS: Pardon me?

18 RICHARD WARD: I think the second half of  
19 your question was about particular back and forth --  
20 about a particular landowner you wanted to pursue.

21 GOPA ROSS: I'm just very concerned the way  
22 we're going about this. Because inevitably we're going  
23 to have some problems. My question is to protect our  
24 water, to protect our air for generations. And I think  
25 the path we're on now we're in trouble.

1 I think the companies would benefit as well  
2 from working with all of the communities where they  
3 drill, and this is not happening with many companies.

4 We need to change how we're doing things,  
5 because if we don't, it's going to affect our water,  
6 our air, the companies.

7 I'm not against drilling. I'm not against  
8 people having jobs. But in the state of Colorado, our  
9 industry for tourism employs more people than the gas  
10 and oil industry at this time.

11 So what are we doing? What are we doing when  
12 water is getting impacted? It's obviously happening.  
13 Complaints don't start happening and going into the  
14 state. People don't get their hair on fire until  
15 there's drilling near them and something happens to  
16 their water. And then we're told no, nothing happened.

17 So why do we have hundred and hundreds of  
18 complaints? What are we going to do to make it better?  
19 That's ultimately what I want to hear. What are all of  
20 you going to do, all in this room, all of the oil and  
21 gas industry, all of our agencies?

22 Because we need transparency, because it will  
23 help you prove that you haven't done anything. People  
24 are uneasy, and it's going to grow.

25 RICHARD WARD: That's -- that's a valid

1 question in terms of the license to operate, license to  
2 grow, it's a risk. It's on the risk matrix. What are  
3 you going to do about it? How are you going to change  
4 the frame in the gas patch to make this work?

5 DAVE CESARK: Well, the oil and gas industry,  
6 I think, has failed over the years in not necessarily  
7 being very good communicators and not being very good  
8 with public relations.

9 Oil and gas folks are mainly a bunch of  
10 technical, very smart people, but a lot of engineers  
11 and scientists, and so we tend to fail on the public  
12 relations side, and we tend to be reactionary instead  
13 of proactive. There's definitely a lot of room for  
14 improvement there, but the industry does participate in  
15 a lot of voluntary studies.

16 And I know past companies that I worked for,  
17 we were operating in a sensitive area, an area that had  
18 springs, very pristine springs, very high quality  
19 drinking water and close to -- close to groundwater,  
20 close to surface water, very, very sensitive area. And  
21 so we held community meetings, and the community was  
22 very concerned.

23 And so we took it upon ourselves to do a  
24 voluntary baseline study on groundwater and sampled  
25 anyone's spring and anyone's water wells in the area

1 that wanted to participate, and it was a pretty  
2 extensive study. I think we wound up actually winning  
3 a COGCC best practices award for it, and we continue to  
4 sample the landowners' spring water on an annual basis.

5 So I think things like that need proactive  
6 and doing voluntary things is something we can work on  
7 as an industry.

8 And as I said, you know, there is -- there is  
9 a problem with trust. You're absolutely right. The  
10 public does not trust the oil and gas industry.

11 And I think part of the problem is that the  
12 oil and gas industry, at least speaking from my  
13 perspective, I think we want to be a lot more  
14 transparent than we are. But there's a problem because  
15 a lot of special interest groups will take information,  
16 will take facts that we provide and they'll  
17 misrepresent them, quite frankly. They'll twist them  
18 and use them against us.

19 And we get gun-shy, you know, and I'm just  
20 being brutally honest. There's a lot of cases out  
21 there where that happens and it's very frustrating. So  
22 I guess there -- there needs to be trust on both sides,  
23 with the special interest groups and with the industry.

24 I've work very successfully with the Nature  
25 of Conservancy in the past, and they've been able to

1 provide very good information and some suggestions to  
2 minimize our impacts. So they're one such organization  
3 that I've worked very successfully with.

4 But I think there's -- there's a middle  
5 ground where there needs to be a meeting point from the  
6 industry and the special interest groups.

7 RICHARD WARD: Michelle and Cathy, how would  
8 you respond in terms of what would you like to see  
9 industry doing to help build this trust, insurance,  
10 license to operate? What would you like to see them  
11 doing?

12 CATHY PURVES: I agree with what you said. I  
13 thought you brought out some good points. Partnerships  
14 are really important and in order to develop  
15 partnerships, you have to start with some trust.

16 Trout Unlimited has worked -- over the years  
17 that I've been working for them, we have sat down with  
18 several companies, and inevitably, everybody has a  
19 different bottom line.

20 When it came down to trying to decide whose  
21 bottom line we were going to work with, you know,  
22 sometimes people get squeamish about how much they're  
23 going to stick their neck out, whether it's the oil and  
24 gas industry or whether it's NGOs that want to work in  
25 a partnership.

1           We've had to step away saying, Sorry. We  
2 haven't been able to do that but we're still looking to  
3 develop it and maintain those good relationships.  
4 Because there's a basic understanding about the  
5 difference between, you know, where our mission is and  
6 where the energy company's mission is.

7           So -- but I do think that working on  
8 projects, identifying projects, industry probably needs  
9 to approach organizations more and communities more,  
10 that instead of us always reaching out to them.

11           RICHARD WARD: Cathy, do you have a  
12 perspective?

13           MICHELLE HAEFELE: Michelle.

14           RICHARD WARD: I'm sorry. Michelle. I'm  
15 sorry.

16           MICHELLE HAEFELE: Sure.

17           The Wilderness Society works on places, on  
18 landscapes, and I think the BLM master leasing plan  
19 program is one of the best places to start.

20           We are not opposed to drilling on public  
21 lands, as I said, and as Cathy said. There are ways to  
22 do that right, and one of those is to recognize there  
23 are some places that have values that are higher, more  
24 important than the oil and gas underneath it. And to  
25 disrupt or -- or degrade those values, takes things

1 away from the American public.

2 And I'd like to see the oil and gas industry  
3 acknowledge oil and gas belongs to us too.

4 RICHARD WARD: Okay.

5 GOPA ROSS: So just finally I'd like to ask  
6 the BLM to look at the concerns of the citizens of the  
7 state. Complaints are not out there willy-nilly. They  
8 are not anecdotal. There is evidence that there are  
9 problems. We need to resolve those problems.

10 And I agree with you, Dave, that we need to  
11 be more proactive, not reactive and wait until there's  
12 a problem. So I would really like to see everyone  
13 treated like they live in a sensitive area because  
14 water is sensitive to every area, and we all need  
15 drinking water.

16 And we all need water in this state,  
17 especially because it's very arid and we have some  
18 problems. The amount of water that's being used is  
19 concerning.

20 RICHARD WARD: Did Bill Dvorak have a chance?  
21 No. Okay.

22 BILL DVORAK: Thank you. It's actually Bill  
23 Dvorak.

24 I had a great segue here from Ms. Ross,  
25 because I'm going to talk a little bit about the

1 tourism industry, which I represent in my little part  
2 of the world. And we are actually the official second  
3 largest economic indicator in the state of Colorado.

4 And I've actually been a river outfitter and  
5 fishing guide for 30-some years, and I've probably been  
6 hunting and fishing since I was five. And you have to  
7 understand, I grew up Wyoming, and they gave us guns at  
8 an early age up there.

9 Whether you like it or not, there's a  
10 perception that there are problems that revolve around  
11 frac'ing in the state. There's also a perception that  
12 the BLM is managing public lands primarily for the oil  
13 and gas industry and not so much for multiple use  
14 anymore.

15 And there's a concern that because of that,  
16 things that I'm very involved with, the hunting and  
17 fishing, those kind of things, they're suffering. And  
18 while we don't have really good studies in the state of  
19 Colorado right now, I think we can sort of look what's  
20 happening in adjacent states and up in Wyoming, up in  
21 the Pinedale Anticline. The Jonah Field, we've seen  
22 the mule deer population up there drop over 60 percent  
23 in the last ten years.

24 And my question is, will the BLM actually  
25 kind of get back to where they were managing public

1 lands more for multiple use than kind of exclusively  
2 for the uses of the oil and gas industry?

3 JERRY STRAHAN: Well, this might be a good  
4 question for Steve. I -- I would like to say that I'm  
5 a hunter as well. You know, the idea that we're  
6 concentrating our efforts on oil and gas, I think it is  
7 perception. There's great demand for oil and gas, and  
8 our -- our leasing and our development system is driven  
9 by demand.

10 We don't go out and actively seek people to  
11 come and drill on public lands. There's a need for  
12 this stuff. There's always a need for recreation.

13 Thankfully, Mr. Bennet, field manager in  
14 Colorado River Valley office, has some experience in  
15 this and just stepped up to the mic, and maybe you can  
16 follow up on that.

17 STEVE BENNETT: I thought I was going to get  
18 away with just being a member of the audience tonight.  
19 I guess not.

20 So what I would first say that, you know,  
21 our -- our land use planning process, where we make  
22 those decisions, and we certainly don't allocate every  
23 acre to oil and gas development. We look at, you know,  
24 all the values that are identified through that  
25 planning process and try to balance our decisions

1 and -- and our resource management planning process to  
2 best meet the public's needs.

3 So for example, we just take my area -- my --  
4 my field office area. There's, you know, certainly a  
5 portion of it is very intensively being explored and  
6 developed for oil and gas.

7 But that -- that is not my entire field  
8 office, and the other two-thirds of it is not being  
9 developed, and has -- has high recreation values, and  
10 that's -- that's the emphasis of those other lands in  
11 my jurisdiction, basically.

12 So again, I'd say that -- that R and P,  
13 resource management claim process, is where we make  
14 those decisions, and that's where the public needs to  
15 engage in that process and help us assure we're making  
16 balanced resource decisions.

17 RICHARD WARD: An invitation -- yes, you bet.

18 MICHELLE HAEFELE: If you all want the exact  
19 numbers, you can contact me after the forum or later  
20 on.

21 But I was heavily involved in our efforts in  
22 the conservation community to comment on six resource  
23 management plans that were done in rapid fire right  
24 around the holidays in Utah. In each of those -- over  
25 90 percent of those field offices were open for oil and

1 gas drilling.

2 DAVE CESARK: My understanding, though,  
3 statistically in -- in a recent study that I saw was  
4 that less than 1 percent of surface has been disturbed  
5 on BLM land as a result of oil and gas development, so  
6 it's -- it's really a tiny percent.

7 And I think the quandary we're in is we need  
8 the energy, and where is it going to come from? And we  
9 all have to be thoughtful of that. I know that --  
10 that, you know, we're all in this. Nobody wants to  
11 have development in our backyards, so we have to think  
12 about okay, so where is it going to come from? Are we  
13 going to import all of our energy?

14 And to me, BLM land is a perfect place for  
15 energy development. I don't want to see it occur in  
16 national parks or monuments or, you know, pristine  
17 wilderness areas. Those have been set aside and been  
18 protected from energy development, okay? And there's  
19 many national forest lands where energy development  
20 shouldn't occur either, quite frankly.

21 And I don't like to see it occur much in  
22 residential areas either, so I like to keep it away  
23 from people, all right? And the best way to do that is  
24 put it on the BLM lands. To me that's a great  
25 compromise, and they're multiple use lands.

1           And to me, that's -- that's where it should  
2 be. That's the ideal place. There is no ideal place,  
3 let's say that, okay? There's no perfect place because  
4 it's development, but let's be real. It's got to  
5 happen someplace. Where is it going to happen?

6           BILL DVORAK: I guess my real quick follow-up  
7 to that is that BLM land is probably the area where the  
8 greatest concentration of winter-range calving,  
9 lambing, those prime areas occur on BLM land, so you  
10 know, it needs the same sort of consideration as your  
11 wilderness areas, forest service and national parks.

12           RICHARD WARD: Spencer Kimball is up next,  
13 followed by Andrew Casper.

14           CATHY PURVES: I'd like to say one thing.

15           RICHARD WARD: Sure.

16           CATHY PURVES: A little bit about something  
17 that Bill brought up.

18           The BLM lands, as he mentioned, does hold a  
19 lot of critical winter habitat. It provides that  
20 opportunity. When I worked on the Pinedale Resource  
21 Management Plan and their EIS, and that EIS it  
22 definitely stated that wildlife is going to suffer.  
23 Habitat impacts are going to be substantial due to  
24 developments. And sure enough, 60 percent loss over  
25 ten-year mule deer population.

1           I just want to make sure we understand that  
2    is, you know, from a visual standpoint, from a  
3    recreation standpoint, for a human there's one thing,  
4    but for wildlife -- fish and wildlife, we have to take  
5    that into account that also impacts those habitats.

6           The BLM needs to acknowledge that better than  
7    by saying something like that.

8           RICHARD WARD: Noted for the record.

9           SPENCER KIMBALL: My name is Spencer Kimball  
10   with the Western Energy Alliance.

11           I was just curious why the BLM has initiated  
12   these forums and analysis for the completion of the EPA  
13   study on hydraulic fracturing, and I was also curious  
14   as to the next steps after the conclusion of these --  
15   of these forums and what BLM plans to do next.

16           RICHARD WARD: Is Mike in the house?

17           MIKE WORDEN: I'm Mike Worden. I'm a  
18   petroleum engineer for the Washington office. Some of  
19   you were here when I presented earlier.

20           What we are here for is to hear what the  
21   people of Colorado have to say. There are no decisions  
22   made as far as where we're going to go. And  
23   regulation -- I know a couple of slides mentioned  
24   regulation.

25           Neither my or Jerry's presentation mentioned

1 regulation, because this is a listening session. We  
2 want to hear what people will say in the three forums  
3 we've gone to.

4 This is independent of what the EPA is doing,  
5 because we want to know what people think about their  
6 public lands. We want to hear what people have to say,  
7 what they think of the process, what they -- basically,  
8 what you've all been inputting today. We want to hear  
9 that.

10 The secretary started this initiative in  
11 November. The forum that he held in Washington DC, he  
12 asked us to follow up. We're here to follow up. We  
13 want to hear what you have to say.

14 As far as where we go from here, we'll have  
15 to take the comments from the three forums and go back  
16 and brief the BLM director and secretary of interior,  
17 and we'll see where we go from there. There are no  
18 predecisions made.

19 RICHARD WARD: Thank you.

20 Andrew?

21 ANDREW CASPER: Good evening. My name is  
22 Andrew Casper with the Colorado Oil and Gas  
23 Association. Thank you for your time.

24 Quick question. I've already submitted  
25 written comments, but I'll keep it brief in interest of

1 time.

2 Why is hydraulic fracturing best regulated on  
3 the state levels specifically in Colorado?

4 UNIDENTIFIED SPEAKER: Can you repeat the  
5 question?

6 RICHARD WARD: Sorry. Why is hydraulic  
7 fracturing best regulated at the state level? Directed  
8 to Debbie.

9 ANDREW CASPER: To anybody on the panel.

10 DAVE NESLIN: Well, I think I've made  
11 statements in the press that -- that I think the state  
12 is doing an effective job and a responsible job of  
13 regulating hydraulic fracturing.

14 We've got a lot of experience. We have a  
15 staff of engineers. We have a staff of environmental  
16 professionals. We have experience with different  
17 formations in the state, and as I said, with a lot of  
18 oil and gas development, it's hard to effectively take  
19 a one-size fits all approach.

20 We have different types of geologic  
21 formations being developed in different parts of the  
22 state. And so our engineers, our environmental staff  
23 are used to those differences.

24 We just went through a major rule-making a  
25 couple of years ago to update our regulations, as I

1 described during my presentation, to provide an  
2 additional layer of protection. We're continuing to  
3 work at improving our program to make it as efficient  
4 and effective as possible.

5 I mentioned some things we're doing in terms  
6 of the stronger review, looking into the issue, doing  
7 our own investigation of the issue of the diesel usage,  
8 supporting the Frac Focus website so -- without in any  
9 way attempting to denigrate the BLM, and -- and the BLM  
10 on BLM lands is obviously the landlord, not just a  
11 regulator but a landlord. They're in a different  
12 position there.

13 But I think overall in the state, the  
14 commission has devoted a lot of thought and effort to  
15 coming up with a sound regulatory program. We're very  
16 serious about this, and I think we are doing a  
17 responsible and effective job of regulating this  
18 activity and other activities associated with oil and  
19 gas development.

20 RICHARD WARD: So Claire Mosely is on deck.

21 It was noted that pressure increases the  
22 monitor. What do you do about pressure decreases which  
23 indicate the cement or flow is going someplace they're  
24 not supposed to? I guess that's to Halliburton.

25 MIKE EBERHARD: It would be the same thing.

1 If you see an anomaly, you shut down and investigate  
2 what happened, what's the cause.

3 RICHARD WARD: Thank you.

4 CLAIRE MOSELY: Thank you.

5 I'm short. I just want to make sure  
6 everybody can hear me because I'm sitting all the way  
7 in the back and I can't hear half of what's being said.

8 My name is Claire Mosely. I'm with Public  
9 Lands Advocacy. It's an oil and gas trade group here  
10 in Denver, and we've been working on public land issues  
11 for about 30 years now, so -- and I worked on the same  
12 six plans that came out in bullet fashion in Utah.

13 I don't really have a question. I do have a  
14 statement.

15 RICHARD WARD: Okay.

16 CLAIRE MOSELY: And it could be a question.  
17 I guess one is that from everything I've heard today  
18 from the regulators there has been no demonstrated  
19 problem with hydraulic fracturing, and I think that's  
20 what this forum is supposed to be, not about pooling,  
21 not about communitization, unitization. It's about  
22 hydraulic fracturing.

23 The state's doing a great job. They're  
24 following up on the complaints that have been made.  
25 You know, what we heard earlier, 90 percent of the

1 wells that have been drilled have been frac'd. And it  
2 seems to me that if there were a lot of problems with  
3 frac'ing, you'd certainly hear a lot of more about it  
4 than what we have heard.

5 The EPA did a study in 2004, and there were  
6 no findings that there were problems. Now, I'm not  
7 saying we're a perfect industry, problems can't happen.  
8 But as far as the frac'ing is concerned, everything,  
9 from what I've heard, is unfounded.

10 But the real crux of my comment has to do  
11 with how many studies do we need. EPA is doing a  
12 study. Department of Energy is now putting together  
13 their panel to do a study. Department of Interior is  
14 doing a study. We're in a time of financial crisis and  
15 low -- we have low government funds. Why are we doing  
16 three different, or more, studies on hydraulic  
17 fracturing instead of everybody -- if we need to do  
18 one, everybody should be pooled together and work on it  
19 together instead of having all of these different  
20 expenditures for the same issue.

21 And just in response to the Sierra Club,  
22 we're looking at less than 1 percent of federal land is  
23 impacted by oil and gas development; whereas 25 percent  
24 is withdrawn. And for public lands, 50 percent of the  
25 lands are unavailable for oil and gas through

1 wilderness, national parks, wildlife refuges, not to  
2 mention the decisions BLM makes for areas of critical  
3 environmental concern.

4           You know, we're not the big problem here.  
5 We're just trying to do our jobs and to provide  
6 services for this country.

7           RICHARD WARD: Thank you.

8           CLAIRE MOSELY: So that's not really a  
9 question.

10          RICHARD WARD: Roger Wilson is on deck.

11          ROGER WILSON: I'm sorry. I think that was  
12 just to talk earlier.

13          RICHARD WARD: Sorry about that. Charles  
14 Iyamu? Phil -- Phil Doe. Phil Doe.

15          CHARLES IYAMU: I talked to you earlier about  
16 since we have comments interrelated, could we go --

17          RICHARD WARD: Okay. Why don't you all come  
18 up now then.

19          CHARLES IYAMU: I mean, we have more than one  
20 question. Apparently, that's all we can ask in one  
21 setting.

22          RICHARD WARD: Well, I think -- I think it's  
23 more efficient if you all have related questions for  
24 you to come now, and then I don't have to read you off  
25 later, since you're all signed up.

1           We'll do one at a time. I don't think it's  
2 fair to the panel to do them all, you know, 15  
3 questions, but why don't we do them one at a time.

4           PEGGY KOCHMAN: That will work. Say yes.

5           UNIDENTIFIED SPEAKER: Yes. I haven't seen  
6 this sort of regimentation since I was in the Army. I  
7 can do it once more, I guess.

8           BRUD THACKER: Hi. My name is Brud Thacker,  
9 and I live in Lakewood. I'm a member of Be the Change,  
10 USA, which I'm representing along with my colleagues  
11 here, and also the South Park Coalition.

12           And I just want to start with an  
13 introduction. I don't actually have a question, and my  
14 colleagues will ask the questions.

15           But it seems to me a requirement -- there is  
16 a requirement from the oil and gas industry for  
17 unhindered drilling with minimal regulation.

18           The party line goes something like this, just  
19 get the federal regulators out of the way and we'll  
20 save the country from climate change and foreign oil by  
21 frac'ing pretty much anywhere that you possibly can.

22           Ken Salazar has made a similar argument about  
23 corn ethanol a decade ago, saying that that was going  
24 to save the country from foreign oil, and, of course,  
25 that didn't work. And I don't think frac'ing is

1 either -- seems like a disaster waiting to happen.

2           It -- it is our contention, Be the Change and  
3 South Park Coalition, that the frac'ing regulators are  
4 not doing enough to protect the public's health, its  
5 water supply, its wild places or its general social  
6 well-being.

7           And with that, I'll turn it over to my  
8 colleague.

9           RICHARD WARD: Thank you.

10           BOB JAMES: Hi. My name is Bob James. I'm  
11 also a member of Be the Change from Lakewood, Colorado.

12           We've heard a lot of different numbers thrown  
13 out this evening about the percentage and the size of  
14 the public land that's been leased for oil and gas  
15 development. And BLM over the last years has leased  
16 roughly 5 million acres of public land in this state to  
17 the oil and gas industry.

18           The state has leased a significant but  
19 smaller land mass. Light-size transfers have taken  
20 place in other Western states as well. Already these  
21 leases constitute the greatest transfer of public  
22 wealth into private hands since the railroads got their  
23 royal slice.

24           What kind of comprehensive, social, economic  
25 and environmental evaluations have been done in advance

1 of these massive transfers of domain? None. Not one  
2 comprehensive study has been done in this regard,  
3 despite the requirements of federal law to do so.

4 Do you agree -- panel, do you agree with this  
5 statement, and if not, why not?

6 JERRY STRAHAN: Well, that's a loaded  
7 question. I -- I think there's a fundamental  
8 misunderstanding in the question about what a lease is.  
9 There's no actual transfer of property. It's a right  
10 to develop.

11 Now, we also include in that right to develop  
12 the requirement for diligence. So it's a ten-year --  
13 it's a ten-year lease. It's not a sale of land. It's  
14 not a sale of the surface.

15 So as I said earlier, on a personal note, I'm  
16 a hunter, and I believe that that would be a bad thing  
17 if we were selling a bunch of federal lands. I don't  
18 believe we are. We are leasing minerals.

19 BOB JAMES: But aren't we -- aren't we  
20 selling the -- the right to develop those minerals at a  
21 buck 50 an acre? So aren't you selling off my gas and  
22 oil at 1.50 an acre?

23 JERRY STRAHAN: Well, in certain areas --  
24 again, our leases are made on a market basis. If a  
25 company that's interested in a lease in that area only

1 feels it's worth the minimum bid, which is 2.50 an  
2 acre, I believe, then they will win the bid. If they  
3 don't find oil and gas there, they've invested  
4 considerable amounts of money trying to do that.  
5 They'll be made to reclaim it and they'll lose the  
6 lease at the end of the term.

7 On the contrary to the area out to the  
8 northeast of us here, leases are going for up to \$5,000  
9 an acre. That means a 1,000-acre lease would bring  
10 \$5 million to U.S. Treasury at the time when we could  
11 really use it.

12 So, you know, it's a difficult -- again, it's  
13 a difficult question. It's a good question. Each and  
14 every area is different.

15 MICHELLE HAEFELE: I think what Mr. James is  
16 talking about is our public wealth. The minerals  
17 managed by the Bureau of Land Management belong to all  
18 of us. They belong to me. And it is not fiscally  
19 sound or logical, even in times of economic stress, to  
20 rapidly liquidate your entire assets.

21 (Applause.)

22 JERRY STRAHAN: As just a follow-up, the vast  
23 majority of revenue that comes from oil and gas is from  
24 the royalties. The lease, the bonus bid is merely,  
25 essentially, a down payment to ensure a competitive

1 process.

2 Again, most of the revenues from federal  
3 minerals is -- comes from royalties. And in this  
4 state, this state it was on the order of \$325 million.

5 BOB JAMES: What is the percent you get back  
6 from the oil and gas companies? What percent of the --  
7 what's the royalty percentage?

8 JERRY STRAHAN: It's generally 12 1/2  
9 percent.

10 BOB JAMES: Okay. Once again, I would say  
11 we're getting ripped off.

12 Thank you.

13 RICHARD WARD: Okay. Moving right along.

14 PEGGY KOCHMAN: You mean the shaft?

15 BOB JAMES: The shaft.

16 PEGGY KOCHMAN: Actually, I want to pursue  
17 this question --

18 RICHARD WARD: You have to speak in the mic.

19 PEGGY KOCHMAN: I'd like to pursue this  
20 question, because the state land board and the state of  
21 Colorado have leased mineral rights -- I want to make  
22 sure we're understanding what's being leased -- up in  
23 Park County for 1.50 to \$2 an acre. I could have  
24 bought 640 acres for \$960 of mineral right. And all of  
25 this was done without really knowing what the value of

1 the mineral right is.

2 So it seemed to me that we were jumping the  
3 gun on that. Why would you lease the property without  
4 having a sense of what the property -- of what the  
5 mineral right value is? There's hundreds of thousands  
6 of acres up there, and that both BLM lands and the  
7 state land -- and of state land board land that is  
8 being leased and we don't know whether we're getting  
9 good value out of that.

10 And by the way, the reason I'm asking is that  
11 the state land board takes that value and puts it into  
12 schools, and I'm thinking that the schools of Colorado,  
13 all of you know there's a 225 million gap in how much  
14 schools are getting, that the schools of Colorado are  
15 getting the shaft here. And so it's not just the elk  
16 and the cougars and the rattlesnake, et cetera. It's  
17 the children of Colorado who are getting the shaft  
18 here.

19 RICHARD WARD: Thank you.

20 Can we have a response?

21 DAVE NESLIN: Yeah. You know, I don't work  
22 for the state land board, so I'm not trying to  
23 answer --

24 PEGGY KOCHMAN: Yeah. But your consultants  
25 went in there and told the state land board, this was a

1 deal they should pursue.

2 DAVE NESLIN: But what I was going to offer,  
3 ma'am, is if -- if you give me your name and number,  
4 I'll have someone call you from the state land board  
5 and try to answer your question.

6 PEGGY KOCHMAN: Well, the question is, a  
7 factual statement that 1.50 an acre is a very low price  
8 for that land in Park County for those mineral rights.  
9 And the state recommended or did not object to the land  
10 board going forward with those auctions.

11 And BLM has done the same thing. You've gone  
12 forward with these auctions up in Park County,  
13 especially, not knowing what the value -- the true  
14 value is, although there's test wells being put in  
15 there.

16 RICHARD WARD: So let's --

17 PEGGY KOCHMAN: Why would you do that?

18 RICHARD WARD: Let's answer that question.

19 How do you evaluate a property ahead of a lease?

20 JERRY STRAHAN: Well, the BLM has a minimum  
21 bid set by regulation, and parcels are put up in a  
22 competitive auction. So, essentially, the lease value  
23 is set by that competitive process.

24 Now, if somebody drills an exploration well  
25 out there and has -- finds a good shale, finds a good

1 clay, you can bet the next lease sale will bring  
2 considerable --

3 PEGGY KOCHMAN: But you've -- you've put out  
4 all that property. You haven't gotten the value out of  
5 it. The people of Colorado are taking all the risk.  
6 The people of the United States are taking all the risk  
7 there by only getting 1.50 an acre. I mean, the oil  
8 companies are taking a very mild risk in terms of their  
9 total assets. We're taking the risk. And I'd like for  
10 the Oil and Gas Commission to speak to that.

11 UNIDENTIFIED SPEAKER: It's also a fact that  
12 you've leased 80,000 acres of federal and state land at  
13 a buck 50, to \$2 an acre.

14 DAVE NESLIN: Again, I'm sorry. I'm just not  
15 familiar with the state land boards.

16 RICHARD WARD: This is a BLM forum. We don't  
17 have those representatives here to answer, so . . .

18 PEGGY KOCHMAN: He's from the state. He  
19 should be able to answer.

20 RICHARD WARD: I can appreciate it, but, you  
21 know, you have to have some sympathy --

22 PEGGY KOCHMAN: I don't have any sympathy.

23 DAVE NESLIN: Ma'am, like I said, if you give  
24 me your name and phone number when we're done, I'll be  
25 happy to have somebody from the state land board --

1 UNIDENTIFIED SPEAKER: I can go directly to  
2 the state land board for that information.

3 Thank you.

4 DAVE NESLIN: Thank you.

5 RICHARD WARD: Okay. Is this the last  
6 question?

7 UNIDENTIFIED SPEAKER: No. We've got four or  
8 five more.

9 RICHARD WARD: Okay.

10 UNIDENTIFIED SPEAKER: Well, I mean, the  
11 industry got a couple of hours. I mean, can the public  
12 get a couple of minutes?

13 UNIDENTIFIED SPEAKER: Use the mic.

14 UNIDENTIFIED SPEAKER: The industry got a  
15 couple of hours. Can we get a couple of minutes?

16 RICHARD WARD: Sure.

17 UNIDENTIFIED SPEAKER: Thank you.

18 I've got two questions. If you want them  
19 separated --

20 UNIDENTIFIED SPEAKER: Closer to the mic.

21 UNIDENTIFIED SPEAKER: I've got two  
22 questions, one dealing with venting and one dealing  
23 with water use. They're both extremely important I  
24 think to the public of this state, and I'd like to ask  
25 both questions. And they both take a little

1 background.

2 First, the oil and gas industry vents or  
3 burns off methane when they are producing oil or when  
4 they haven't built a pipeline to transport the gas.  
5 Oil can be trucked, gas can't be.

6 Methane is 20 to 30 times more potent as a  
7 greenhouse gas than carbon dioxide; thus undercutting  
8 the argument that natural gas is important to reduce  
9 the global climate change.

10 Moreover, if gas recovered from frac'ing is  
11 to save the country, it shouldn't be wasted to the  
12 atmosphere in the service of the industry short-term  
13 bottom line and to the detriment of the atmosphere and  
14 the public's royalty. The royalty would actually  
15 increase if the gas were counted as part of the gross  
16 profit.

17 Both federal and state law should prohibit  
18 such a waste of a public resource. This would  
19 rationalize the development in the public interest, not  
20 stifle it. The industry's cash register would still  
21 ring merrily.

22 Do you agree with the assessments or not?

23 RICHARD WARD: So rules on flaring and  
24 venting and what to do about it.

25 DEBBIE BALDWIN: You're right that lease

1 in -- in the initial phases of oil clay. If there  
2 aren't much -- or if there isn't an infrastructure to  
3 move the gas, the gas will be vented and flared. So  
4 typically it isn't just being vented. It is being  
5 burned.

6 That being said -- that being said that  
7 industry -- it's a resource and industry is looking to  
8 capture that resource.

9 One of the things the Oil and Gas  
10 Conservation Commission is required to do is to prevent  
11 waste, so we are looking very closely at that and --  
12 and trying to work with industry to look at some other  
13 ways that gas could be used, used locally, used to  
14 fight, you know, generate electricity locally rather  
15 than putting it in a pipeline and taking it away.

16 So we're working with the industry to -- to  
17 look at innovative ways of using these low-quantities  
18 of methane in the initial phases of digging the oil  
19 well.

20 In addition to that, the permitting of -- of  
21 emissions to the areas handled by the air pollution  
22 control group with the CDPHE, and we're having  
23 conversations with them about permitting these  
24 activities.

25 RICHARD WARD: BLM rules on the venting and

1 flaring?

2 JERRY STRAHAN: Well, I -- I agree in theory  
3 that -- there's a theory there. Energy -- you know, I  
4 hate to see energy wasted. That's the bottom line.

5 UNIDENTIFIED SPEAKER: So you agree it's  
6 wasted? You agree it's wasted?

7 JERRY STRAHAN: Well, I don't think there's  
8 any way to disagree with that. Burning methane into  
9 the air is probably not a good thing to do with it, but  
10 there are practical considerations.

11 Pipelines need to be constructed. There  
12 needs to be ways of transport. If those aren't  
13 available, there's no other alternative then.

14 UNIDENTIFIED SPEAKER: Well, you can postpone  
15 production until you --

16 JERRY STRAHAN: That is, in fact, happening  
17 in many cases.

18 DAVE CESARK: If I might add, it is obviously  
19 a lost resource for the industry, so it's not in our  
20 best interest --

21 UNIDENTIFIED SPEAKER: It's the public's  
22 resource. It's the public resource.

23 THE REPORTER: One at a time please. Can you  
24 speak one at a time, please?

25 UNIDENTIFIED SPEAKER: I'm sorry.

1 THE REPORTER: That's okay.

2 DAVE CESARK: And certainly, it's not in our  
3 best interest either. And, you know, the industry  
4 developed a best management practice several years ago.  
5 They developed these heavy-duty separators they're  
6 called. They're able to handle the high flowback  
7 volumes that we get when we complete gas wells.  
8 They're also able to handle high volumes of frac sand  
9 that we get back and water as we're flowing back the  
10 wells.

11 So that's -- that's very important because a  
12 normal separator would get torn to pieces for that, so  
13 we had to bring in portable units to be able to handle  
14 that so we could capture the gas and put it in the  
15 pipeline.

16 And so more and more companies are doing  
17 that. Like I say, it's in our best interest too.  
18 It's -- it's revenue that -- that we're losing if we  
19 don't capture it.

20 And most of the time we're able to capture  
21 it. It's just -- it's on rare occurrences when we're  
22 stepping out and -- to the edge of the gas field when  
23 drilling exploratory wells, which are developed outside  
24 of the existing infrastructure, before pipelines were  
25 built to be able to handle the gas.

1           But I work for an exploration company, and I  
2 know that we're building pipelines to accommodate the  
3 gas so we don't have to vent it.

4           UNIDENTIFIED SPEAKER: I have another  
5 question, but I'd postpone it if you wanted. It deals  
6 with water -- water quantity and frac'ing, and I think  
7 it's extremely important to the people of Colorado, but  
8 I can wait on it.

9           RICHARD WARD: If you could take just one  
10 minute.

11           UNIDENTIFIED SPEAKER: I just have to find  
12 it. It's very important. I'll read this.

13           Water frac'ing is tremendous water user.  
14 Water has to be the highest quality, especially when  
15 oil production is sought.

16           One frac can require about 2 million gallons  
17 of water -- fresh water. And each pipeline horizontal  
18 pipeline may be frac'd up to 20 times, I think as the  
19 industry standard, at two- or three-year intervals.  
20 Thus in total about 40 million gallons or 120 acre feet  
21 could be consumed.

22           The New York Times recently stated that --  
23 that there could be as many as eight horizontal wells  
24 radiating out from earth, thus -- thus you come up with  
25 an estimate of -- on the 5 million acres that the BLM

1 has already leased in this state, conservatively of  
2 1 million-acre feet.

3 If -- if one well in every section on those  
4 5 million acres was producing frac'ing, you'd be using  
5 1-million-acre feet of water over the life of those  
6 wells. If it's eight frac'ing pipelines, it's  
7 8 million-acre feet.

8 Clearly, some form of triage must be  
9 developed because we the people -- it's our water.  
10 It's not the state's. It's the public's -- don't have  
11 this kind of water to give to the oil industry.

12 Frac'ing should be reserved for those areas  
13 where the production return is the highest, and the  
14 risk to the public's water, health and wildlife sources  
15 are the lowest. But it can't be everywhere at once,  
16 and it shouldn't be. Maybe someday when the technology  
17 improves.

18 Do you agree with these estimates on water  
19 use? If not, why not? And what estimates do you have?

20 Thank you.

21 MIKE EBERHARD: No, I do not agree.

22 First place, the 2 million is per wellbore.  
23 20 fracs include -- 2 million is included in the  
24 20 fracs, so it's not 40 million in wells. It's  
25 2 million in wells.

1 UNIDENTIFIED SPEAKER: Well, that's --

2 MIKE EBERHARD: Two to eight, depending on if  
3 it's the Marcellus and other areas. There's a lot of  
4 miscommunication out there, so that's the facts.

5 UNIDENTIFIED SPEAKER: That's not what the  
6 New York Times says.

7 MIKE EBERHARD: The New York Times is wrong,  
8 that's my point.

9 UNIDENTIFIED SPEAKER: I would much rather  
10 listen to the New York Times than a company run by you  
11 know who.

12 MIKE EBERHARD: The company isn't run by you  
13 know who, number one. Number two, the New York Times  
14 is wrong. They didn't do any fact-checking. I can  
15 tell you what the number is. It's 2 to 8 million in  
16 the entire wellbore. That's the way it is. That's a  
17 fact.

18 RICHARD WARD: Can we limit this to talk  
19 about water concerns in Colorado and how the BLM and  
20 the state and -- and perhaps also respective of our  
21 environmental -- because water is a big challenge.

22 DAVE CESARK: As I alluded to in my talk, you  
23 can use produced water. You don't need to use fresh  
24 water for hydraulic fracturing, and that's -- and  
25 that's the beauty of it.

1           Because the industry -- and correct me if I'm  
2 wrong, Mike, because your company does a lot of  
3 hydraulic fracturing -- I know that the companies that  
4 I've been associated with in the past we've always used  
5 produced water, which, as I mentioned earlier, is a  
6 waste product. It's far from fresh water. It's not  
7 potable. We don't need to use fresh water to frac.

8           UNIDENTIFIED SPEAKER: My understanding from  
9 experts in this -- in this field is that in the  
10 Niobrara, they're searching for oil, such as Jake up in  
11 Weld County. And for that to be most efficacious, they  
12 have to have high quality water. They can't use  
13 reprocessed water. It doesn't work very well.

14           So, in fact, when oil is the object, they are  
15 using the highest quality water they can find.

16           DAVE CESARK: And this is for hydraulic  
17 fracturing?

18           UNIDENTIFIED SPEAKER: Yes. For oil, not  
19 gas. For oil.

20           MIKE EBERHARD: You're -- you're partially  
21 correct. The reason that a better water quality is  
22 used in the Niobrara and --

23           RICHARD WARD: Su Ryden is on deck, by the  
24 way. I just wanted to interject there.

25           MIKE EBERHARD: Because there was a gel

1 treatment so it takes a little bit better water. We  
2 still reuse water, and it doesn't need to be pristine  
3 water, but there are limited sources.

4 So municipalities, you work -- operators work  
5 very closely with local water owners, water resource  
6 boards, everything on how they can get the water. So  
7 the numbers are -- it's not because it's oil that it  
8 requires clean fluid. It's because of the fluid system  
9 being used.

10 UNIDENTIFIED SPEAKER: Well, then does  
11 somebody on this esteemed panel have any estimates of  
12 how much water you're going to require from the people  
13 of Colorado to develop frac'ing in this state?

14 Now, you've already leased 5 million acres,  
15 the BLM has. They have, you know, something like  
16 50 million acres of federal and state land. I don't  
17 know how much it's going to be developed for frac'ing,  
18 but I can tell you that we don't have the water that  
19 you people are going to require to do this and  
20 absolutely no one has evaluated this, absolutely no  
21 one.

22 MIKE EBERHARD: Well, time frame it takes --

23 RICHARD WARD: Did you -- did you want to  
24 speak to that, Debbie?

25 DEBBIE BALDWIN: I -- I mentioned briefly

1 that the state engineers office, the division of water  
2 resources is the agency that regulates water  
3 development in the state. And they have looked into  
4 the uses of water, you know, the amount of water used  
5 overall for all activities related to oil and gas.

6 And relative to the amount of water that's  
7 used by municipalities and agriculture, it is a very  
8 small amount of water. The water that the operators  
9 use is water that they have to get and have the legal  
10 right to use. And it's water that has been classified  
11 by the Division of Water Resources and can be used for  
12 an industrial purpose.

13 The same way if somebody was doing a  
14 construction project, you have to buy water that can be  
15 used for industrial purpose. It's regulated by the  
16 Division of Water Resources.

17 RICHARD WARD: Su Ryden or Eddie Kochman.

18 JERRY STRAHAN: Rich, if I could for a  
19 minute. Myself and a couple of the other panel members  
20 up here have been discussing water as well, and we were  
21 wondering if we could take a break.

22 RICHARD WARD: Okay. Yes. A break is in  
23 order. It's 8:30, so we'll be back here at 20 of, and  
24 we'll go as long as it takes.

25 JERRY STRAHAN: Thank you.

1 (Recess from 8:30 p.m. to 8:37 p.m.)

2 RICHARD WARD: Then Eddie Kochman on deck or  
3 Kochman.

4 PHIL DOE: Okay. My question -- my question  
5 starts with a statement.

6 Seems water is a bigger deal in the oil and  
7 gas development, especially out here for all the right  
8 reasons. And I'm from Pennsylvania where the Marcellus  
9 thing is hotter than the Tokyo nuclear reactor.

10 But my question is, why just use -- stick  
11 with regulations when I think there's a model that  
12 would benefit everybody, and that is to allow the  
13 operators to treat their produced water to a certain  
14 standard and sell it either as water rights out the  
15 West or even directly to end users, such as town  
16 arrogates, therefore they have an economic incentive to  
17 treat the water for everyone's benefit versus just  
18 treat it because regulations are over their head.

19 And I understand there are certain water --  
20 especially in the West with the water rights, the way  
21 they are -- certain road blocks, but I know my industry  
22 has been batting that around for a bit.

23 But I think there's definitely economic  
24 beneficial model to everyone to add volume -- add  
25 available volume by treating production water, allowing

1 the treatment of production water to a certain standard  
2 then sell it.

3 DEBBIE BALDWIN: You know, it's a water  
4 rights issue. And I think if an operator thought that  
5 they could treat the water and -- and recover the costs  
6 by selling it, and if they had those nontributory water  
7 and if they -- it would have to pass all of the  
8 requirements for the Division of Water Resources that  
9 those wells or that water could be adjudicated that  
10 way. They need to go through the Division of Water  
11 Resources.

12 But it is expensive to treat this  
13 high-salinity produced water that would have petroleum  
14 hydrocarbons in it. So it's an expensive proposition.

15 PHIL DOE: There are a lot of smaller  
16 companies out there with the technology. I can think  
17 of one.

18 DEBBIE BALDWIN: And there are some operators  
19 here that are putting their water through reverse  
20 osmosis and -- and treating it, and, in fact, have  
21 discharge permits or whatever. So it's not that it  
22 can't be done. But there are some economic drivers as  
23 well as the water rights issues that have to be --

24 PHIL DOE: Right. Or as gray water where you  
25 wouldn't have to -- goes directly from the site, you

1 would shoot back to the town for gray water usage. It  
2 bypasses discharge permits.

3 RICHARD WARD: Great. Thank you.

4 Eddie Kochman?

5 EDDIE KOCHMAN: Thank you for the  
6 opportunity.

7 My name is Eddie Kochman. I'm here for a  
8 couple of fronts, I guess. One, I'm a sportsman. I  
9 hunt. I fish. I'm a lifelong resident of Colorado.

10 But I think more applicable, I'm a landowner  
11 in South Park. You heard some people today speak from  
12 South Park. I own property that's in proximity to  
13 James Mark Jones Wildlife Area. It's an 18,000-acre  
14 state wildlife area where the surface is owned by the  
15 Colorado Division of Wildlife.

16 The actual mineral rights are owned by the  
17 state land board. The state land board sold that  
18 entire area for mineral exploration. That's considered  
19 a jewel. That's the words of Division of Wildlife, not  
20 necessarily mine.

21 Probably as we speak, there's anywhere from  
22 maybe 800 to a thousand head of elk running on the  
23 area. It's in proximity to Middle Fork, South Platte.  
24 It's a very key area.

25 Question is, can you drill wells, frac, still

1 maintain the integrity of that area? Can you still  
2 maintain water rights, not just surface but also  
3 preventing contamination? Unanswered questions.

4 I have one question I'm going to ask at the  
5 end, but I wanted to make a couple of observations and  
6 recommendations prior to that, if I could.

7 It's my belief that developing baseline water  
8 quality data prior to drilling is a very, very  
9 important consideration. It should be important to the  
10 Colorado Oil and Gas Commission. It should be  
11 important to Water Quality Control Commission. It  
12 should be important to the BML, and it should be also  
13 important to the oil and gas industry.

14 Because unless that baseline is developed,  
15 how can you really monitor? You heard today that Park  
16 County allocated \$77,000. Part of that comes from my  
17 property taxes. Every person here today is supposed to  
18 implement a study using that \$77,000. The purpose is  
19 to monitor water quality at local wells, shallow wells  
20 that are used for domestic purposes. I happen to have  
21 four on my property.

22 That's outstanding leadership by Park County.  
23 Not one dime of federal money, not one dime of state  
24 money, not one dime of money from the oil or gas  
25 industry.

1           The second phase of that study, which will  
2 ill-determine where the funding is going to come from,  
3 is to do risk analysis for contamination of underground  
4 water. That remains to be seen whether that money will  
5 be obtained.

6           Personally, I think there's a failure by the  
7 Colorado Oil and Gas Commission. There's a failure by  
8 the EPA. There's a failure by the Water Quality  
9 Control Commission to develop baseline studies.

10           And I guess I would challenge the statements  
11 where you say there's no contamination in terms of  
12 water resources. I interpret that to mean shallow  
13 wells. If the Oil and Gas Commission has information  
14 in terms of contamination of deep water levels, say  
15 below 1,000 feet, I would like to see it. You don't  
16 have it.

17           You can feel safe by making a statement that  
18 you've never determined impact from frac'ing from a  
19 domestic well. That may be true. And I commend the  
20 rules in terms of protecting, in terms of steel and  
21 cement casing. You cannot make that statement in terms  
22 of deep water.

23           South Park is a watershed for the water here  
24 at your table right now. Antero, Spinney Mountain,  
25 Eleven Mile are all part of the Denver water

1 departments' collection system.

2 I think the statement made that some areas  
3 should be -- I would fall short of saying no drilling,  
4 but if you're going to drill, it has to be done with  
5 the utmost care. That's one of those areas. In  
6 50 years the projection is this state is going to  
7 double in population. Most of us won't be around.

8 Also, the demands for domestic water will  
9 double. What happens in South Park if they find  
10 production level oil, they'll have an expansion of the  
11 Aspen oil field. 300 wells exist on the state wildlife  
12 area, and Park County itself has to show their own  
13 individual leadership to develop baseline water  
14 monitoring, something is wrong.

15 Here is my question, and the question is  
16 directed to Colorado Oil and Gas Commission. Is there  
17 any point in time that you will consider mandating --  
18 mandating development of baseline water quality for  
19 both surface as well as deep water levels? By surface,  
20 I'm going to say everything from a thousand feet up.  
21 By deep water, levels from a thousand feet down.

22 DAVE NESLIN: So, Mr. Kochman, let me try to  
23 respond to your question as to whether we consider  
24 mandating baseline water quality testing.

25 We've mandated baseline water quality testing

1 in different areas of the state, and sometimes it's  
2 done by rule. Sometimes it's done by order. Sometimes  
3 it's done where we hire contractors to do baseline  
4 water quality sampling. We've done that on the West  
5 Slope in Garfield County.

6 Over the past 15 years we've collected 300 to  
7 500 water quality samples in Garfield County, including  
8 both water well samples and stream and spring samples.

9 In La Plata County, pursuant to orders by the  
10 commission, water quality is tested before drilling,  
11 after the well is completed and periodic periods after,  
12 I think, it's three-year increments.

13 Pursuant to another regulation up in --

14 THE REPORTER: Can you go closer to the  
15 microphone? I can't hear you.

16 DAVE NESLIN: Sure. In the watershed, we --  
17 we require operators to collect baseline water well  
18 samples, so we require that.

19 My recollection is that we've only permitted  
20 one well this last year in Park County. It's a small  
21 number of wells. My recollection -- I need to check  
22 this -- my recollection, anyway, is that we required  
23 the operator in that instance to collect some water  
24 quality samples. Now, maybe I'm confused.

25 RICHARD WARD: No. In the fairness of time

1 in terms of process, we really have to go --

2 EDDIE KOCHMAN: That question --

3 RICHARD WARD: -- back and forth --

4 EDDIE KOCHMAN: That question was not  
5 answered. All you've done is discuss shallow waters.  
6 You've not tested deep water levels. All that operator  
7 in South Park had to do was test one mile from the well  
8 head. It's D-minus-type monitoring, D minus, and your  
9 statement really determining water quality is based  
10 only on surface water. You cannot demonstrate any data  
11 in terms of deep-level testing.

12 If I'm wrong, I will be glad to come down to  
13 your office and look at whatever data that you can  
14 provide in terms of deep-level monitoring. I will  
15 welcome that opportunity, including South Park failure.

16 RICHARD WARD: Ed Robinson. Ramon Castro and  
17 Wes Wilson next.

18 ED ROBINSON: Thank you very much.

19 RICHARD WARD: Let's try to keep it to two  
20 minutes. We have the room until 10:30, and we have a  
21 whole lot of people who want to speak. So just --

22 ED ROBINSON: As a citizen -- as a citizen my  
23 main concern in this venue is the development of the  
24 best public policy, particularly in regard to  
25 regulation.

1           And in that regard, I want to respond to some  
2 of the statements made by particularly the two industry  
3 representatives in the presentations, and Mr. Neslin,  
4 by responding to a previous question in that regard  
5 too.

6           The MESA Energy representative characterized  
7 federal regulation as broad brush, and the need for  
8 more local-based regulation, and that I think argues  
9 weak federal regulation. That creates a varied --  
10 varied levels of administration and not necessarily  
11 consistent regulation by multiple jurisdictions.

12           By that logic, you know, why stop at the  
13 state? Why not go to the county? Why not go to the  
14 city, even lower? And -- and in that regard I think  
15 industry has -- has consistently argued both ways when  
16 it seems to suit their purpose about broad regulations  
17 as opposed to narrow regulations and consistency of  
18 those regulations.

19           The Halliburton representative stated that  
20 the best knowledge is at the state level, and  
21 Mr. Neslin kind of confirmed that in his view.

22           But it seems to me that, you know, knowledge  
23 is not state-dependent, but the feds should be as aware  
24 as the state of any conditions that exist in the state.  
25 If that's not the case, then certainly there's a

1 failure of communication.

2 And I want to take issue with the concept  
3 that the state is the only -- the only expertise in  
4 determining levels of scientific integrity as a basis  
5 for regulation, particularly. And I think it's hard to  
6 maintain the argument that the only basis for that  
7 expertise is you were employed or contracted by the  
8 state.

9 So my question, I guess, for Mr. Neslin at  
10 the end is -- I would use your words -- is the basis of  
11 protective regulation cost efficiency, and is that your  
12 view of the best policy to fit the -- even though  
13 that's the prevailing view?

14 DAVE NESLIN: I hope we didn't  
15 miscommunicate. I think what I tried to say was that  
16 the basis should be effectiveness and efficiency, both.  
17 Effectiveness in terms of protecting the environment.  
18 Efficiency, ensuring the best efficient manner.

19 Our mission -- our legislative mission is  
20 twofold. It is to support energy development and to  
21 ensure that that energy development occurs in a  
22 responsible manner that protects public health safety  
23 and welfare and the environment. And we take the  
24 latter part of our mission just as seriously as the  
25 former part of our mission.

1           We do support energy development, but we work  
2 very hard, and it is our job to ensure that it is done  
3 in an environmentally responsible manner that protects  
4 the public health, safety and welfare.

5           I also did not mean in any way to denigrate  
6 BLM or any federal agency. The thrust of my argument  
7 was, I think the state does have experience. I think  
8 the state has a good regulatory program, and I think  
9 the state is responsibly regulating oil and gas in  
10 Colorado.

11           ED ROBINSON: Can I take that as yes -- yes,  
12 that's your view, that's the best policy?

13           RICHARD WARD: Ramon Castro.

14           RAMON CASTRO: My name is Ramon Castro.

15           I'm not sure who on the panel would answer  
16 this question, but I'll present it and the right person  
17 will answer it.

18           I live in Park County, and I represent the  
19 Save Our South Park Water, which was organized three  
20 years ago in concern with uranium mining and in-situ  
21 mining and concern with our water. So it's natural for  
22 us to move to the mineral extraction of gas and oil  
23 with the same concerns.

24           My question for you is going to fall under  
25 best management practices. And I'm not really sure

1 what all that entails, but I assume it means do no harm  
2 is one of your best management practices. So whatever  
3 you're going to do, do no harm. I would think that  
4 would be one of your practices. Hopefully it is.

5 Also, under best management practices, I  
6 would hope that resource protection priority would be  
7 water quality, air quality, landscape preservation,  
8 wildlife preservation.

9 So assuming those fit under both management  
10 practices, my question is this. Under best management  
11 practices, the type of frac'ing fluid that is used,  
12 would you not choose the very best available to protect  
13 the environment, to protect the water?

14 And in that regard, as I understand it, when  
15 offshore drilling is done for oil or for gas, the  
16 frac'ing fluid that is used that is supposedly a green  
17 fluid, and it's mandatory that it be used.

18 So my question to your panel is, why would we  
19 not use the same type of green fluid that's used in  
20 offshore drilling on onshore drilling? And I know  
21 there's economics involved, so you don't have to go  
22 there as an answer. But if they can do it offshore,  
23 where it's much more expensive to do your drilling, why  
24 can't you do it onshore? That's my question.

25 RICHARD WARD: Turn it over to Halliburton, I

1 guess.

2 MIKE EBERHARD: Good question. Obviously the  
3 regulations for offshore are -- there's things like  
4 shrimp-buying test, sheen testing, things like that.  
5 That many of the chemicals -- as a matter of fact most  
6 of the chemicals used on land pass. You just have to  
7 demonstrate a lot more testing when you start going to  
8 the offshore or North Sea and other areas like that.

9 So a lot of it is the same chemistry. When  
10 you start getting into the -- and that same chemistry  
11 has been used for years on land. They -- the  
12 definition of green is a nebulous term, obviously. It  
13 was challenged earlier today from one of the questions  
14 on what is green and how do we know it's getting there.

15 The -- you mentioned economics and we didn't  
16 have to go there. Well, I'm going to discuss the  
17 elephant in the room. Greener you get, the more you  
18 spend to get to some of those answers.

19 Again, when you do -- a wellbore is built  
20 correctly, well construction is in place, your  
21 monitoring is in place, there's not a problem with  
22 hydraulic fracturing.

23 So I guess in a pure world that we could do  
24 this and not -- I guess the answer -- best answer is,  
25 that when there's not a problem, how much do you want

1 to spend on trying to fix one? And we do everything we  
2 can to prevent any kind of problem from happening, and  
3 there has not been one. So we do a lot to continue to  
4 improve. I guess I don't know how to answer your  
5 question past that.

6 But there -- even stuff -- stuff is not that  
7 different from offshore. The main difference is what  
8 kind of carrier does it have? Does it have a sheen?  
9 Are there issues? Most everything will pass the test  
10 that we have, especially the concentrations we have.

11 RICHARD WARD: Bill Dvorak is up next. After  
12 that, Greg Scott.

13 WES WILSON: Wes Wilson, did you skip me?

14 RICHARD WARD: Oh, I'm sorry. Did I pass you  
15 by? I'm sorry. Wes Wilson.

16 WES WILSON: I have a question for the BLM  
17 and the state representatives. Most of the information  
18 you're providing is along the lines of how many people  
19 stop at a traffic light. We're very much interested in  
20 people that don't.

21 So I'd like to know if you have actual data  
22 on the frequencies of the noncompliance which lead to  
23 environmental release, statistical data.

24 And the second question is with regard to  
25 compliance with existing laws, despite what the

1 representative from Halliburton said, EPA issued a -- a  
2 ruling last year that the use of diesel fuel in  
3 hydraulic frac'ing required compliance with the Class-2  
4 well provisions of the Safe Drinking Water Act.

5 Does BLM and the state now require the area  
6 of review that's done under Class 2 to see if a well  
7 using diesel fuel properly looks at the area reviewed  
8 to make sure unplugged, abandoned wells within that  
9 area are sealed?

10 RICHARD WARD: BLM?

11 JERRY STRAHAN: Well, I think it -- possibly  
12 Dave might be better to answer that question. Maybe  
13 not.

14 DAVE NESLIN: So the first question was, do  
15 we have data on the environmental violations --

16 WES WILSON: Especially environmental  
17 violations that lead to an ambient release, like the  
18 case of the Elsworth well that you just mentioned.

19 I think you're referring to partial release  
20 and the case of thermogenic gas as coming in the creek,  
21 do you have data that shows that frequency? And I  
22 think that the panel mentioned it was infrequent. The  
23 question is, what is the number?

24 DAVE NESLIN: We report to our commission  
25 every month on violations and notices of alleged

1 violation.

2 Now, I don't think that we've broken out the  
3 data in the specific way you're suggesting, but the  
4 data is all available on our website, and you can, like  
5 I said, look at our monthly reports to see how many  
6 violations were issued, how many releases occurred, and  
7 go to our website --

8 WES WILSON: There were about a thousand. In  
9 the previous 30-month period, 1,000.

10 DAVE NESLIN: You can go to the website and  
11 get more specific information if that's what you want.

12 The second part of your question I think was,  
13 would the use of -- well, why don't you restate your  
14 second question.

15 WES WILSON: Well, as you're aware, the state  
16 is doing investigation on the use of diesel fuel and  
17 frac'ing.

18 And it was just last week we were informed,  
19 thanks to the work by Henry Waxman, house resources  
20 committee, that, in fact, diesel gas has been used in  
21 apparent violation of the law. Apparent, I'll use that  
22 word again, because it would be in compliance if the  
23 industry were opined for Class-2 permitting under the  
24 Safe Drinking Water Act.

25 You recall that Section 38 of the Energy

1 Policy Act exempted frac'ing from the Safe Drinking  
2 Water Act under the provisions unless it contained  
3 diesel.

4 Now, thanks to other parties, not the state,  
5 potentially congress, we now know that diesel has been  
6 used for frac'ing in Colorado. Did it comply with the  
7 law by first getting a Class-2 permit?

8 DAVE NESLIN: Well, let me say, I don't have  
9 the authority over EPA's interpretation of the Safe  
10 Drinking Water Act what the EPA considers a violation  
11 or not.

12 I can tell you we're doing our own  
13 investigation. As part of that investigation, I've  
14 asked the attorney general's office to look into  
15 whether our regulations would have required a permit  
16 for the use of diesel fuel.

17 RICHARD WARD: Bill Dvorak.

18 WES WILSON: Well, the follow-up question,  
19 even if you didn't get the permit, doesn't the state  
20 conduct an area of review, like a Class-2 permit to  
21 make sure there's no abandoned wells within the  
22 pressure gradient of the frac'ing?

23 DEBBIE BALDWIN: In the -- down in the San  
24 Juan Basin and the Raton Basin, we do do that. We do  
25 look for whether or not there are unplugged and

1 abandoned wells, old plugged abandoned wells. Do we do  
2 that everywhere, I don't believe we do.

3 WES WILSON: The UIC wells, you did. For  
4 frac'ing --

5 THE REPORTER: Can you use the mic? I can't  
6 hear you.

7 DEBBIE BALDWIN: I think I can answer the  
8 question. So underground injection control wells, yes,  
9 we do that review. For normal APD, no, we don't do  
10 that. Except in La Plata County and the Raton Basin.

11 RICHARD WARD: Bill Dvorak and Greg Scott,  
12 Bob Comer. Jim Hughes.

13 GREG SCOTT: I was waiting. About to take a  
14 nap, actually.

15 My name is Greg Scott. I'm from Evergreen,  
16 and I -- we had an Earth Day fair over the weekend, and  
17 I put together a flier on frac'ing just for the public.

18 It was basically available information and  
19 nothing that would surprise anyone except the thing  
20 that -- when I pulled it all together and looked at it  
21 comprehensively, the scale of frac'ing -- the scale  
22 of -- of drilling in Colorado really took me aback.  
23 We're talking hundreds of thousands of wells. It's  
24 about 40,000 active wells now. There's about another  
25 40,000 that are -- are abandoned.

1           Could be -- some perhaps could be redrilled  
2           or frac'd, reopened. We -- we've been permitting at a  
3           hair-on-fire rate over the past several years and  
4           that's going to continue.

5           We've just committed ourselves to shutting  
6           down some coal-fire power plants, and the result of  
7           that, that's going to push us -- we're in a box canyon  
8           and better find a way out with the oil and gas.

9           What really struck me was, we better get it  
10          right, because if we don't get it right, there won't be  
11          a Colorado the way we know it today and -- in a decade  
12          or two. That's a real concern.

13          Thank you.

14          RICHARD WARD: Thank you. Bob Comer. Jim  
15          Hughes.

16          JIM HUGHES: Actually, since most of my  
17          questions have been asked, as far as questions I had,  
18          just for the fun of it, I was going to say, looking at  
19          what happened at the last administration, the major  
20          fire sale concerning BLM lands.

21          And one case, we're looking at the Rome  
22          patrol -- Plateau, came down to the fact that according  
23          to the paper, that 80 percent of the gas could be  
24          removed by horizontal drilling.

25          And I was just wondering why a unique

1 ecosystem on up the top of the plateau where they have  
2 endangered species, they went ahead and sold the --  
3 leased the whole top from the standpoint? You might  
4 say, we only leased a certain part of it. But the  
5 company did -- luckily one gas company did buy all the  
6 leases up there.

7 Thank you.

8 RICHARD WARD: Okay. BLM?

9 JERRY STRAHAN: Well, minerals -- minerals  
10 are sold in a plan view. Even though -- though  
11 theoretically they could be -- I don't know what the  
12 numbers came from -- but theoretically they --

13 UNIDENTIFIED SPEAKER: Could you speak up?

14 JERRY STRAHAN: Sure.

15 Let's just say theoretically they could be  
16 developed 80 percent of it from a single location.  
17 Even if that was the case, which it could be, you would  
18 still lease the entire area, because the minerals --  
19 minerals lay directly under the land, so even --  
20 even -- no matter how big an area you would be  
21 draining, it has to be leased in order to give that  
22 right, give that -- that lease to a company.

23 Did -- did I understand your question  
24 correctly?

25 JIM HUGHES: Well, yeah. Basically what I

1 was saying is, all right, they could have gone around  
2 the base of the plateau around it.

3 JERRY STRAHAN: And drilled into it.

4 JIM HUGHES: Horizontally.

5 JERRY STRAHAN: Right.

6 JIM HUGHES: 80 percent of that.

7 JERRY STRAHAN: Right.

8 JIM HUGHES: Yet they went ahead and leased  
9 the whole top of it because they were looking --  
10 luckily one company bought all the leases on top of it.

11 JERRY STRAHAN: And that's -- I guess that's  
12 fine. That's what I was trying to get at is, if you  
13 want to allow a company, if that's the decision to  
14 remove the minerals from it, you have to lease the  
15 acreage that's associated with the minerals.

16 JIM HUGHES: That was possible looking at  
17 wilderness area up there, but it's a very unique  
18 ecosystem, and I thought, you know, comments in the  
19 paper, they could have got 80 percent, even though they  
20 paid the --

21 JERRY STRAHAN: Right.

22 RICHARD WARD: Good perspective.

23 What was your name? I'm sorry.

24 JIM HUGHES: Jim Hughes.

25 RICHARD WARD: Jim Hughes, okay.

1 Cecelia Lankurtis.

2 CECELIA LANKURTIS: Lankurtis. Everybody  
3 does that, that's fine.

4 Thank you.

5 Since everybody is here to learn, I'm just  
6 going to indulge. I'll be brief but I do take charge.  
7 Once everyone has one, you can pass them down.

8 I think it's important to remember  
9 individuals affected by the upcoming public policy.  
10 I'm a rancher's daughter, granddaughter, niece, friend  
11 and neighbor from Central Montana. That's what those  
12 pictures are.

13 The generations on the back of that, that's  
14 three of the five of us that still enjoy that land.

15 THE REPORTER: I'm sorry. Can you slow down  
16 a little bit?

17 CECELIA LANKURTIS: Sorry. Okay. Our ranch  
18 is located on the east formation in Central Montana.  
19 As of next year, we'll celebrate a hundred years since  
20 my grandfather settled there.

21 My concern is accountability. We only need  
22 to look at the recent disasters on Wall Street as well  
23 as companies that have gone under due to mismanagement,  
24 CEOs walk away with golden parachutes while those who  
25 work their whole lives to create those profits are left

1 with nothing.

2 As far as -- excuse me -- environmental  
3 disasters, what about Erin Brockovich's fight against  
4 PG&E. Forgive me if I'm skeptical, but I want to  
5 reinforce the need for extensive oversight of this  
6 process.

7 The history of government oversight being  
8 established is to protect the vulnerable, like my  
9 family, against those who have means, like corporations  
10 do, to pick up and leave while we're left with the  
11 tragic outcomes.

12 As far as -- Mrs. Mosely is not here anymore,  
13 but she's concerned so much about lack of government  
14 and resources. I don't see these corporations  
15 suffering from it. If the profits are cut down to tens  
16 of billions of dollars instead of hundreds of billions  
17 of dollars, if that means that the extra expense or the  
18 extra loss goes into protecting people and doing  
19 business in a safe manner.

20 I just ask that you don't let my grandfather  
21 and father's struggle be in vain. They're the ones who  
22 created the middle class that Dick Chaney and everybody  
23 else here benefited from.

24 And also, to reflect again on Erin  
25 Brockovich, PG&E lawyers were nervous about Hinkley

1 water. I'm more than happy to haul Weld County water  
2 to anybody who meets here, including Mrs. Mosely, who  
3 could not come out today. That's it.

4 RICHARD WARD: We'll take that as a comment.  
5 Sonya?

6 SONYA: I have a long last name, so I  
7 understand.

8 I live in Aurora, and I came today because I  
9 got a surprise a few months ago, learning that there's  
10 frac'ing being planned for state land that's owned in  
11 Arapahoe County at the air bombing range, which is a  
12 large parcel of land, with ammunitions from World  
13 War II bombing practice removed from the surface but  
14 not from underneath. They're still there.

15 It's bordered on the northwest side by EPA  
16 toxic superfund site. It's surrounded on three sides  
17 by residential areas, so I was a little alarmed  
18 thinking that we're getting a little too comfortable  
19 with frac'ing to be doing it in such an area. I'm  
20 still very concerned about that.

21 That's what led me to try to learn a little  
22 bit about frac'ing. And obviously it's a very complex  
23 subject with specialists from many different areas with  
24 specialists regarding frac'ing process and so on. But  
25 it seems to me that the bottom line of frac'ing -- of

1 the question is the risk/benefit ratio of frac'ing.

2 And it appears that at present we're not  
3 conducting things in a rational manner and proceeding  
4 at the front end with scientific impact studies to  
5 assess at the front end what is the impact on health,  
6 biological species, on water integrity and so on, and  
7 instead we're just beginning to do that even though  
8 we've been frac'ing now for some years.

9 The reports of significant health impacts and  
10 water integrity impacts are not isolated and they're  
11 verified, but they're being treated like isolated  
12 cases, instead of being looked at comprehensively by  
13 independent agencies who would assess what they mean.  
14 Are they meaningful? Are they statistical aberrations?  
15 Under what circumstances do they occur?

16 So in a sense it's like, you know, diving  
17 into a big pond headfirst and then doing the study on  
18 how deep it is. I would think you would do the studies  
19 at the front end to assess public health and safety,  
20 and I believe that's what we need to do.

21 As I said, from what I read, the incidents of  
22 spills, explosions, releases into waterways, venting of  
23 gases and so on are not rare. They occur with some  
24 frequency. And if counties and so on do not know the  
25 chemical composition of the frac'ing injection

1 chemicals, for example, how are they to prepare in an  
2 emergency response plan based on, you know, what are  
3 they responding to, they don't know. So it just seems  
4 that we are -- I think we need to draw back and act  
5 rational and do the grown-up thing and do the studies  
6 because --

7 RICHARD WARD: Maybe -- maybe we could ask  
8 the BLM to respond to the -- the study requirements  
9 that reiterate what was said earlier.

10 SONYA: I know that the EPA is beginning  
11 their studies and is releasing some.

12 RICHARD WARD: On the local level, I believe  
13 the presentations talked about -- BLM talked about  
14 requirements for --

15 JERRY STRAHAN: Well, our requirements are,  
16 again, on the protection level. We don't have any  
17 studies ongoing right now, and I really can't speak to  
18 the EPA study. I know it's a completely different  
19 agency, so I don't have a lot of information about it.

20 SONYA: Well, that's precisely my concern,  
21 just --

22 THE REPORTER: I'm sorry. I can't hear you.

23 SONYA: I guess my concern is just that, that  
24 we don't know what the risk is because we haven't done  
25 the studies. And so I believe we need to have a

1 moratorium on frac'ing until those studies are  
2 complete, otherwise we're sending our children into a  
3 dusty embarkment to a future that I don't think we want  
4 to contemplate for them.

5 Unless we know, we shouldn't be -- unless we  
6 can assure that the technologies will improve and so on  
7 and meet all the requirements that they should be  
8 meeting, it seems like we're moving ahead with the cart  
9 before the horse.

10 RICHARD WARD: Okay. Thank you very much.

11 Do you want to respond to --

12 MIKE EBERHARD: I'd just like to add one  
13 point. There have been studies. There have been  
14 numerous studies. The IOGCC has conducted studies.  
15 The states are continuing to do the studies. The EPA  
16 has done the studies. The department of energy has  
17 done studies. We're restudying it. It's not that this  
18 has not been studied. It's been studied fairly  
19 extensively over the last decade.

20 RICHARD WARD: Okay. Charlie Montgomery is  
21 up next.

22 And then there was a written question. Why  
23 do you think volunteer requirements to operators will  
24 result in any credible data? I guess this refers to  
25 Groundwater Protection Council. And then more

1 specifically, you allow the companies to self-regulate  
2 under the rules of 205, 319 -- or 317, 317 B, 341. How  
3 do you verify their findings?

4 So questions about voluntary -- what are  
5 the -- what are the checks and balances, the auditing  
6 control around voluntary disclosure? And then second  
7 question about, how do you self-regulate under these  
8 rules.

9 DAVE NESLIN: Let me address the second  
10 question, because I think it goes to the COGCC. We  
11 don't allow the industry to self-regulate under the  
12 rules. We've got a number of requirements that require  
13 them to submit data to us, specific data.

14 That data gets reviewed by our staff. We  
15 have engineers on staff. We have environmental  
16 professionals on staff. So I don't think  
17 characterizing it as a self-regulation regime is  
18 accurate.

19 With respect to the question of the veracity  
20 of information on the Groundwater Protection Council's  
21 website, that's -- that's a website developed by  
22 different entities, Groundwater Protection Council, the  
23 Interstate Oil and Gas Compounds Commission and -- and  
24 other people may want to respond to this.

25 Yeah. I would just urge you to visit the

1 website. I think it's a substantial undertaking. I  
2 think those two organizations, which are not industry  
3 organizations -- they're organizations of the state  
4 regulators -- have taken this issue very seriously. I  
5 think there's a lot of good information on it.

6 And I think time will tell whether this is,  
7 in fact, the kind of helpful information, public  
8 education information that we hope it will be, or  
9 something else.

10 RICHARD WARD: Okay. Thank you.

11 Is Charlie Montgomery here?

12 CHARLIE MONTGOMERY: My name -- my name is  
13 Charlie Montgomery. I'm with Colorado Environment  
14 Coalition.

15 I want to go back to something Mr. Eberhard  
16 said at the beginning of the comment period today. He  
17 was asked, I believe, a question about the Safe  
18 Drinking Water Act, why is it an exception for  
19 hydraulic fracturing.

20 And I believe your response, Mr. Eberhard,  
21 was that, actually, there was not an exception granted  
22 during the -- the early part of the -- of this decade.  
23 It went back to 2002 or 2003, extended back to the  
24 Clinton administration. There was a continuation of a  
25 policy extended back to the Clinton administration.

1           And the distinction you made was between  
2 long-term, continuous injection and much shorter-term  
3 injection, which is characteristic of hydraulic  
4 fracturing.

5           And if -- if that's the central distinction  
6 on which this exemption or this continuation of the  
7 Clinton air policy was based, is that the right  
8 distinction to be made?

9           Couldn't we say that the proper distinction  
10 is the distinction between potentially dangerous  
11 injection, however long it is and safe injection? Why  
12 should we look to the duration of -- of the injection?  
13 Shouldn't we be looking at the potential danger of the  
14 potential toxicity of the injection?

15           MIKE EBERHARD: Again, millions of jobs --

16           RICHARD WARD: You have to speak louder.

17           MIKE EBERHARD: The history of science is  
18 behind the technology and the process. I don't know  
19 all the details that went into the negotiations on the  
20 original 1992 rule, but it's a short-term event. It's  
21 deep. It's isolated. There's not an issue with  
22 contaminated shallow waters.

23           There could possibly be with long-term  
24 injections. That's what the UIC controls is the  
25 Class-2 -- is Class-2 projection wells that are

1 designed for long-term injections. These are oil and  
2 gas wells.

3 Oil and gas wells are producers. So that's  
4 the distinction. These are production wells with a  
5 short-term pumping event versus a long-term injection  
6 well. That's -- that's the reason for the regulation  
7 the -- the way it was written.

8 RICHARD WARD: There's a hydrologic  
9 explanation, if you need to see it.

10 The COGCC website in the library under the  
11 San Juan Basin is a report on water well testing. If  
12 that is a report you've referred to when it shows only  
13 analysis of TDS, how can you say this shows no impact  
14 from hydraulic frac'ing when you don't test all the  
15 relevant chemical constituents in frac'ing chemicals,  
16 or is there a report that does show this analysis, the  
17 question is about.

18 DEBBIE BALDWIN: The history in the San Juan  
19 Basin --

20 RICHARD WARD: Speak up.

21 DEBBIE BALDWIN: The history in the San Juan  
22 Basin, the evolution of the monitoring done down there  
23 started with people's concerns primarily related to  
24 methane in water wells.

25 And so as a -- to investigate that issue and

1 to see whether or not CBM production was causing an  
2 increase in methane production, the -- the Oil and Gas  
3 Conservation Commission, BLM, industry, the county, the  
4 southern union partnered and developed this plan for  
5 monitoring water wells.

6 So in addition to TDS, we monitor from major  
7 anions, major cations, the occurrence of methane, the  
8 kind of methane that's in the water, electrical  
9 conductivity, PBH, presence of various kinds of  
10 nuisance bacteria.

11 And so it isn't just a matter of looking only  
12 at TDS. That if there were changes in the chemistry  
13 that were detectable -- if there were impacts from oil  
14 and gas activities, regardless of whether it was  
15 frac'ing or production, you would see a change in the  
16 chemistry of the water, not just in the -- there would  
17 be indicator chemicals, and that's what we've been  
18 analyzing, in addition to just the chemical fingerprint  
19 of the -- of the water.

20 If there was a communication between a  
21 producing well or a well that's being frac'd and the  
22 water well, you would see more than just the chemicals.  
23 These fracs are conducted under very high pressure, so  
24 you would see water wells that would be impacted by the  
25 pressure from the frac.

1           You'd also see if -- if a frac established a  
2           communication to a water well, you would see an  
3           increase in the gas production also. That's what the  
4           whole point of the frac is, so it's not just looking at  
5           only the chemistry of the water. It's looking in  
6           combination the major anions, major cations, the --  
7           whether the presence or absence of methane, and whether  
8           or not you've seen any impulse -- a pulse of pressure  
9           moving through a water well, so it isn't just looking  
10          at TDS.

11           RICHARD WARD: Okay. Question around pitless  
12          drilling. Why don't we have closed-system pitless  
13          drilling, and why aren't all VOCs captured or  
14          eliminated? Why is this not done on all sites?

15           I guess this question goes to industry.

16           DAVE CESARK: Okay. Pitless drilling is --  
17          is occurring certainly more and more often. It's a  
18          very expensive process. It can be conducted much more  
19          easily when -- when you're doing it on multiple well  
20          pads where efficiencies can be realized.

21           With exploratory drilling, it's very  
22          difficult, and the problem is is that it's just -- I  
23          don't know if there's such a thing as pitless drilling,  
24          quite frankly, because even in so-called pitless  
25          drilling, you still have to have an emergency pit in

1 case there were an emergency to occur and it were to  
2 exceed the tank on-site.

3 So I guess -- I guess I don't know how to  
4 answer that question fully.

5 RICHARD WARD: Yeah.

6 DEBBIE BALDWIN: But --

7 RICHARD WARD: From a state perspective, why  
8 not.

9 DEBBIE BALDWIN: From a state perspective --

10 RICHARD WARD: And the VOCs as well.

11 DEBBIE BALDWIN: The state regulations  
12 definitely encourage the use of what are called green  
13 completions, and Dave Cesark spoke to that -- the  
14 development or the -- the technology to capture this  
15 gas before -- you know, while the frac is flowing back.

16 There is a point where there will not be  
17 enough gas in the flowback to -- in order to put it  
18 into a pipeline. But as soon as there is enough gas to  
19 put it into a pipeline, there is more and more  
20 operators using these green completion techniques. And  
21 they are encouraged by our rules.

22 As far as pitless drilling is concerned,  
23 again, although we don't mandate it, but more and more  
24 operators are using pitless drilling. And I think up  
25 in Weld County where -- where probably most of the oil

1 and gas drilling is occurring, I bet 75, 80 percent of  
2 those drills are drilled using a pitless system these  
3 days.

4 RICHARD WARD: So this is the last question  
5 of the night, unless somebody has a burning question.

6 I read after frac'ing started in Arkansas,  
7 earthquakes increased in frequency a hundred-more-fold  
8 in Arkansas. What is the risk of increasing  
9 earthquakes due to frac'ing? Can they then also  
10 promote aquifer contamination?

11 Is anybody on the panel familiar with the  
12 Arkansas situation?

13 I guess -- I guess I could answer that. It  
14 actually -- the earthquakes -- because we just came  
15 from Arkansas and this question was asked, and since  
16 the panel is not familiar with it, I might as well take  
17 it.

18 What was said when we were in Arkansas was  
19 that that was not caused by frac'ing but it was caused  
20 by the underground injection of the produced water.  
21 And -- and that lubricated some faults that caused  
22 some -- four seismic events -- two, three, four seismic  
23 events.

24 Yes.

25 UNIDENTIFIED SPEAKER: I have a burning

1 question.

2 RICHARD WARD: Sure. A burning question?

3 And then just to build on this, can -- can  
4 earthquakes be caused by frac'ing? The seismicity  
5 associated with earthquakes, you saw on there -- we --  
6 actually, I just breezed through it. They do cause  
7 earthquakes, but they're a one to two on the Richter  
8 scale. It's like dropping --

9 MIKE EBERHARD: Negative on the Richter  
10 scale. Whatever that was, minus four.

11 RICHARD WARD: It's not measurable,  
12 essentially. But we can listen to the fracs, and  
13 that's how we can tell how far they go out, because  
14 they are creating a minor seismic event, but it's not  
15 anything that would presumably contaminate groundwater.

16 What the seismic data shows is that the fracs  
17 only propagate hundreds of feet and they're generally  
18 thousands of feet.

19 That's how it was answered in Arkansas.

20 UNIDENTIFIED SPEAKER: Thank you. So my  
21 question is to the BLM, since we have the BLM here  
22 tonight, it's about BLM development.

23 It was mentioned earlier that you have to --  
24 if you are going to allow protection on lands, such as  
25 the Roan Plateau, where the minerals can be extracted

1 from anywhere underneath of an area, can you  
2 nevertheless restrict where well pads and roads can go  
3 on that area, therefore enforcing, if you will,  
4 drilling from the edge, or something similar to that,  
5 and can that be done?

6 JERRY STRAHAN: Well, as part of our planning  
7 process, and part of the planning process on the road,  
8 those types of things were looked at and analyzed to a  
9 certain extent. Definitely protections are put in  
10 place for certain areas.

11 I don't think -- I don't think  
12 technologically the BLM actually knows whether or not  
13 that can be drilled from the edge or not. So analysis  
14 isn't based on a preset idea of drilling from the order  
15 of something.

16 The BLM analysis -- planning analysis looks  
17 more at the properties that need to be protected and  
18 the areas that need to be avoided. And then the areas  
19 that are left over are available.

20 DEBORAH NAPIER: My name is Deborah Napier.  
21 I do business as Golden Mean Consulting.

22 I have a question for Mr. Eberhard that I  
23 would like --

24 THE REPORTER: I'm sorry. Can you please  
25 slow down and speak up?

1 DEBORAH NAPIER: My name is Deborah Napier.  
2 I do business as Golden Mean Consulting.

3 My question is for Mr. Eberhard. And I want  
4 to first say thank you to the BLM and the panelists for  
5 coming tonight and for staying awake through all the  
6 questions.

7 Quick question. I was just over in Grand  
8 Junction for about a week, had a pretty good sense of  
9 what's going on in the community and would ask, since  
10 there's been so much discussion tonight about the  
11 economics of outdoor recreation, oil and gas  
12 development around the state, there is a significantly  
13 high unemployment level in Grand Junction.

14 And during a newscast it was also broadcast  
15 that the local childcare program for low-income parents  
16 had to be put out of business. They don't have any  
17 money, and so that ended, actually, in October. The  
18 report didn't come out until just last week.

19 But is there something that Halliburton can  
20 do for the Grand Junction community to help low-income  
21 parents either with part-time jobs, some sort of  
22 funding back into Mesa County's childcare program for  
23 low-income parents, so for those folks who do have  
24 jobs, will be able to keep them without children being  
25 put at risk for inconsistent childcare arrangements?

1 I just ask that, since we've had so much  
2 discussion here tonight about the economics.

3 Thank you.

4 MIKE EBERHARD: That's a long ways from  
5 hydraulic fracturing.

6 I think we try to be very good corporate  
7 citizens. In areas like Williston, North Dakota, we're  
8 actually building housing, so we can take some of the  
9 strain off of the local areas.

10 Grand Junction is an area where, boy, if you  
11 need gas prices at \$5, MCF, we can help a lot with  
12 activity picking up in that area. Gas prices are very  
13 depressed right now, and that's one of the issues with  
14 the site, and it kind of goes -- but we believe in  
15 sustainability in the areas that we work in -- work at.

16 We've been in Grand Junction for a long time.  
17 We do what we can. We support a lot the of community  
18 operations. In our tax basis area there are a lot of  
19 things that we try to do. I don't know specifically to  
20 your case. I can't do anything myself other than send  
21 me a card, and I'll send it up to -- to corporate to  
22 take a look at it.

23 We do -- do support a lot of things. A lot  
24 of money goes back into the communities along with all  
25 the operators in the area.

1           DORIS LEDUE: My name is Doris -- Doris  
2 LeDue. And I joined together with several of my  
3 neighbors and people from the Front Range and we formed  
4 the South Park Coalition.

5           And so I'm here to talk about -- it's  
6 actually a -- called the Federal Bald Hill Unit. It's  
7 37,000 acres up in the middle of Park County, middle of  
8 Colorado. If you take an X and do a diagonal, that's  
9 where we're at. And I really believe that this area is  
10 an area that is one of those that's too precious to  
11 develop. There -- we're at the head waters for the  
12 Denver water supply.

13           And part of that 37,000 acres is the James  
14 Mark Jones Wildlife Area that you heard Peggy Kochman  
15 speak about earlier, so I wanted to just raise a red  
16 flag, that we only have one well drilled there now.  
17 And this summer, maybe in a couple of weeks, now  
18 they're going to do horizontal frac -- one horizontal  
19 frac on one well.

20           And I would really like to just put out a  
21 prayer and a plea to the BLM to really consider this  
22 area seriously for an environmental impact statement.

23           What has been occurring at this point is  
24 there's actually four wells that have been approved at  
25 the COGCC and the strategy from the operator is to

1 piecemeal this thing and to just go little by little,  
2 no big deal. Don't worry about it. It's an  
3 exploratory well.

4 And so we have an opportunity here to save a  
5 very precious area in Colorado for everybody's use, not  
6 just the local gas industry's use. If they have their  
7 way, they're going to have 300 wells, each one of those  
8 frac'd I don't know how many times, so it's going to  
9 ruin that area.

10 So that's why I came tonight. I wanted to  
11 also make sure that you were aware that this particular  
12 area, the potential water quality impact on Denver's  
13 water supply and the wells relied on by local residents  
14 for domestic use is simply unknown.

15 A factor that should give pause to everybody  
16 is that the area is highly mineralized with uranium  
17 present in recoverable quantities. Ramon Castro talked  
18 about that.

19 The uranium folks didn't come there because  
20 there was no uranium. If the natural gas folks  
21 don't -- don't pay attention, if BLM doesn't pay  
22 attention, that uranium is going to get released in the  
23 water supply.

24 So I think it's an area that -- that should  
25 be off limits. I don't think it's a good area for

1 development, and I guess that works in our -- in our  
2 benefit, if -- if the legislatures would not allow the  
3 development.

4 The chance -- the chance that this uranium  
5 might migrate is relatively high. Denver has no way of  
6 treating for radioactive material at the present time.  
7 Local users would have to employ reverse osmosis  
8 systems.

9 Much of South Park is believed to be  
10 underlain with the Niobrara formation. The mineral  
11 rights to roughly 300,000 acres of the park is owned by  
12 either the fed or the state. No evaluation of what  
13 leasing on this scale or even the 80,000 acres already  
14 leased might mean, has been done.

15 It's our contention the rural -- rural  
16 wildlife and recreational values would unavoidably be  
17 lost to large-scale industrialization.

18 So I guess my -- my -- my final question is  
19 to -- a comment. First, many thanks to Cathy and  
20 Michelle. I -- I so appreciate knowing that there is  
21 allies out there and my -- and I'm lucky to have been  
22 here at the same time that you were here so that you  
23 could hear about what's happening in Park County and  
24 maybe you could give us a hand.

25 And my question to BLM, what -- what -- since

1 this is a unitized area, 37,000 acres, why -- why has  
2 an EIS not been required? Why is it that you guys did  
3 the unitization but yet you're allowing onesies,  
4 twosies -- well, foursies now? It's -- so that's my  
5 question.

6 JERRY STRAHAN: Okay. It's a little bit out  
7 of my area, but I would like to try and explain. I  
8 think -- I think I can get to your point.

9 The leasing in that area was done under an  
10 existing plan, which wasn't an EIS. It is -- it is a  
11 bit dated. I think it was 1991, so an EIS was done at  
12 that time, and we are still operating under that  
13 existing EIS at this time.

14 DEBORAH NAPIER: A ten-year-old EIS?

15 JERRY STRAHAN: It's older than that, 1991, I  
16 believe, so things have changed. You may have a good  
17 point there.

18 Again, I'll take your comments to our  
19 planning department and talk to them about it.

20 As far as unitization, unitization really  
21 doesn't have any effect on -- on existing leases other  
22 than to join them together as a cooperative unit. It's  
23 a -- it's an administrative function. It doesn't -- it  
24 doesn't really change any of the operations on the  
25 ground.

1           The operators still have to drill the wells  
2 within specified time frame, but the practical aspect  
3 of the unit in a situation like yours, where they don't  
4 really know if there's any oil and gas up there, is it  
5 tends to slow things down. It tends to slow drilling  
6 down and make it more controlled.

7           Individual leases are required to drill  
8 within the initial primary term of the lease, which is  
9 ten years. And each and every lease has to drill a  
10 well or the lease is returned to the federal  
11 government.

12           When it's unitized in an exploratory  
13 situation like that, it means that they only have to  
14 drill one well, and then continue to drill in that  
15 logical orderly manner. So that's really all the unit  
16 does.

17           It doesn't -- it doesn't really have any  
18 impact on the surface or anything like that. Because  
19 the wells that need to be drilled are still going to be  
20 drilled in order to hold the leases. It's just going  
21 to go at a slower pace.

22           Do you have a following question? I -- I  
23 hope I explained that. And I can meet -- I can meet  
24 with you after, if you like.

25           DEBORAH NAPIER: I'll listen to the tape.

1 JERRY STRAHAN: Okay.

2 DEBORAH NAPIER: I'm -- I'm trying to learn  
3 as I go so I don't want to waste everybody's time.

4 JERRY STRAHAN: If we get done here, I'll  
5 just come and talk to you.

6 RICHARD WARD: And that's a good lead-in.  
7 The tape will be on [www.BLM.gov](http://www.BLM.gov), slash, C O.

8 DEBORAH NAPIER: How long will the  
9 unitization last?

10 JERRY STRAHAN: You want me to take that?

11 RICHARD WARD: How long does the unitization  
12 last?

13 JERRY STRAHAN: Unitization lasts until they  
14 get production in marketable quantities. If they -- if  
15 they drill and don't -- and don't get anything, then  
16 they have to drill again within a certain time frame.  
17 If they don't drill, the unit -- the unit expires.

18 UNIDENTIFIED SPEAKER: But does it ever  
19 expire?

20 JERRY STRAHAN: If they continue to drill --  
21 the scenario that you're saying is if they -- they  
22 drill a well and it's a dry hole, yes. If they  
23 continue to drill, the unit continues. But most  
24 companies won't continue to drill dry hole after dry  
25 hole.

1           So they're -- what they're looking for is a  
2 producer. Once they have a producer, then the unit is  
3 verified, and it's just like a lease. You have a lease  
4 and you get a producing well on it, you get to continue  
5 to hold that lease as long as you're paying the  
6 royalties.

7           RICHARD WARD: Thank you.

8           STAN DEMPSEY: Good evening. My name is Stan  
9 Dempsey. I'm president for the Colorado Petroleum  
10 Association.

11          THE REPORTER: Can you hold the mic up?

12          RICHARD WARD: You have to hold the mic up.

13          STAN DEMPSEY: Thank you. I'm soft-spoken.

14                 But a number of our members operate on  
15 federal lands, including BLM lands, and it's our view  
16 that current BLM regulations and permitting processes  
17 in conjunction with Oil and Gas Conservation Commission  
18 of Colorado its rules provide strong oversight of  
19 hydraulic fracturing activities.

20                 I guess my question to the state  
21 representative and to the BLM, how does all that work  
22 together between BLM's process and the state's process?  
23 And is it -- is my understanding correct that state's  
24 rules apply, many cases including the rules covering  
25 hydraulic fracturing on BLM properties?

1 Thank you.

2 DAVE NESLIN: The answer would be yes,  
3 Mr. Dempsey. State rules apply. We have an MOU with  
4 BLM that attempts to ensure that we're coordinating our  
5 permitting activities with federal land-managing  
6 agency, and that would be the answer.

7 CATHY PURVES: I have a question, actually,  
8 for Halliburton.

9 Part of Trout Unlimited's concern with  
10 hydraulic fracturing is not just about surface --  
11 surface impact. And as we saw through your --  
12 Richard's high-quality video, there are a lot of --  
13 there's a lot of infrastructure that takes place to do  
14 frac'ing.

15 Does Halliburton see in the future any  
16 technology that would minimize the number of frac'ing  
17 trucks and equipment that it takes to do that, to make  
18 less of an impact on the surface as well?

19 MIKE EBERHARD: Yes. That was one of the  
20 slides I showed where we're working on the footprint,  
21 such as working on --

22 RICHARD WARD: You have to talk in the mic.

23 MIKE EBERHARD: -- new pumping equipment that  
24 allow us to give more horsepower out of a single unit.  
25 There was a number of ways we're looking at trying to

1 reduce the impacts. So we're very conscious of it.

2 Exposure and miles -- safety is one of our  
3 concerns. Minimize as much of that as we can. So it's  
4 still a function of how many times something occurs.  
5 We're trying to minimize that. Yes, we're very  
6 actively proactive on that.

7 DAVE CESARK: You might -- might talk about  
8 how remote fracs are formed from one single well site,  
9 and numerous remote pads can be frac'd. You can be  
10 thousands of feet away from the site. I think  
11 that's -- that's a huge breakthrough.

12 RICHARD WARD: So multipad drilling?

13 DAVE CESARK: This is -- this is actually  
14 multipad frac'ing, where from one centralized location,  
15 they can now frac multiple sites as far away as a  
16 thousand feet. That's another way to eliminate traffic  
17 and impact.

18 JOSHUA RUSCHHOUP: Hi. Finally made it to  
19 the end of the queue from earlier.

20 My name is Joshua Ruschhoup. I'm the Rocky  
21 Mountain chapter director for Sierra Club, and I just  
22 wanted to start out by saying Sierra Club definitely  
23 supports the EPA's life-cycle study over hydraulic  
24 fracturing, and we're looking forward to the results of  
25 that study.

1           In addition to that, there haven't been too  
2 many people probing on the ingredients directly in the  
3 frac'ing fluids, and so that's where my questions  
4 center from.

5           You mentioned the use of household products  
6 in hydraulic fracturing fluids. And the comment was  
7 made that those things from people's household have the  
8 ingredient lists on them.

9           So I just wanted to dig a little deeper on  
10 that, why is industry, Dave and Mike, so much fighting  
11 against the revealing what your ingredients are?  
12 You're talking about using things that already have the  
13 ingredients listed. Why don't you list those  
14 ingredients that you're using?

15           And that is obviously so important to  
16 everybody here. There hasn't been -- other than  
17 industry-supported people, one comment from the public  
18 that has supported hydraulic fracturing the entire  
19 night, which is one of the reasons why I waited so long  
20 to hear one.

21           So I'd like to hear why you're fighting  
22 legislatively, publicly, showing what your ingredients  
23 are.

24           And just as an aside, Dave, because the  
25 public will use it against you is not an excuse.

1 DAVE CESARK: Okay.

2 JOSHUA RUSCHHOPT: Even bad food has  
3 ingredients listed on their --

4 DAVE CESARK: Maybe I'll -- point of  
5 clarification between -- between, its ingredients and  
6 super formula, we'll call it. I like to use the  
7 Coca-Cola --

8 JOSHUA RUSCHHOPT: Coca-Cola has a secret  
9 formula, but they still show the ingredients.

10 DAVE CESARK: Right. And if you'd let me  
11 explain, they do. Coca-Cola, you drink a can of Coke,  
12 and you look at the can and it lists the ingredients on  
13 the can, but they don't -- they're never going to tell  
14 you what their secret formula is because it gives them  
15 a competitive advantage.

16 And -- and I'll let Mike speak because he --  
17 he works for a company that -- that does the hydraulic  
18 fracturing. But, you know, that's my understanding.  
19 We -- we disclose the ingredients being disclosed  
20 now --

21 JOSHUA RUSCHHOPT: Voluntarily.

22 DAVE CESARK: -- on websites like -- yeah,  
23 like on Frac Focus. They're on those websites now.  
24 They're being voluntarily disclosed --

25 JOSHUA RUSCHHOPT: Sorry.

1           DAVE CESARK: But companies are -- are not --  
2 you know, and I can understand that, and again, I'll  
3 let Mike speak to this because this is his bailiwick,  
4 but, you know, there's -- there's a competitive  
5 advantage between a secret formula versus ingredients.

6           JOSHUA RUSCHHOUP: Voluntary regulation is  
7 not good for the public. The FDA regulates what  
8 information is shared with the ingredients of food, and  
9 regulation regulated you guys saying, what are the  
10 ingredients? May not have to reveal the exact formula.

11          DAVE CESARK: Well, the ingredients are --  
12 are public, and even the exact formula is shared with  
13 the regulatory agencies, and I think the COGCC can  
14 attest to this, as Rules 205, a new rule. Even the  
15 secret formulas are shared with first responders and  
16 the regulatory agencies so they can react if there's an  
17 incident.

18          JOSHUA RUSCHHOUP: When -- when -- when it's  
19 asked?

20          DAVE CESARK: Yes. It's a rule.

21          JOSHUA RUSCHHOUP: But there is no public  
22 regulation of providing that information, and your --  
23 you guys had every chance -- these are some of the  
24 excuses given -- are fighting.

25          MIKE EBERHARD: If I may, number one, I would

1 like to clarify some points. For every chemical  
2 delivered to a location, there's an MSDS available,  
3 Material Safety Data Sheets. Every chemical that's  
4 used, sure, they exist.

5 JOSHUA RUSCHHOIPT: We don't know what you're  
6 putting into the ground.

7 MIKE EBERHARD: Material Safety Data Sheet  
8 allows anybody to handle hazardous response, emergency  
9 response for that chemical, spill response. So  
10 anything that happens on surface, the information, as  
11 required by the federal government, SARA Title III, is  
12 available on every fence --

13 JOSHUA RUSCHHOIPT: I'm wondering at your  
14 drill pad, do you put a list of those chemicals that  
15 you're using at that drill pad?

16 MIKE EBERHARD: MSDS sheets are available for  
17 every chemical delivered to that location.

18 Now, the specific ingredients, every  
19 ingredient that's required to be reported by SARA  
20 Title III, is reported on that MSDS with very few  
21 exceptions. There's just a handful of chemicals that  
22 have confidential business information attached to it.

23 The reason that is there because, number one,  
24 you talked about the FDA. We're not ingesting these  
25 foods -- frac fluids. There's a big difference between

1 injecting -- ingesting foods and what we're injected  
2 down a hole. We feel -- we fulfill every federal  
3 regulation that any other industry organization  
4 throughout the United States has to do for the  
5 materials that we use.

6 We spent a lot of money researching them to  
7 develop and -- and improve chemicals. Halliburton  
8 doesn't manufacture the chemicals. The chemical  
9 manufacturers do it. We work on how to tweak them.  
10 They'll come to us with something and we figure out to  
11 make it a maybe little bit better or a little bit  
12 cheaper, so we can reduce our costs.

13 I don't want my competition to know how I can  
14 make something cheaper but is still as effective as my  
15 competitors. If I have to go through the patent  
16 process, it can take years to go through that. The  
17 federal government allows for confidential business  
18 information as a way of taking care of that.

19 If there is a spill, if there is an incident,  
20 if there's emergency response, we will disclose, as  
21 Rule 205 states, to state officials, to the medical  
22 officials to the 147 hotline, anything they need to  
23 know to treat and -- treat an emergency situation.

24 So the disclosure -- voluntary disclosure,  
25 cast numbers that are out there, we fulfill all the

1 obligations with the exception of CBI, and that's a  
2 handful of things that I know that's a cloak of -- of  
3 secrecy, if you want to put it that way, or mistrust, I  
4 think is a better way of putting it, but you can find  
5 that WD-40 is a trade secret. You won't find the  
6 ingredients there.

7 JOSHUA RUSCHHOPT: They still have the  
8 ingredients on the side of the bottle.

9 MIKE EBERHARD: No, they don't. Four things  
10 that they list, it's not -- so I mean, number two, you  
11 talk about it will be used against you. It's one of  
12 the products that we have that's on the list of  
13 endocrine disruptors and carcinogen, causes silicosis,  
14 it's sand, but the MSDS listed it -- listed it as a  
15 carcinogen. That's listed as one of the carcinogens.

16 So, yeah, it does get used against us. So  
17 there's some sensitivity there also. Because there are  
18 a lot of people that use things out of context.

19 So the -- the idea of -- of everything is a  
20 secret, no, that's not the case. Everything is  
21 reported by -- as federal government requires, MSDSs  
22 are out there. And constituents that are required to  
23 be reported are reported.

24 RICHARD WARD: I'm not sure you're going to  
25 get anything else in terms of a reply.

1           Is there anyone else who would like to --  
2           it's 10:00. Last -- last -- everybody agree last  
3           question? Can you make it short?

4           WES WILSON: I'll try to make it important.  
5           Wes Wilson again.

6           One thing I haven't heard discussed is the  
7           lack of scientific information we as a nation have with  
8           respect to exposure to these volatile organic  
9           components of the frac'ing fluid as they come off the  
10          reserve bin.

11          You -- you may know, Mr. Neslin, that --

12          UNIDENTIFIED SPEAKER: Speak up.

13          WES WILSON: You may know, Mr. Neslin, when  
14          the Santa Monica (sic) Institute in St. Mary's Hospital  
15          did a health impact survey for Garfield County, they  
16          pointed to the need to study volatile emissions of the  
17          frac'ing fluids coming back to the reserve bins.

18          My question is -- is mostly directed to BLM,  
19          the only state representative -- only federal  
20          representative here. Despite the EPA announcing last  
21          July that it's national study that investigated air  
22          pathway, EPA has pulled back from that.

23          I want to make sure it's clear in the record  
24          that I am requesting that BLM go forward to the  
25          Capitol, the interior department, energy department,

1 the EPA give consideration to identifying the air  
2 pathway as the Sacramento Institute has identified as a  
3 possible health risk, the number of health complaints  
4 associated with this industry is common. Complaints  
5 are common in Garfield County, Weld County, Pavillion,  
6 Wyoming; Dimock, Pennsylvania; Fort Worth, Texas.

7 Yet the EPA has announced it would withdraw  
8 from its original intent to look at frac'ing fluids  
9 volatilizing and being inhaled.

10 So I just want to make it clear in the record  
11 that I'm requesting that you take back to the secretary  
12 a discussion by the Capitol for where is the proper  
13 science to be done to be -- to investigate whether the  
14 common complaints from citizens living near the  
15 industry have with respect to that pathway.

16 And I'll leave one final question for the  
17 entire panel. Would you live within a quarter of a  
18 mile of frac'd -- open frac pit? Would you --  
19 appreciate if your family lived within a quarter of  
20 mile of an open pit that had frac'ing fluids on it?

21 MIKE EBERHARD: I used to stand on a blender  
22 that had frac'ing fluids in it.

23 UNIDENTIFIED SPEAKER: Well, that explains  
24 it.

25 WES WILSON: Would you live there? Would you

1 want your children living there?

2 MIKE EBERHARD: Sir, as everybody says today,  
3 I'm a member of this human race also. I would not do  
4 anything I thought would jeopardize the human race. My  
5 son's --

6 UNIDENTIFIED SPEAKER: You didn't answer the  
7 question.

8 MIKE EBERHARD: My son is in this audience.  
9 If I thought I was endangering him or anybody else, I  
10 would not be doing it.

11 UNIDENTIFIED SPEAKER: Okay.

12 RICHARD WARD: Okay. Helen would just like  
13 to say thank you.

14 HELEN HANKINS: First out of all, I think our  
15 panel deserves a round of applause.

16 (Applause.)

17 HELEN HANKINS: I'd like to thank them for  
18 their presentations and their answers, and I thank all  
19 of you who persisted to this late hour, and I  
20 appreciate your questions and participation as well.  
21 And to our facilitator, Richard, thank you very much.

22 (The meeting concluded at  
23 9:59 p.m., April 25, 2011.)

24

25

1 STATE OF COLORADO)

2 )ss. REPORTER'S CERTIFICATE

3 COUNTY OF LARIMER)

4 I, Kristy R. Brandt, do hereby certify that  
5 I am a Registered Professional Reporter and Notary  
6 Public within the State of Colorado.

7 I further certify that this public forum was  
8 taken in shorthand by me at the time and place herein  
9 set forth, that it was thereafter reduced to  
10 typewritten form, and that the foregoing constitutes a  
11 true and correct transcript to the best of my  
12 abilities.

13 In witness whereof, I have affixed my  
14 signature and seal this 4th day of May, 2011.

15 My commission expires July 5, 2012.

16

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\_\_\_\_\_  
Kristy R. Brandt  
Registered Professional Reporter

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