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Ken Salazar:

It being about 1:00 in the afternoon we can go ahead and get started. Let me first of all introduce myself. I'm Ken Salazar. I'm the Secretary of the Interior and we are in South Interior, which is a very special place in the history of our country because it was actually in this building where all the plans and the overseeing of World War II occurred in several of the conference rooms that are upstairs.

And this is one of the rooms that we have used for some of our major gatherings over the last several years. Let me thank all of you for coming here today to help us address the issue of natural gas and fracturing techniques that are used with respect to natural gas.

I particularly want to thank my colleague and friend Carol Browner, who is here from the White House who will speak in a minute about natural gas issues and how what we are doing here relates to what the administration is doing agenda wide.

I also want to thank Deputy Secretary David Hayes. David has been at the forefront in terms of putting together this conference and I appreciate the work

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of him and the people who worked with him and appreciate the attendance of

all the members of industry who are here as well. Marcilynn Burke later on

will speak for the Bureau of Land Management. Bob Abbey I think is on the

road today but know that he and I have had many conversations about

hydraulic fracturing on public lands.

Let me just make a quick opening comment and then introduce Carol. When

we look at the energy needs of the country from the very beginning of the

Obama Administration we have seen a very broad energy portfolio.

Yes, we have pushed very hard on moving forward with developing a whole

new frontier with renewable energy resources by capturing the power of the

sun and the power of the wind and the power of geothermal and many places

around our country including in the offshore.

We also have said that as we move forward with that new energy frontier the

President's comprehensive energy plan also has in it the use of conventional

oil and gas and also a bright future for natural gas and that's why we have

been supportive of efforts such as the Alaska Natural Gas Pipeline and other

efforts related to natural gas.

There are really two policy cornerstones from my point of view that we as an

administration have reached that conclusion. The first is that natural gas is in

fact an abundant resource, which we control here in the United States of

America.

So when we talk about the underpinnings of our energy agenda and we talk

about energy independence and economic security, you have to look at natural

gas through the prism of those national underpinnings, which are part of this

administration's energy program.

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In addition to that you all know in this room that this President and this administration have been concerned about what we do with the challenges that we face with climate change. And when you compare natural gas and the emissions that are caused by natural gas in comparison to other forms of fuel, you know that it is a cleaner fuel. And so from our point of view, bottom line is that there is a bright future with respect to natural gas here in America.

And you will see policies of the administration and the Department of the Interior that will push us in that direction. Now we're not the only ones that are looking at these issues. EPA and BQ and others are also taking a look at hydraulic fracturing. But for us in the Department of the Interior, it's an important part of our job because just our one agency alone, the Bureau of Land Management oversees approximately 250 million acres of land across America.

And many of those lands are very resource rich in natural gas so we want to make sure that as natural gas is developed on BLM land that it is developed in a way that is going to be protective of the environment and allow the natural gas to be produced from these areas. About 11% of the nation's natural gas supplies, 11% of them actually occur on BLM lands here in our country where we lease about 12 million acres.

That's a lot of the real estate that belongs to the American public that we leased out for natural gas production. So it's very much a part of what we are doing here at Interior. I think the keystone issue that we're here to address today is how we move forward with respect to the issue of fracking. The issue of fracking has become a hot and very difficult issue across the country and not only on public lands but on private lands as well.

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And there are those who would say that there ought not to be any fracking at

all but those of you who are here from the industry know that with all the

technological advances that have been made over the last several decades

there is a lot more opportunity for natural gas frankly because of the fact that

fracking is being used. That is how in fact we have been able to identify all

the additional natural gas resources and reserves that we have here on this

continent.

So the question really in my mind is how we move forward in a way that can

reassure the American public that what we are doing is in fact safe and is in

fact protective of the environment. Now within the Department of the Interior

and the Bureau for Land Management we will be considering issuing a policy

that will deal with the issue of disclosure requirements with respect to the

fluids that are used with hydraulic fracturing.

Now I know that what happens is when you raise that issue you have some

members of industry saying no, you ought not to go in that direction at all for

those arguments off and on over the last decade. And the argument is that

those are issues and information, which is proprietary. But on the other hand

there are those that argue that the best interest for the future of natural gas is to

make sure that there is transparency with respect to that issue so that

everybody knows what is being injected into the underground.

And I know there are different points of view among industry on that so we

have not yet settled at BLM or the Department of the Interior on how exactly

we are going to move forward with respect to that issue. And so David Hayes

and Marcilynn Burke and Bob Abbey and others who are working on this

issue with me will help us figure out how we're going to move forward on this

policy with respect to hydraulic fracking on public land.

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So let me just say again for us today is an opportunity to hear from all of you

and to learn from all of you on what we ought to be doing with respect to this

very important issue for the future of our nation's energy security. And we

will take the information that we assemble from this meeting today and over

the weeks and months ahead we'll make some decisions about how we are

going to move forward on this particular issue. Let me at this point introduce

my colleague Carol Browner.

Carol and I have worked together on a number of issues over the last several

years. I see many of the people here in this room who actually helped us work

through the nightmare of the Deepwater Horizon and I can tell you that in her

leadership on that issue that she did an extraordinary job in helping the United

States of America deal with an issue, which no one wanted to happen, neither

the industry nor the environmentalists nor the government regulators nor

anyone.

But it did happen and we have worked through that issue with some chapters

ahead of us. But we could not have done that without the coordination and

leadership of the Director of Energy and Climate Change at the White House,

Carol Browner. Carol.

Carol Browner:

Thank you Secretary Salazar for that introduction and thank you for all of the

tremendous leadership and good work that you are doing to help chart a new

course for our country in terms of energy, energy independence and energy

security.

Let me also thank all of you for taking the time to be here today. I am very

pleased that I am able to join you. I apologize that I am not able to stay but I

did want to come and at least welcome you and say a few words about the task

that is before you. When I look around this room I see friends from the

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environmental community, partners from the business community and

colleagues from government.

And inevitably we have our differences. But I think that what today is about is

trying to set aside those differences and find some common ground, find some

ways in which we can work together. Now I think we all share a commitment

to energy independence, to clean energy jobs and a reduction in the pollutants

to contribute to global warming. Certainly that has been a cornerstone of

belief for this administration.

We share that commitment and that is why we have worked tirelessly to

achieve these goals since the day the President came to office. Less than a

month after taking office the President signed the Recovery Act, which

include more than \$90 billion in clean energy investments. The New York

Times referred to the Recovery Act as the largest energy bill in the history of

our country.

And through those investments we have weatherized more than a quarter

million of homes, deployed 2 million spark meters to cut energy use in utility

bills for American homes and businesses. We have put the country on pace to

double domestic clean energy production by 2012 and we have added

hundreds of thousands of jobs to the new clean energy economy.

And under the Secretary's leadership we have permitted more new wind and

solar on federal lands than at any other time in the history of our country.

Working with the auto manufacturers we set tough new fuel economy

standards and the first ever greenhouse gas emissions standards for cars and

light trucks. These standards will save nearly 2 billion barrels of oil in

consumers' money every time they fill up their tank.

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We're now working through EPA and the Department of Transportation with the truck industry to develop the first ever fuel economy standards for heavy duty trucks. Pursuant to an executive order signed by the President last fall, federal agencies are also providing leadership. Together the federal government will reduce greenhouse gas emissions 28% by 2020.

Earlier this year the navy successfully conducted a supersonic flight of an FA-18 jet fighter known as the Green Hornet on a biofuel blend. It was pretty impressive. Now just imagine if all of our military aircraft could fly on homemade biofuels. While, as I noted, we have our differences in today's conversation, it is important that we work together to start to solve these problems.

Natural gas offers a tremendous opportunity for our country. It offers us an opportunity to fuel our cars, to create electricity on fuels right here in the United States. We understand that it will mean less dependence on foreign oil if we're able to do this right, a reduction in carbon pollution and a whole host of clean energy jobs for American workers.

Now in Congress obviously things are going to be different. We're going to face a new Congress. But I want to just make sure that everyone understands as the President said a few weeks ago, that doesn't mean that we won't continue to work in a bipartisan manner to reach across the aisle to find areas where we can achieve agreement.

And we believe and the President said this in his press conference, that natural gas is one of those areas, that there is broad support for increased domestic production and that we should be able to achieve that goal by working in a bipartisan manner with the new members of Congress, with the old members

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of Congress and with all of you. You know, as many of you know I served at

EPA many, many years ago now.

But at that time in our country's history we had a big debate. It was a debate

about whether or not we had to choose between a healthy economy and a

strong, clean environment. We don't believe we have to choose. Yes, we are

in very difficult economic times. We're all working hard to find our way

through those. But we don't have to choose.

environment. And as you continue to do your work today and to think about

the issue of natural gas and hydraulic fracturing and all of the other issues

By working together we can have both a healthy economy and a healthy

associated with it, let's keep our eye on the idea of a strong economy and a

healthy environment. And so I thank you for what you are about to do today.

I have the utmost confidence that you will find common ground, perhaps not

on everything, but I hope on enough so that we can continue this dialogue and

so that we can realize all of the opportunities that natural gas can mean for our

environment and for our economy. And with that let me introduce the next

speaker, Marcilynn Burke, who is the Deputy Director at the Bureau of Land

Management.

Under her leadership BLM has taken great strides in developing domestic

energy in an environmentally responsible and scientifically sound manner that

benefits all the American people. Thank you very much and Marcie.

Marcilynn Burke: Good afternoon. I on behalf of the Bureau of Land Management and our

Director Bob Abbey would like to thank you all for joining us here today for a

very timely and important discussion. As the Secretary and Carol Browner

just explained, oil and natural gas are going to be, they are and will continue

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to be for many years to come a cornerstone of our nation's diversified energy

portfolio.

We need to responsibly develop those resources to help reduce our dependence on foreign oil while at the same time using them in a thoughtful and balanced way that allows us to protect our signature landscape and cultural resources for future generations. The growth of our nation's domestic supply of clean natural gas has been possible in large part due to the

technological advancement in hydraulic fracturing.

And that is a common technique, which is used today in the oil and gas industry to increase the well's ability to produce oil or gas in commercial quantities. After drilling into the reservoir's rocks containing hydrocarbons, producers use hydraulic fracturing to stimulate oil and gas production, that is to create a crack or a fracture so that oil and gas may more freely flow and increase production.

We at the BLM estimate that about 90% of the wells currently drilled on public land are stimulated by hydraulic fracturing technique. This number has steadily increased over the years as oil and gas producers are developing geologic formations that are much less permeable than the ones drilled in the past. Despite this growth the BLM's current regulations on hydraulic fracturing operations are limited.

In fact, there are only a few requirements with respect to hydraulic fracturing. And even those regulations may not be as salient today as they were when we first promulgated them. For example, the regulations specify different requirements for routine operations versus non-routine operations. If an operator is performing a routine hydraulic fracturing of a well the operator must simply notify and report to the BLM within 30 days of that activity.

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If the operator wishes to undertake a non-routine fracturing operation then the operator must obtain prior approval from the BLM before such operations may begin. The regulations however, don't define what is routine and what is non-routine. And in practice what is considered routine varies by a number of factors including geographic location, geologic formation and the common practices of industry within a particular oil and gas field.

And what was non-routine even a decade ago may in fact be routine in fact today. So as you know, the increasing use of hydraulic fracturing has raised a number of concerns about the potential impacts on both water quality and availability, particularly with respect to the chemical composition of fracturing fluids and the fracturing methods that are used. Operators are required at all times to ensure that water supplies are free or protected from contamination during drilling and subsequent activities.

However, the BLM at this time receives little information about the procedures or the materials used when hydraulic fracturing is employed. In fact, there is no specific requirement for operators to disclose the chemicals used even in non-routine fracturing operations. Some stakeholders believe that we as regulators would be able to react more quickly in instances of contamination if we knew the exact composition of these chemicals.

Most would agree though that given the questions being raised today about the technology, having more information about these materials and the processes would serve the public well. Some of these issues are being addressed by the Environmental Protection Agency. Others are being addressed by the General Accountability Office. But as the Secretary noted, the BLM manages approximately 250 million acres and we have currently 48 million leases on those public lands.

Is that right? 48,000 - yeah, I was thinking million. 48,000 - and we have 22,000 of those are in producing status and of those, currently 12,000 are currently producing and 26,000 of those are in non-producing status. So it's clear that as the stewards of the nation's natural resources on public lands that we along with our partner agencies and industry must work together to ensure that hydraulic fracturing and other technologies that are designed to boost production are used in a clean and safe manner possible.

So I too am looking forward to the discussion today and to continuing to work with all of you as we move forward. And now I'd like to introduce Steve Black and Steve is the Counselor to the Secretary of the Interior. He advises the Secretary on energy and climate matters and related public land issues and also he works in both renewable and conventional energy. And with that I will turn it over to Steve. Thank you.

Steve Black:

Thank you Marcilynn and Mr. Secretary and thank you all for joining us today. Could I ask our first panelists to come on up and join me and then I'll introduce you?

We're fortunate today to have two panels of experts who have worked for many years on the issues that you've heard described already today. I won't spend more time doing that but I will interact with each of you I hope and with our members of the panel today. Welcome. Thank you for joining us. We really are fortunate to have the level of expertise and commitment to these issues today.

We as the Secretary mentioned, hope that today continues a dialogue that many of you have been engaged in for some time, one that is aimed toward

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working together on our mutual objective of ensuring that industry maintains

its license to develop clean natural gas both on public lands and private lands.

Our emphasis today of course is in the west and so we have asked these

experts who have a great deal of experience, many of them 30-35 years in

their respective industries and companies, working on natural gas

development on public lands both BLM lands and split estate lands in the

Rocky Mountain west. So with that I will introduce each of you very briefly.

We are going to ask each of the panel members to give about a five to seven

minute brief presentation.

I will interrupt them occasionally but not too often with a few questions. We

do encourage members who are here to write questions on the cards that have

been provided. We have a couple of folks (Emily) and (Neville), do you want

to identify yourselves? And (Emily) and (Neville) will be walking up and

down the aisles collecting questions from each of you.

So if you have questions for one or more of the panelists please write those

down. Please be brief and get straight to the point and then we'll try to ask as

many of those as we have time for. So without further ado Fred, I don't have a

bio for you and I apologize. But I do know that as Vice President for Pressure

Pumping previously with BJ Services, now Baker Hughes, you are the expert

in the room, at least so I'm told.

Fred is and I hope Fred will provide - we're going to get into the weeds a little

bit today and talk about some of the technical challenges that industry faces in

developing natural gas particularly from unconventional resources, tight shale

formations. There are technological solutions to many of the problems that

have been identified and Fred has a lot of experience in a number of different

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geologic regions of the country on fracking. So he'll share some of that

expertise.

Sherri has been with ExxonMobil I think for 30 years, 35 years? I don't want

to embarrass anybody today. But Sherri too brings a great deal of experience,

has worked throughout the organization of ExxonMobil on natural gas

development managing various regions of Exxon's business in the country

and after I think five or six years with Safety, Environment and Health, now

holds the title of Vice President for Environmental Policy and Planning. So

thank you Sherri for sharing your comments. She has also done a lot of work

on sustainability and we appreciate that perspective today.

Jim Kleckner, also 35 years of experience I'm told with Anadarko. Anadarko

is of course one of the largest independent gas producers in the country, has

operations both onshore and offshore and Jim is responsible for those

operations based out of the Denver office and a Colorado School of Mines

graduate. Peter Lehner brings a great deal of experience and expertise on

water and water quality both at NRDC and for the Attorney General's Office

in New York.

NRDC of course has been a leader in the environmental community in

identifying practical solutions and consensus positions that serve as a model

for both regulators and industry so Peter, thank you for sharing your expertise

with us today. And Steve Moyer from Trout Unlimited - you may be

wondering why we've selected this mix of panelists but I think it's important

to emphasize that one of our stewardship obligations at the Department of the

Interior is protecting fish and wildlife.

The sportsman organizations represented today by Steve and Trout Unlimited

have a keen interest in ensuring that as we develop our natural resources on

public lands in the west we do so in a way that protects and enhances wildlife habitat, trout habitat in Steve's case in particular, but more broadly wildlife on land. And so I know Steve will address that as well. We want to enhance wildlife habitat and connectivity as we look at the impacts of natural gas on public lands in the west. So again, thank you all for participating. Fred, why don't you start off please?

Fred Toney:

Okay. Well, thank you for hosting the panel today. I guess I'm the young guy here. I've been in the industry 30 years. But my name again is Fred Toney and I'm Vice President of BJ Services now Baker Hughes Pressure Pumping.

And again, I've had 30 years experience in the oil and gas industry. BJ Services has decades of experience with pumping services, which includes hydraulic fracturing. We work as a partner with our customers to design, execute and fracturing plans customized for specific geology and customer production objectives.

BJ Services provides pressure pumping equipment, personnel and fracturing fluid systems and additives as part of this effort. BJ Services provides the necessary technology in hydraulic fracturing in developing countries' natural resources responsibly, which can only be done through continual refinement of the company's health, safety and environmental standards by employing a workforce of over 20,000 scientists, engineers and highly- skilled employees knowledgeable and capable of executing those standards and by continuous and extensive investment of tens of millions of dollars each year in developing these new technologies and in training.

Now while every well is unique and has its own design, BJ Services is committed to the highest standards of environmental protection regardless of whether the well is on public or private land. BJ Services has developed

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standard operating practices to minimize the potential environmental impact of hydraulic fracturing by ensuring that surface activities are minimized, closely supervised and the equipment and vehicles are in excellent operating

condition.

These measures fall within three areas of best management practices as preventative maintenance, fleet practices and spill prevention and control. Fracturing chemicals are transported to, stored in and pumped from specialized trucks. The most significant of service spill is naturally associated with the integrity oft eh equipment. BJ Services does not tolerate leaks.

Whenever one is detected it's resolved period. There is no question of magnitude or severity, regardless of the size or where it's found, it is fixed. Mechanics inspect our equipment immediately prior to the departure of a frack job. Mechanics are on hand on the site for the duration of the frack job and then the equipment is inspected upon return to the yard from a frack job.

Preventive maintenance extends beyond leak detection and repair of course. BJ Services has developed extended checklists for each piece of equipment that the company each pre and post job inspection to ensure that every piece of equipment is operating as efficiently as possible. BJ Services has a routine preventive maintenance program for its fleet to ensure that the equipment is compliant with the law and fit for safe operation and mobilization during service.

And each piece of equipment is operated by well trained and qualified personnel who understands their safety and specific operational goals and roles. Our employees are required to perform their roles in an environmentally conscious manner. For example, under our convoy policy all our personnel and equipment departing for a specific job meet at one of the BJ Services

yards and participate in a pre-job review of the travel routine, the travel route that is also known as our journey management practices.

They review the truck orders and movement policies, anticipating site conditions and any other pertinent information. We minimize the environmental impact such as abiding by curfews on activity through urban areas, refraining from idling or parking equipment in sensitive areas or by attaching secondary containment also known as diapers to equipment to add an additional layer of protection during operation in critical areas.

Every site is inspected prior to any BJ Services equipment being placed on it in order to identify any hazards. No BJ equipment is allowed on that location until those hazards are remediated and communicated to our operator, our customer. Employees abide by the specific positioning and movement policies that we design to prevent inadvertent collisions between equipment under the direction of ground guides and to reduce the impact on the environment.

Equipment is moved on site and rigged under the supervision of a designated health, safety and environmental champion and a training specialist. Their task is solely observing whether the well site service is being done safely and properly. The designated health, safety and environmental champion remains on site for the duration of the job with the sole responsibility to monitor the performance, train and improve our service quality.

All equipment is pressure tested prior to leaving the yard. It's pressure tested before commencing operations and in the event that a leak or spill is detected during operations, spill containment remediation equipment is available on site for immediate response. In addition, in the event that - BJ Services' policy is that any spill over 55 gallons is reported to an independent environmental consultant that inspects the site, evaluates for the effectiveness of any

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immediate response action and recommends whether any further action is

needed to protect the environment or human safety.

Once the fracturing operation begins well integrity ensures the frack

chemicals and underground sources of drinking water do not communicate

with one another. Fracturing usually occurs at depths typically many

thousands of feet below the aquifers or water sources. BJ Services is working

to reduce environmental risk with continuous chemical improvement designed

to minimize the hazardous chemicals used during hydraulic fracturing.

This evolution is being driven in part by technological advances by BJ

Services Vapor Frack that replaces up to 98% of the water with nitrogen,

reducing water use and a number of additives that have to be used and in part

in recent efforts to identify existing products that may be environmentally

preferable. On this latter point, BJ Services has developed a methodology to

provide a quantitative assessment of oil field chemicals based on the potential

safety, health and environmental impacts.

BJ Services Smart Care qualified products and systems are those that meet the

same performance, quality and compatibility standards of other products with

relatively no, low to no hazardous or toxic profile.

With regards to chemical disclosure, we endorse the round water protection

council's voluntary chemical registry concept as it represents a coordination

with the regulators, the operators and other stakeholders to promote disclosure

that is more comprehensive and well site specific than any individual

company can provide.

BJ Services has been operating on BLM land for years. BJ Services has a strong history of working with states. We look forward to doing the same with the Department of the Interior.

Steve Black:

Thank you Fred and let me just mention (Lizzy Marstis) who is sitting in the front row with our time card will keep us all on time. So thank you for following her cue.

Fred, before I leave you I just want to ask one question. If you could comment on the use of petroleum distillates in fracking fluids, what is Baker Hughes practice? And what best standards or best practices does the company endorse in that regard?

Fred Toney:

Well, you know, frack chemicals, frack fluid is based on usually 97% water and sand. There is very little distillates in that. At this point there are no distillates. We have taken a stance that we are eliminating all those distillates. So they're not to be used.

Steve Black:

So you don't currently use them in your fluid?

Fred Toney:

We don't currently use them.

Steve Black:

And is that an industry practice or is that a Baker Hughes practice?

Fred Toney:

That's Baker Hughes standards and policies.

Steve Black:

Okay. And we'll come back to this. I want to just given Fred's expertise, wanted to ask that question right off the bat. Sherri, thank you for joining us today.

Sherri Stuewer:

Thank you. I appreciate the opportunity to participate in the forum today. We at ExxonMobil believe the safe and environmentally responsible development of our nation's vast unconventional natural gas resources is important for economic prosperity, for energy security and for environmental progress.

The enormous potential of natural gas in this country has become clear in recent years as a combination of new technologies pioneered by ExxonMobil and others in our industry, have unlocked vast supplies of unconventional gas in the United States. And as Ms. Browner said earlier, producing these resources has clear environmental and economic benefits for the country.

With our acquisition of XTO Energy earlier this year, ExxonMobil has become the largest natural gas producer in the United States with nearly 3.7 billion cubic feet per day of production. And our holdings of federal land exceed 1.5 million acres. We are proud to play a leading role in developing cleaner burning natural gas resources here in the US to meet domestic demand.

One example is our project in Colorado's Piceance Basin where we worked with the Bureau of Land Management and with state authorities to help develop the region's extensive type gas resources. As part of that development we have implemented a set of best practices that have substantially reduced our environmental impact. Using a new design concept for drilling multiple wells on a single pad, we have expanded our reach while reducing our footprint.

Using specially engineered water management systems we are increasing the recycle of produced water, thus reducing the need to draw on fresh water supplies. And we are evaluating options for using natural gas as the fuel for our drilling rigs, which could reduce conventional air emissions by 60%.

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While ExxonMobil has a long history of cooperative development on federal

land, we recognize that public interest in the unconventional natural gas

industry has grown substantially.

And at this point we're focusing on two key areas of public concern. First, we

must find a workable solution for operators, service providers and the public

on the disclosure of ingredients used in hydraulic fracturing fluids. We have

been working through several industry associations to design a system that

provides regulators, first responders and the public with the information they

desire.

Now clearly states are acting on this issue, which falls into their traditional

regulatory purview. In the west for example, both Colorado and Wyoming

have recently adopted new disclosure rules. Recently as well the Ground

Water Protection Council committed to developing state-based reporting using

its existing online system. This plan is a good step forward particularly

because it involves state regulators who are best positioned to handle this

information.

Secondly, we're working within the industry on a consistent and robust

framework of operating guidelines or best practices. This will help to assure

communities that the industry is continuing to operate safely and responsibly.

We know these best practices are dependent on local factors so any guidelines

must reflect the need for local flexibility and they are best developed at the

state level rather than being imposed as a duplicative and one size fits all

solution.

In terms of federal policies, increased access is imperative. In 2008 inventory

of onshore natural gas resources conducted by the Departments of Interior,

Agriculture and Energy found that 214 PCS of undiscovered technically

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recoverable natural gas resources exist on federal land. Of this amount only

about 113 PCS or approximately 53% is currently accessible.

If Americans are to realize full potential of our nation's plentiful, affordable

and environmentally advantaged natural gas resources, increased access to

these resources will be essential. We believe expanded access can be fully

consistent with the other priorities of protection of ecosystems and protection

of natural land.

Equally important at the federal level is the need to ensure that permitting

processes are not unduly burdensome to avoid a de facto slow down in

unconventional gas production. As environmental regulations expand and as

complaints from opponents increase, the industry is increasingly concerned

about the longer timeframes required for permitting.

We seek assistance from the department and from the BLM in expediting the

permitting processes without compromising environmental oversight so that

more Americans can benefit from this domestic resource. On the demand side

energy policy should ensure a level playing field for all fuel types including

natural gas.

When policy makers begin to pick specific energy sources as winners and

losers, whether through direct subsidies or through regulatory process

favoritism, the final outcomes generally cause higher costs to consumers and

economic harm. Our energy future will be most sustainable when it is built on

market driven foundation that does not include special government actions

that themselves may not be sustainable.

It's incumbent upon all of us to work together to build a sound model that

allows the economic development of our nation's natural gas resources, a

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solution that addresses both the environmental concerns and the public's

questions about this vital resource. Thank you.

Steve Black:

Thank you Sherri. I just want to remind folks if you have questions for the panel please be sure to raise your hand. Get them to either (Emily) or (Neville) so that they can find you in the audience. Sherri, I do have a follow

up question for you.

Given your leadership role within the company and you alluded to a number of best practices that ExxonMobil promotes, can you identify just for us two or three best practices adopted or followed by the company that you think

should be industry standards?

Sherri Stuewer:

I think that one of the key things about best practices in this natural gas development is they are very location specific. A best practice in one location requires that you understand what the ecosystem is there, what the geology is there and you tailor those practices for the site.

And as an example, what might be a good practice for reinjecting surplus produced water into the subsurface in one location might not be feasible in another location. So I think best practices are very, very location specific.

Steve Black:

And before I let Jim begin I'm going to ask him to consider and Sherri may want to comment on this as well, there is some confusion I think in the media and the controversy over fracking about potential causes of ground water contamination.

And one of the things we want to address today are best well design and construction practices, cementing practices to ensure as Fred said, that there is no communication between the well and the ground water aquifer. And so

Jim, if that is not part of your prepared remarks, will you address that question please?

Jim Kleckner:

Well, I'd like to go through those remarks because I think it will be addressed in some of the presentation material I have.

Steve Black:

Please do.

Jim Kleckner:

I'd also like to thank the Department of the Interior for the opportunity to participate in this forum. The discussion of hydraulic fracturing is essential. When coupled with horizontal drilling and shales, the combination can single handedly turn the United States from a nation of declining natural gas production to one of abundance and rising production.

Over 90% of the gas wells now require use of hydraulic fracturing so complete understanding of the technology, the economic impact and the regulatory requirements to protect our environment are paramount. Gas from shales has evolved quickly in the past decade from the Barnett-Haynesville Shales in the southwest to the Marcellus Shale in the southeast.

These developments have been predominantly gas but recently have some areas have become liquid and oil rich such as the Eagle Ford and (Niabrea). Fracturing of low permeability rock has led to significant increase in the resource space. The 2009 Potential Gas Committee report increased the resource base over 2074 PCS. This sounds like a lot and it is.

It's a 58% increase from prior years, yielding over 100 years of supply for the United States. In a separate report the US Energy Information Administration stated that with fracking of low permeability rock such as shale gas,

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production will rise 26 PCF by 2035. This is a 24% increase over the agency's

prior year report.

Clearly without shale gas development the US supply of natural gas would be

in decline. Instead, it is on a significant incline and is domestically abundant,

which provides for a high level of energy security. Stable supplies means

stable prices. When we have solid domestic reserves, the capacity to ramp up

or decrease production as needed, we are able to avoid price spikes and keep

rates consistent for natural gas customers whether they are electric utilities,

industrial operations or people at the pump.

It was not very long ago when Hurricanes Rita and Katrina significantly

impacted the Gulf of Mexico region, causing disruptions in natural gas

supplies and increased volatility in prices. Since then we have other

hurricanes, which impacted the region and have not seen that price volatility.

So the slide illustrates natural gas is now and in the future cost competitive

with coal and is key in power generation markets.

We all deserve clean air, clean water and safe environment and natural gas is a

big part of that equation. We are committed to doing our part on the east of

these fronts. We do so by being good neighbors and good stewards of the

land. Drinking water must be protected and we place a priority on meeting and

often surpassing regulatory requirements to protect ground water by running

impenetrable steel pipes that are cemented in place through the water table.

We are engaged in vigorous discussions on our industry's use of water and I

would be happy to discuss some of those water management plans during the

forum discussion. But the facts as compiled here by the Ground Water

Protection Council and the US Department of Energy demonstrate that shale

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gas uses a fraction of the water per energy unit generated as other forms of

energy including nuclear, ethanol and bio diesel.

To ensure the facts are understood is why we are engaged as individual

companies, as trade associations in ANGA in states across the country,

meeting with state regulators, providing them with information and data to

assist with their efforts in this area in the hope that more transparency will

lead to more confidence in the safety and the sound environmental practices of

this process.

One of our largest onshore developments is the Natural Buttes field in

northeastern Utah where we have over 9 TCF of natural gas resources. This

field has the ability to heat over 3 million homes for 50 years and create 2900

jobs as presented in the draft EIS. Approval of the draft EIS would

significantly prolong the field life through infield drilling.

This resource requires hydraulic fracturing to commercialize. And a result of

our efforts in environmental protection in developing this field we have

received a 2010 Interstate Oil and Gas Compact Commission Chairman's

Stewardship Award. Now the IOGCC is a representative of the governors for

all the oil and gas producing states.

Our operations have incorporated a multitude of best practices to minimize

our footprint on the land by drilling multiple wells from a single pad,

constructing wells that protect ground water, recycling and reusing frack fluid

and reducing emissions and developing a method for transporting and

recycling completion fluid.

The ACT system, which was recognized in the IOGCC award, uses a series of

pumps and temporary transfer lines to move frack fluid to and from multiple

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locations, significantly reducing the amount of truck traffic, air emissions and

fresh water used in frack development wells. And we have worked hand in

hand with the BLM to ensure the development of the field takes into account

all stakeholders involved on federal lands.

The paradigm shift of natural gas supply increased through gas shale

developments gives this nation a new course in reducing greenhouse gas

emissions. The Deutsche Bank climate change advisors report that the

administration's targeted goal of a 17% reduction in greenhouse gases in 2020

can be realistically achieved through increased utilization of natural gas power

generation while retiring old, inefficient coal plants.

Hydraulic fracturing is essential to unlocking the (traverse) opportunity that

natural gas provides for us. Not only does it create about 3 million jobs here in

the United States, as I mentioned in one instance in Natural Buttes field, we

can increase jobs by over 2900 for the full development of that field and that's

an example of other areas as well that we can put people to work.

In conclusion, hydraulic fracturing is safe. It's a proven and highly regulated

practice. We support the continuous improvement in technologies, in the

applications as well as the regulatory oversight as the new technologies and

applications evolve. Thank you Steve and I look forward to the panel

discussion.

Steve Black:

Thank you Jim. I'm going to come back to my question though. I'm not going

to let you off the hook.

Jim Kleckner:

Yeah.

Steve Black:

Would you briefly just comment on the distinction between well design and construction and cementing and the importance of good cementing practices? And Fred, you may want to comment on this as well or Sherri - and the problems that arise with the well integrity problem versus a frack job that may not have the intended effect or consequences and the potential pathways to ground water contamination related to each?

Jim Kleckner:

The purpose of well design is to A, access the reservoir where the hydrocarbons are located. But more importantly, to isolate those reservoirs the hydrocarbon producing formations from ground water or from contamination to surface.

We do so by utilizing impermeable steel pipe. And if we could go back to one of the slides that shows that cutaway diagram, the pipe is cementing in the formation with specifically designed cement to seal off any fluid or gas migration through the cement into the formation or above the pipe annulus.

So the surface water or ground water is also protected via other layers of pipe fully cemented to the surface. So the basis of well bore design is to ensure isolation from all reservoir systems and ground water sources.

Steve Black:

Sherri, you want to add to that?

Sherri Stuewer:

Yeah. If I could just build on Jim's comment a moment, I think it's important to be clear that the fracturing that occurs at depth, that technology has been used now for 60 years.

And there is no known incident that the fracturing itself has caused a ground water problem. And as Jim is saying, what is really important is the managing of well bore integrity as you go through the part of the subsurface where there

is fresh water and that's why the cementing and the integrity of the well bore is so critical.

Jim Kleckner:

In most cases the ground water is located within several hundred feet of the surface and the majority of the wells that we operate a fracture are several thousand feet. So there are thousands and thousands of feet of isolation of cement and impermeable rock that prevent a hydraulic fracture from migrating into ground water.

Steve Black:

We'll come back to this topic I'm sure with your questions. Please keep those coming. Peter, would you just let you start off with your comments and then we'll (talk).

Peter Lehner:

Well, I'm actually going to in order to try to keep the dialogue I threw out my comments and I'm going to try to be more responsive. I will note though that the rapid pace when I not too long ago worked for New York State government, we were devising new rules for leasing natural gas.

And the Marcellus Shale never came up. It was all much closer to the surface. So the change in the industry and the opportunities are enormous. So we agree I think all together as Carol Browner said that natural gas has an enormous role to play in protecting our climate, our atmosphere, our health and improving our national security and our economy.

And we also agree that it need not be a choice between economy and public health protection, our health and the environment. That is I think very much of a false dichotomy and one that frankly is often put out into the public discourse by those who don't want us to talk together. So I think we all have an obligation to try to reject that dichotomy.

But that being said, for natural gas to fulfill this potential and not be a battle ground at every place there is desire to drill I think we need to come to a set of comprehensive best management practices so that there can be trust in the industry. We have examples of other industries that have had a slow time getting going because there wasn't the trust.

And critical to that trust will be partly the disclosure that we talked about but also a whole set of best management practices. And we look at it with four key principles in that. One is that some places frankly should be off limits. We've got a lot of land. The land varies in its quality in terms of its wilderness and wildlife qualities as well as its ecological qualities.

And all of this is really a question of risk versus reward and in some areas the risks are too high and so they should be off limits. We've got a lot of land fortunately and gas underlies a lot of it. So that won't put a limit on our potential use of this resource. A second is that there should be best management practices used everywhere else.

Wherever there is drilling there should be comprehensive best management practices. Why comprehensive? Because as you were pointing out and I appreciated hearing that, people don't care whether their water is contaminated from the fracking or the drilling or some other part. They just know their water is contaminated. And I think the debate has actually been set back when there has been arguments about whether fracking caused water contamination.

It doesn't really matter. The drilling operation, the whole extraction practice caused something and that led to - and when we couldn't even discuss it honestly in terms of it was drilling as a whole rather than one piece of it, it set the whole dialogue back and set us up for distrust. So I think the best

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management practices have to address the whole system in order to get the

trust and in order to allow us to move forward.

Third, the system of oversight has to be within itself a broader system. We are

very strongly supportive of natural gas. As its role, it's not an either natural

gas or renewables. We have to look at them together. And BLM and DOI has

a real leadership role here because of course so much of the opportunity for

both natural gas development and renewable development is on BLM land.

There is also an important role for energy efficiency here to play. NRDC has

worked very closely with the natural gas industry to encourage a lot of natural

gas end user efficiency. It's both a supply and demand issue in order to get the

price stability and have it play frankly a larger portional role in our energy

mix and we shouldn't forget that as well.

And then of course while I speak from the perspective of an environmental

organization, the whole suite of issues needs to be the system in terms of its

impact on the community, impact on the workers, etcetera. There are some

communities where just a dramatic change from a rural community to a

community with a vast amount of industrialization is part of what the dialogue

is.

And that has to be addressed in order for natural gas to play a role. If we

ignore community impacts we will again create the distrust. There will be

fights at every level rather than the chance to move forward. And lastly, there

has to be oversight. One of the things we learned at the BP/Horizon spill and

I'm going to put a brief plug into this for having written the first book on the

spill, which you're all welcome to get called In Deep Water.

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But what we learned there is that it wasn't very satisfying to those who

suffered to know that most people in the industry were drilling in a way that

seemed to be safe. What they knew was that one person in the industry, one

well went wrong. It looks like there were corners cut and they have suffered.

And so you need oversight to make sure that even if most of the industry is

complying, they want to know that all of the industry is complying.

And now the good part is also as evidenced in what I think we saw in the Gulf

is the fact that most industries and it's great to what you guys are saying, can

do it right with a comprehensive set of practices to make sure you're trying to

do it as best as possible. That shows that it can be done. So the question is not

a question of technology so much as a question of our will as an industry and

as a country to make sure that everybody follows those best practices.

And I think that's the opportunity we have. I would just close by saying there

is often a big debate of federal versus state. Sherri, you mentioned that. We

are strong supporters of uniform federal rules but uniform has to be

understood what it meant. And I say this from having worked at the state level

for eight years.

Most of the programs are federal programs but they're actually administered

by the states. The water programs, the air programs are all actually

administered by the state. So you're taking into account local conditions,

which absolutely has to be done, and relying on local regulators to know the

local industry, which I'm a big fan of, having done it for many years.

Is not inconsistent with having a federal standard so we know that people in

different states are treated fairly, the industry knows what the rules are in

different states and frankly we don't depend on changing politics in different

states to ensure it's done right. There are challenges to federal regulations. Sometimes things take too long.

That should be addressed by fixing the system rather than chucking it we would say. So I think this is a great forum. I'm very grateful to Secretary Salazar to hold this. I think there is tremendous opportunity to come together and take advantage of the promise of natural gas. But it's only going to be if we get past what is now unfortunately a growing level of distrust.

And I think we have to affirmatively take this. BLM has to take the lead on their own process but also by convening like this. And if we don't aggressively move forward coming together we're going backwards. So thank you.

Steve Black:

Peter, as a quick follow up, why is - you mentioned public trust more than once and you mentioned disclosure of fracking fluid as one element of that. Can you just expand why is that so important for the industry, for the communities and NGO representatives here today for the department?

Peter Lehner:

I think it's frankly two reasons. One is it's human nature. I don't know about -well, I do. Almost anybody here if you know something is going on but somebody is adamant about not telling you, you suspect the worst. And that is just the reality.

And so when fluids aren't disclosed you assume there is something poisonous in there because if it weren't poisonous why wouldn't you disclose it? So that's one important issue. I think related to that is people aren't stupid and sometimes we treat them as if they are. So we say and don't take this wrong, Fred, I'm not signaling you out.

But if you say well, it's 97% water so don't worry, that's not very satisfying. I'm glad that this is not just 97% water. It wouldn't be very comforting to know that it's 97% water and 99% water and 1% poison. And so we use terms as if they should be satisfied but frankly people are smarter than that. So I think we need to be honest and when we say something wonder if I were on the other side would I be satisfied by that?

If that were my mother's house there would I be comfortable with that? And would I really want my mother to have the - I'm sorry I'm referring to my mother but you know - would we want any individual citizen to have the burden of fighting a big, sophisticated company to try to make sure that they can drink their water with confidence? So that's why trust becomes a very critical issue.

Steve Black:

There's one timely example of that and then I'll quickly turn this over to Steve but Peter, one more question for you. The New York Assembly on Monday voted 93 to 43 to impose a temporary moratorium on fracking in New York.

The purpose of this forum today really is to learn from our experience and best practices in the west in part to inform the dialogue that is occurring with respect to the shale plays that Jim, you mentioned as being so important to our energy future. Peter, can you just given your experience in the Attorney General's Office in New York and with the city, give us your perspective on that decision on Monday?

Peter Lehner:

Well, it's my understanding it was just the state assembly and there's still the state senate, etcetera and I won't make comments on the state legislature. I think again it reflects the fact that at this point there aren't a set of comprehensive standards, best management practices in which people can have confidence.

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And there aren't any areas that are off limits. There has been a debate about particularly in New York, in the Catskills, which provides drinking water to 9 million people. And that's in a system that I worked on for many years and there are underground aqueducts and there is a lot we don't understand about those aqueducts and they are already cracked and leaking at 50 and 80 years old.

And if there were anything wrong with that, it's not clear we would know how to fix them. And of course New York City without a drinking water supply would be a cataclysmic challenge. So given the fact that still there are a lot of unknowns and uncertainties and there aren't a set of protections in which people have confidence, you respond by or the state legislature is responding with a moratorium.

And I think that is to some extent probably the right thing to do in a crude sort of way because it will put more pressure on to seeing if we can get some standards that will allow us to move forward. Clearly saying no is not the answer. It's not the answer we support but we do need to have the set of standards and the guidelines that are enforceable, that are real and in which people have confidence or otherwise you're going to get this type of fight all over.

Steve Black:

Thank you. I think one of the things that's unique about the new shale gas opportunities that Peter was just describing and that Jim alluded to is the scale. And in the west we are more familiar with oil and gas development I think or in parts of the country than in the northeast.

Steve and Trout Unlimited have first hand experience with impacts on wildlife and fish. Steve, it's important to get this right. I think you've heard industry

say that they have the technology and the best practices to get it right. Based - I want you to comment during your comments on some of the lessons learned in the west and specifically with respect to impacts on wildlife and fish resources.

Steve Moyer:

I'll try to do that Steve. And I think we have a long way to go though in learning lessons and I'll talk a little bit about that. But thank you for having us and Mr. Secretary, thank you for holding this forum.

I think it's a timely forum. Trout Unlimited's mission is to conserve, protect and restore America's trout and salmon fisheries in their watersheds. We support the development of natural gas on public lands as long as it's done in the right places in the right way so that fish and wildlife and water resources are not adversely affected.

Our volunteers and staff who are out on the ground doing their conservation work know from experience that fracking and related gas development pose substantial risk to trout watersheds and that's why TU and our partners around the country have put a large amount of effort into minimizing the risk from that gas development on western public lands and as we have been talking about, increasingly here in the east; in particular, in places like my home state of Pennsylvania.

First and foremost though, one thing I'd like to raise is that we'd like the gas industry to do a better job over time of working with us and other local stakeholders in the states and communities to minimize the harm to watersheds from gas development. To illustrate especially since you interior and fish and wildlife service folks are here, TU and a number of other groups are going to be buying three operating dams in Maine in the Penobscot River in the coming days.

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Now, that doesn't relate directly to the subject at hand but I think it's a point I want to make. TU never dreamed of being a dam operator and the reason we're doing this is that we're going to buy the dams and remove them. It's really an amazing deal that we worked out with the company PP&L where we're going to replace all the power that is being generated now by those dams through increasing power generation in other places in the watershed.

So no loss of power, we buy the dams and the fish benefit. It's a great deal. Clearly it has nothing to do with me. I'm just the money grubber who has been helping to find a way to pay for it. But these are the kinds of innovative deals and projects that I think are available to the gas industry and conservationists that we can work together on and that's one of the things that really needs to be done.

I can't go out in public without talking about our members. Our members invest in protecting and restoring trout watersheds and therefore we care deeply about the threats to watersheds such as gas development. Our 140,000 members like to fish and they give back to the rivers and streams by dedicating more than 600,000 volunteer hours each year to conservation.

And we're fortunate to have them because we really have a lot to do in this country with restoring watersheds. Nearly half of the rivers and streams in the US are considered to be impaired to some degree. So the work of restoring impaired waters is slow and costly but TU and others are chipping away in watersheds throughout the country.

Now, unfortunately restoration work that can take years to complete can be quickly undone by improper development practices. So increasingly we're

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concerned about our work in places like West Virginia, Pennsylvania and the

west being undone by gas development where it's not being done properly.

So that's one of the huge reasons that TU and other conservationists are

concerned about gas development because we don't want to see investments

of sweat and blood put into one part of a watershed and then taken away in

another part, which undercuts the value of the restoration work. So a little bit

about what we think needs to be done to make sure that gas development can

be done properly

Water is such a big issue for us and for this forum I think. Withdrawing water

from appropriate water bodies in appropriate amounts, building roads and

other infrastructure with proper storm water controls and fish friendly stream

crossings, the comprehensive BMPs that you talked about Peter, I think are so

important, not just the fracking, not just the drilling the wells but the roads and

the associated infrastructure.

Recycling and properly treating produced water, I heard about that from the

industry representatives and I'm glad to hear that there is good, effective work

being done in that regard. And then just the physical nature of fracking and

gas development such as placing well pads and other infrastructure outside of

riparian areas and flood plains and of course doing the usual preventing spills,

leaks and blow outs.

So these are some of the essential steps that we think need to be taken to make

sure that development occurs in a way that doesn't undermine water quality

and aquatic habitat. But since we're here today talking about BLM we had to

say a few words about BLM and BLM lands. They're not the lands that

nobody wanted, that some folks talk about BLM lands who really don't know

any better.

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They are wonderful resources. They provide tremendous fishing and hunting

opportunities, some of the best in the nation. And our members care deeply

about them and that's why we are happy that the Department of the Interior is

off to a good start on reforming its onshore oil and gas leasing process to

improve public participation and environmental analysis.

These changes will help development move forward in a way that has

improved public support and better protects fish and wildlife and we urge

Interior to keep moving forward with those changes. And we also would

really welcome the fracking disclosure policy that was discussed today. Just a

little bit about the coalition that we and National Wildlife Federation and the

Theodore Roosevelt Conservation partnership founded several years ago

called the Sportsmen For Responsible Energy Development.

This grew out of the concerns that we're seeing with gas development in the

west. A recent federal study talked about how in one part of Wyoming about

50% of mule deer habitat has been lost and the population has taken a steep

decline and that's a good example of something that we really don't want to

see happen in the future.

We don't want to wake up after a decade of new development and see half of

our big game or half of our trout populations having been declining drastically

over time. So a couple of the recommendations that the Sportsmen For

Responsible Energy have come up with for BLM include establishing

mandatory operating procedures for responsible development, again the

comprehensive BMPs.

Improving the monitoring of fish and wildlife and water resources so that

impacts can be detected and avoided and minimized better over time and

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establishing and upholding effective lease stipulations to protect habitat and

improving site reclamation and mitigation.

If these things are done well and coupled with the reforms that BLM and

Interior are talking about right now in leasing we think that gas development

can occur right alongside healthy fish and wildlife populations in the future

and sustained economies and healthy communities that we're all trying to see.

So thank you very much again Mr. Secretary for having this forum and for

inviting us to participate in it.

Steve Black: Thank you Steve. I'm going to stand up and I'll try to faithfully read as many

of these questions as we have time for. I will try to direct the questions to one

or two of the panelists but any of you should feel free to respond again time

permitting.

Thank you for contributing these questions. I may not get through all of them

but we'll do our best. Fred, the first one is for you. You mentioned a line of

smart care products that are safer and more environmentally responsible than

the chemicals now used in hydraulic fracturing and the question to you and

your company is will Baker Hughes disclose the elements of this mixture and

the FAC numbers for the chemical elements in the mixture?

Fred Toney:

Yes. We support disclosure. We have gone above and beyond for the State of

New York with Wyoming and given the disclosure to them. One thing we

have to do is be responsible with that disclosure. We have to protect IP.

We have been in this business for over five decades and had a lot of time to

develop those formulas. It's not that we're pumping poisons in there, it's just

a specific formula we're trying to protect. So we have over 150 PhDs in that

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facility that I talked about, some of those scientists, and they are constantly

developing these smart care products as a good example.

In that we have a biocide not unlike what's used in your swimming pool or

under your sink or what your dentists use to sanitize his instruments. We have

surfactants like your detergents in your kitchen. So we have a lot of chemicals

that go right over to what the public are using now but disclosure like you said

is very important and we support that but we want to do it responsibly.

Steve Black:

Thank you. And can everybody hear in the back? I know it's a full room and

if you can't we'll pull the microphones closer so just raise your hand if you're

having trouble hearing.

Sherri, the next question is for you and again, to my panelists, feel free to

comment on any of these if you'd like. We started to talk a little bit about this

earlier but here is the specific question. You discussed industry efforts to work

together on a consistent and robust framework of best practices. Can you

provide more information on what the forum would be for this work? What is

the status and when can we see the outcomes of the effort?

Sherri Stuewer:

Actually there are a number of parallel processes going along right now within

industry but the one that is most mature right now was done within API. And

through API there was development of best practices for well casing, for

surface water handling and other parts of the fracking operations.

And those provide a framework, sort of an umbrella framework of

expectations that can be used in individual locations to develop additional

details to be protective. And the API standards are done right now. They are

publicly available.

Jim Kleckner:

Steve, I'd also like to add to that too.

Steve Black:

Jim.

Jim Kleckner:

In addition to API the regional trade associations and the state trade associations work with the producer, the service company and the local communities to understand what the issues are and from those evolve best practice studies and implementation standards that continue to enhance the state regulations and some of the API recommendations of practices.

Steve Black:

Sherri.

Sherri Stuewer:

But Steve, if I could, I'd like to pick up on something that Peter said earlier that I very much agree with and I think these standards are a necessary part of bringing the performance in the industry to an acceptable level but they are not sufficient because they don't necessarily address community concerns.

And some of those specific concerns I think have to be addressed community by community. And so the standards are important but they are not the full answer to addressing concerns and I think Peter raised that point well.

Steve Black:

I want to segue on this point and ask Peter this question because one of our members, one of the audience members asked specifically about the API standards and directed the question to you, Peter. And the question is whether you have reviewed those standards that are available on the API Web site and whether those would be a starting point for your idea of best management practices?

Peter Lehner:

I haven't. My guess is the number of staff at NRDC who are more expert in these issues have but I haven't so I can't comment on that. I do again want to

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emphasize though that there are a number of fora and this meeting today is an

important step and I think what we have seen in the past is either the groups

aren't coming together or when they do come together they have one meeting

and then it stops.

And if we're going to get to a set of comprehensive standards that people have

trust in then we're going to have to either come together and keep going or

somehow the ones that are keeping going bring in more parties.

Steve Black: So I'll just offer an editorial comment and ask any of you to respond. I think

Peter, you referenced the BP oil spill and some of the lessons and experience

we gained from that.

Among other things and API wasn't the only participant but a number of the

companies represented in the room today participated in joint industry task

forces that did develop best practices and safety standards, well containment

practices and procedures and we have benefitted greatly from that work.

Just following up on Sherri, your point, is an organizational effort like that

whether it's organized by API or industry generally, to your point, does that

get us where we need to be in terms of best practices or does that represent a

lowest common denominator?

Sherri Stuewer: I think it'd be hard to generalize. But I think the API standards we feel are a

good framework. By necessity because they deal with broad geography, they

are a high level framework and I think within that there is room to develop

more specific guidance for individual geologies.

So they are a very good overarching framework but leave room underneath for

further development.

Steve Black:

Okay. Anyone else? Peter?

Peter Lehner:

One point - very important to all of this I'm sure we would all agree is that these be science-based, be fact-based. And there is an ongoing study by the Environmental Protection Agency to try to get a lot more information in both technological and scientific information.

And I would hope that any process that is likely to culminate in a set of standards takes that strongly into account, includes EPA. They know what they're doing. They have a strong corps of scientists looking into this. Let's not miss that as well.

Steve Black:

Okay.

Steve Moyer:

Steve, if I might comment on best management practices and your lessons learned question all in one, I think one thing I'd really like to point out is how I agree with Sherri on the need for a good assessment first.

A landscape level assessment like BLM has to do, I think BLM needs to keep doing it, improve and do a better job of that over time. But then also a really important thing is to do the more local site specific area assessment well so that you can really avoid the locally important habitats for fish and wildlife. Try to stay out of the flood plains, out of the riparian areas as much as possible.

I think that's really a great lesson learned here is yes, BMPs and good, effective BMPs are critical. But as much as possible make that footprint as small as possible and use the assessment to make the footprint be in a place where it's going to do the least amount of harm.

I mean, if I could boil it down I think that's what would by, you know, an important point to make.

Man:

(Steve), I also want to comment on that too because I think that is absolutely critical. In the natural buttes area of Utah in our development, we're looking at our accumulative impact of our entire macro view of how we develop the properties, taking into account reduce surface impact, consolidation of any emission sources that we may have and then reutilizing and recycling water.

So I think that is critical as we plan forward developments in the future, is to look at the cumulative impact of these on our operations.

Man:

So one last question on best management practices and then we'll move on. The question is do you believe oil and gas production on public lands managed by the Department of the Interior should be required to advance best management practices including techniques and technologies to promote energy efficiency, emissions reduction and capture and water resource conservation.

We've allu- some of you alluded to some of those things getting beyond fracturing but is that an appropriate role for the Department to take with respect to oil and gas development on public lands? I'm just going to - I'll pick on one of you unless you have - we have a volunteer.

Man:

Yes. Yes to all those boxes.

Man:

Is that - Sherri and Jim and Fred, is that something that as you, you know, let me ask it this way - as you seek to promote best practices within your company, is there an opportunity in partnership with regulators where there's

a federal regulator, a state regulator to promote best practices and promote them industry wide?

Man:

I agree that we need all collaborative efforts to promote best management practices not only with the regulatory agencies but with industry and with the communities. And as we've evidenced in the last few decades that that state regulatory frameworks have evolved into very comprehensive, very rigorous rule constructions and processes that guide the responsible development to the (long gas).

So in a lot of regards it's moving forward but there are always areas for improvement and continued collaboration that we can strive for.

Man:

Sherri, I think you've already answered that question. All right, let's turn quickly to well designing construction. This question is - I'll just direct it to any of our industry panelists. How thick is the casing and how far down does it generally go? The question also asks about concrete and cementing. So I think the point is to ensure a physical separation and barrier between the well and drinking water supplies. How far down does the casing generally go? And by comparison, where does the (cracking) occur?

Man:

The basic wellbore design and construction, as I mentioned earlier, was to protect the ground water at all costs. And so we use different depths, different cement types and different casing thicknesses or pipe (mixes) thicknesses based off the temperature, the pressure and the depth conditions.

The cement sheets are awfully very thick and following API specifications for cement which are designed for very high compressive strength cements that isolate from the steel to the formation. The depths can vary considerably. But generally it's all the surface casing designed to prevent or to isolate ground

water is set below the ground water a few hundred feet into an impermeable reservoir section that seals off by the cement.

Man:

Anyone else?

Woman:

I think the relevant point there is that the surface casing specifications state by state are a function of the depth of the produceable water and it - as Jim said, you have to go well below the level of surface water with the casings, and in some states actual double casing is required down through that depth.

Man:

Peter or (Steve), do you have a perspective on that question? Okay. Fred, let me direct this one to you. You mentioned Baker Hughes best practices with respect to spill first avoidance, spill prevention I think you said, and then response. This question asks specifically about best practices an whether those are sufficient or necessary in light of the spill of 13,000 of frack fluid last week in Pennsylvania.

What is Baker Hughes doing first to prevent surface spills and then, you know, obviously on the containment side, what steps are necessary to prevent a spill like that from contaminating surface ground - surface waters?

Fred Toney:

Well, I think you have to start - and I'll go back to some of the best management practices that we (hear). It starts with the culture. It starts with the people at the top - our CEO, myself and the people, you know, that are on the well site.

And in our culture at Baker it's health, safety, environmental comes before profit. And you'll hear that throughout our meetings and on locations. When we hire a new employee he spends his first week understanding what health, safety, environmental means to our company. He uses stop work authority.

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Stop work authority, I can have an employee that's been there for two months,

gone out for a job for the first time and if he sees something that's not right,

he sees something that's going to impact the environment where he feels is a

safety standard, we give him the authority to stop that job.

And he has our full back up. We're right behind him in supporting him in that.

So we can stop a \$2 million job when a boy doesn't feel like it's the right

thing to do. So I think it has to start with the culture.

Then it goes into training. You know, we have tremendous training for all

these employees. Spill prevention is a significant portion of that. Reporting of

that is significant. But in some - I mentioned diapers on trucks. You know, we

- after you do the periodic maintenance testing, the treating lines and

inspecting those on a timely basis, you test before each job on location, you go

through extreme measures putting diapers on each connection under the

trucks, having little spill ponds with diapers under those to take up any fluid.

There're also some locations that our customers - the operators will put an

extreme pad down as a secondary containment in case there is a spill. So a

spill like you mentioned, I haven't been involved in that and I don't know the

details but the site safety supervisor that I mentioned with stop work authority

and the inspection of that location before and after and during the job is

critical.

So all of the best management practices that we put in effect unless our people

on those locations take that responsibility and know that they have the backing

of us and our operators, our customers, you know, all that is for naught. So,

you know, we've very specific and transparent in all of those.

Man:

Thank you Fred. Sherri, according to the questioner, the spill occurred at an XTO site. I don't know if you know anything about it or want to add to the - Fred's answer. But what steps is Exxon Mobile taking to prevent surface spills of fracking fluid?

Sherri Stuewer:

Yes, there was a spill within the last couple of weeks at a site in Pennsylvania where a valve on a tank was opened and an investigation is underway right now to understand why that valve was opened. About between 50 and 60 barrels of produced water were spilled at the time.

Every spill is investigated and preventative measures are put in place as a result of that. Spill performance is a priority for our corporation and every spill that occurs in our operation is stewarded all the way up to the board. And so those spills in aggregate are tracked and preventive - the learning from them are shared across the company. So the investigation on that particular spill in Pennsylvania is not complete yet.

Man:

Thank you. (Steve), I'll direct this to you. Does Trout Unlimited support regulating hydraulic fracturing under the Safe Drinking Water Act? Of course, you're familiar with the history there and the exemption that was passed as part of the Energy Policy Act of 2005. Is that a battle that is worth revisiting?

(Steve):

A battle that's worth revisiting. I think that's a great question. We do support that. We support the Clean Water Act being applied with the storm water to gas development. Yes, absolutely, whether I'm going to put 100% of my government resource and time in making that happen this next congress, I doubt it. I doubt it.

You know, I'd much rather I think talk about how industry and stakeholders can do some real innovation on the ground that would bring us closer together,

find some new ways of doing things better and, you know, develop the trust that I think Peter spoke well about. That's what I like to see.

Now of course we're going to keep trying to plug these regulatory gaps wherever, you know, wherever we think it's the right thing to do.

Man:

Peter.

Peter Lehner:

We also support it by the (riles) of some user resources wisely. I would say as I said earlier, though, that to some extent we get a bit of another one of these false dichotomies I think between federal and state regulation that I think we would be all probably myself included, need to look at very carefully.

And I say this again from having worked at the state level for eight years, virtually all of the permits we issue or the state permits, but they were pursuant to federal programs that set the guidelines. And so that there really isn't this clean line between, oh, the federal behemoth over there and state over there.

Almost all the environmental programs are very much of a state federal partnership and I think if we can look past the labels and get to the specifics of what is the most effective regulatory and oversight system that allows us to take advantage of this resource and protect our health, our special areas, our communities, I think that will be the best way to go ahead.

Man:

Thank you. I'm mindful of the temperature in the room and the time, so even though we're scheduled to go for a few more minutes I think I'm going to close with this last question. I want to thank our panelists and all of you for these very helpful questions and just emphasize the point that Peter just made.

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This is - we hope really it's not the beginning of a dialogue but it's an effort to

continue the dialogue with all of you. It's an effort to find common ground.

It's an effort to look at the leadership role frankly we can play at the

Department and with the United States government more broadly to help

inform the conversation that is occurring while mostly on private lands to be

sure.

But given our partnership with the states and our ability to work with the state

regulators on many of these questions, this is an important dialogue and one

that is important for the secretary and so we appreciate your participation in it

today.

I do want to acknowledge our partners at EPA and DOE who we are working

very closely with on these issues. This question is directed to our industry

panelist and it's a - it's related to the disclosure of tracking fluids but it's

really a slightly different point that relates to disclosure of rates and locations

of failures in mechanical wells integrity.

And the - so the question is whether your companies, Anadarko, Exxon

Mobile are willing to disclose locations and rates of such failures whether it's

casing, cementing or other issues and would you support industry wide

disclosure of well integrity failures so that there's an opportunity to more

accurately access the risks of well failure. Sherri and Jim.

Sherri Stuewer:

I think by now in some states there is a requirement for disclosure and I think

that in this case the devil would be in the details of how some kind of a

reporting system could be put in place.

Jim Kleckner:

When we - if there is the venture and activity that requires remedial well work back to a well, those are permitted and generally, if not all times, processed by the state so that there is disclosure of the event that occurred if one happened.

The other thing is there are comprehensive reporting requirements for surface spills that are adhered to strictly. In some cases if a teaspoon hits the location regardless of what the substance is, even if it's a cup of coffee, we report those spills rigorously.

So I think there are processes and policies in place which govern that. Many of those are administered by the state and they're part of the permitting process.

Man:

Okay. Will you join me in giving this panel a round of applause? We'll take a short break, get a breath of fresh air and then we'll go to the second panel. Ten minutes.

David Hayes:

Can we reconvene please? Hi. How are you? It's good to see you too. Great. Thank you. Can we reconvene please? Folks. Folks, can we reconvene please? It's in our mutual interest to reconvene. All right, thank you.

My name is David Hayes. I'm the deputy secretary of the Department here. And thank you all again for coming. I want to make a couple of initial remarks and then introduce our panelists and we will proceed through the next panel which will be a shorter panel.

My goal is to have this conclude early which I know that you'll all be disappointed about. Let me reemphasize something that Steve Black mentioned which is that our discussions here at the Department of the Interior

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with regards to BLM issues associated with hydraulic fracking are said in a

said in a broader context of an administration wide review of this issue.

As was mentioned by Peter and as you know, EPA is playing a leadership role

in terms of studying the question of potential water contamination issues

associated with hydraulic fracking. Also as (Steve) mentioned, we're working

closely with the Department of Energy and their Office of Fossil Fuels which

has been through Christmas and others devoting a lot of attention to this issue

and we're all being coordinated through the Council on Environmental

Quality, and Jason Bordoff I know is here today.

So we are - we're looking at this issue from a global perspective, if you will.

What prompted this meeting as the Secretary and Marcilynn alluded to is the

reality that on our public lands, fracking is occurring. And we look at our

regulatory structure and as we will see in this panel, we are - and as the

Secretary alluded to, we're wondering whether the regulatory structure that

we have is adequate or not and this forum provides the opportunity I think for

us to take a fresh look at that.

And coming out of this forum, as I'll explain at the end, we'll be looking

forward - we're looking towards a pathway ahead to determine whether and if

so, how, we should revisit the practices that are currently required on public

lands.

This next panel is going to be a very practical and I think helpful panel to give

a sense of, first, of at the Department of Interior and with BLM in particular,

what our current regulations look like and Steve Salzman will be presenting

there. He's the division chief of BLM's Fluid Minerals Division which

oversees all oil, gas, fuel, thermal and helium production on federal public

lands.

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He was formally appointed to that position in November of 2009. And he's

had a long career with BLM starting as a staff petroleum engineer in

Wyoming and New Mexico eventually working up to assistant deputy

secretar- state director for minerals in Nevada. I almost gave him another

promotion there. He has a petroleum engineering degree from the University

of Wyoming.

And Doug Duncan will follow him. Doug is associated coordinator of the

USGS Energy Resources Program. The United States Geological Survey

obviously is our science agency and has been heavily involved in looking at

these issues from a science perspective in coordination with our land

managers.

Doug - the USGS Energy Resources Program conducts basic and applied

research on geologic energy resources and on the environmental economic

and human health impacts of their production and use. Doug has characterized

sub service contamination at the Department of Energy sites in his own career

and managed research on the source transfer - transport in (faith) of deep sub

service contamination from underground nuclear explosions.

And formerly he was the geophysicist for Exxon where he explored for

petroleum in the Northern Rocky Mountains in Nevada. And he holds a

Bachelor and Master's degree in Geology from the University of Georgia and

Penn State.

And Mark Fesmire - then we're going to move to the state side and in

particular two states that are - that we have close relationships at the

Department of the Interior - Wyoming and New Mexico - both of whom have

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been leaders in terms of state based review and regulation of hydraulic

fracking.

We're very fortunate to have first Mark Fesmire here. Since 2004 he has

served as chairman of the New Mexico Oil Conservation Commission,

director of the New Mexico Oil Conservation Division and state petroleum

engineer.

As director of the division he has regulatory responsibility for oil production

environmental activities of the oil, gas and geothermal industries in New

Mexico. He previously was chief of a New Mexico hydrographic survey in the

Office of the State Engineer. Before that he practiced oil and gas flow on

general law in Texas for six years, having spent 12 years as a petroleum

engineer in Texas and New Mexico.

He has that distinct advantage or disadvantage of being both an engineer and a

lawyer. I didn't know it was possible really. He graduated from New Mexico

State with BS degrees in geological and civil engineering, JD from Texas

Tech.

And then we have Tom Doll who's supervisor of the Wyoming Oil and Gas

Conservation Commission, a position he's held since March 2009 after being

appointed by Governor Freudenthal.

He's a veteran of Wyoming's Soil and Gas Industry with more then 37 years

of experience in engineering, project management and supervision in field

operations, has a petroleum engineering degree from the University of

Wyoming. And as you know, Wyoming has been a real leader in terms of

disclosure issues and regulatory issues associated with hydraulic fracking.

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So we're going to continue the same approach here. We're going to have short

presentations by each of these gentlemen and then we will have circulating the

opportunity for providing questions and we'll have a dialogue and we will

done within an hour. So let's start with Steve.

Steve Salzman:

Great. Thank you very much. Is this better? Thank you. Do we have an

operator for the - there they are. I have a very short Power Point I'd like to run

through if you don't mind but I'd first like to say on behalf of Director Bob

Abbey, Bureau of Land Management, Marcel Lindberg, deputy director, Mr.

Mike Nedd, assistant director for Minerals and Realty Management. Thank

you for inviting the Bureau of Land Management to participate in this

hydraulic fracturing forum.

It is our sincere pleasure to be here and share with you, you know, some of the

things that we do on public lands. This first slide kind of depicts where the

federal surface is. It's mainly in the western half of the United States. The

Bureau of Land Management is responsible for the stewardship of

approximately 256 million acres of public surface.

Next slide please. Great. Thank you. That's still not the right slide.

Man:

Next slide.

Steve Salzman:

Next slide please. There we go. And approximately 700 million acres of

subsurface mineral estate. The yellow indicates the surface and the subsurface

minerals and the gray is where the public owns the subsurface mineral estate.

The areas in orange are lands held in trust for tribes.

As I mentioned, the majority - next slide please - the majority of the public

land surface and subsurface in the Western half of the United States, the green

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and red areas are where the exploration and development of public oil and gas

resources has occurred.

But the majority of domestic onshore activity has been the development of oil

and gas on state or private lands and minerals. During the last ten to 15 years

leasing and exploration activities on BLM managed public lands has focused

mainly on the development of natural gas resources. Approximately 90% of

the activity was for the development of gas and about 10% was for the

development of oil.

The number of wells being stimulated by hydraulic fracturing techniques has

increased steadily over the last decade as technology has improved and the

types of formations that are now capable of commercial production of natural

gas are much less permeable then previous ones.

The BLM estimates that about 90% of all wells recently drilled on public

lands were fracture stimulated as part of initial well completion procedures.

The specific requirements related to hydraulic fracturing operations currently

in BLM's regulations are found at 43 Code of Federal Regulations 3162.3-2

titled, "Subsequent Well Operations."

Under that provision, subpart A states that the operator must receive prior

approval for those hydraulic fracturing jobs considered non-routine and the

operator must also submit a subsequent report (sundry) notice of the

operation.

Subpart B - next slide please - Subpart B only requires that the operator

submits a subsequent report (sundry) notice if the fracturing operation is

considered routine.

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These regulations do not define routine or non-routine nor has the BLM

provided additional guidance to our authorized officers. In practice, what are

considered routine operations varies by geographic region, geologic producing

formations and industry practices common to a particular oil or gas field.

Currently there are no requirements for the operator to disclose the chemicals

used even for non-routine hydraulic fracturing operations. As a separate

matter, according to 40 (chart) 3162.5-2D, the operator is at all times

responsible for insuring that fresh water bearing zones are isolated and

protected from contamination during drilling and subsequent activities.

During the well permit review and approval process, BLM petroleum

engineers and petroleum geologists review the drilling plans and geologic

prognosis to ensure that all usable water zones are protected by proper casing

and cementing techniques. You all have heard some discussion on that

already.

BLM reviews every single well application that comes through our door to

ensure that the casing and cementing are adequate to protect those fresh water

(minerals) and other usable minerals as well.

Next slide please. In many areas, oil and gas operators are recycling or reusing

hydraulic fracturing fluids. In areas where centralized well treating facilities

are utilized and as a best management practice, it is cost effective to recycle

and reuse the water that is flowed back after the fracturing job has been

completed.

This is particularly common in areas or fields where numerous wells are

drilled and completed from a multiple well (path), here again, a best

management practice. And this is the preferred disposal method. Another

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common disposal method includes flowing back into (frack pings) for disposal

offsite to an EPA approved commercial disposal facility.

And in some areas, although less common, fracturing fluids are flowed back

into the pit, tested for hazardous components, and if they meet standards, are

allowed to air dry.

David Hayes: All right. Steve, just one question in terms of the jurisdiction of BLM. You

mentioned that in addition to the BLM lands, it (felt) some 250 million acres,

you also oversee mineral development, so oil and gas development, in other

federal lands. Is that correct? And how much?

Steve Salzman: We oversee the development for most all federal subsurface minerals even it

it's overlaid by like forest service, Corp of Engineers, in addition to tribal trust

lands. We are responsible for ensuring all of the post lease operations are

conducted properly.

David Hayes: So that's about 750 million acres?

Steve Salzman: Seven hundred million acres of subsurface federal mineral estate. I'm not sure

of the exact number of what is tribal. The federal does include the surface

managed by other agencies.

David Hayes: Sure. Okay. And just one clarifying question. The disposal piece, the last

piece that you mentioned, are there regulations that deal with that are is that a

guidance issue or?

Steve Salzman: There currently are no regulations that specifically address the disposal of

hydraulic fracturing flow back fluids. However, once those - if those fluids are

put into an approved reserved pit or, you know, work over pit, then they come

under the requirements of our onshore order Number 7 which deals with disposal of produced water and that's where those standards I referred to are located, are specified.

David Hayes:

Okay great. Thanks for clarifying. What we're going to do is continue to work through the presentations and then have a broader discussion. So Doug, please take it away.

Doug Duncan:

All right. Thank you. Thank you for inviting me and thank you all for coming. My overview is going to touch on some familiar themes because of the previous presentations that - and discussions that you've heard but maybe put in a little bit different light the way we look at it from the science perspective.

So as a bit of - next slide please - as a bit of an introduction and summary, some of the environmental impacts that are associated with hydraulic fracturing are a direct result of hydraulic fracturing whereas some of the others are indirect or I should say are a result of oil and gas exploration production in general, whether or not hydraulic fracturing is used.

And when I talk about this I'm talking about tight gas spans, shale gas and sometimes co-bed methane. And our science of USGS we hope will inform some of these decisions and inform the public to be more aware of what some of these impacts and issues are.

Next slide please. I want to start with a little bit of context. This is a map that shows the sum of the USGS assessment of undiscovered gas resources that are from shale gas, tight gas spans and co-bed methane and the size of the bubble is related to the size of the resource.

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And you can see that quite a bit of it is in the inner mountain west where

Steve just previously showed you that the federal government has a

substantial land interest. It's quite a large resource. We estimate at about 400

trillion cubic feet of gas. And I should point out that we have not completed

all of our assessments yet and so this number is bound to rise.

Next slide please. Thank you. Talking about some of the impacts, I'm going to

categorize these - and I'm going to bend these into different categories. One is

water availability. Some of these plays are quite large and the total water

usage could be large. It's consumptive use as well. You don't get freshwater

back after you've put the freshwater down into the hydro fracturing operation.

So there's a net loss of fresh water. The - this impact could be larger on

headwater streams which are smaller or in arid regions or on local aquifers.

And naturally you can imagine that if you used a lot of water from a small

stream or that sort of thing you could have an impact on the habitat and on the

wildlife.

Another category of impact is surface water quality. As you've heard before,

there's a lot of transport of fluids, flow back waters, brines, for example. And

if spills occur, that can have an impact on surface water quality.

Next. Another category of potential impact is ground water quality and we've

heard already about the importance of a good cement job. Obviously if you

don't have a good cement job then you can have contamination of an

underground source of drinking water or of the ground water in general.

Also loss of control of flow back water from a well can contaminate the

surface. It can have seepage into the shallow ground water and create local

contamination.

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Landscape impacts are related to the construction of roads and pads and

pipelines. This can cause disruption of wildlife migration corridors. You can

have habitat fragmentation as a result of this. And this is - this land

disturbance can also affect stream flow, sedimentation into the stream and

water quality in the local streams.

Naturally also that would potentially impact wildlife and fisheries. Invasive

species introduction, both plants and animals, is a problem associated with

land disturbing activities. And then there's a number of other potential

impacts associated with development, again, whether or not it's related to

hydraulic fracturing or not such as dust, (view) shed, traffic, air quality,

socioeconomic impact to local communities.

I wanted to talk very briefly about some of the USGS activities, our science

activities that can inform, again, the public and inform decision makers. We,

as I pointed out in that map of our resource assessments, we are constantly

doing resource assessments and natural undiscovered technically assessable

resources in the United States and the world as well.

And these are important because it can help predict where future activities

might occur and where future disturbances might be happening. We also

operate the USGS (rates) and extensive stream flow and stream gauging

network and a water quality network of surface waters. And we are

undergoing - we have a number of water availability studies that are currently

underway. We also do water quality, monitoring of flow back water. We just

initiated some very limited efforts in that area.

Next slide please. Thank you. Let's see. We have done one small pilot study

in a basin that was undergoing co-bed methane gas and produced water

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production as - in an attempt to try to come up with a way of doing a water

budget analysis in a basin.

We've also initiated ground water flow modeling to try to predict the fate of

some of these underground injected fluids and perhaps mobilize those fluids

from the native formation. We monitor the status and trends of endangered

species. And we also have a long term baseline of ground water and

subsurface - I'm sorry - and surface water.

Next, please. Thank you. And then in conclusion I just want to reiterate that

there are direct and indirect impacts associated with oil and gas production,

you know, with and without hydro fracturing. Our monitoring data and other

monitoring data of others and of our partners can really help inform decision

making in this area.

And then I also want to point out the importance of federal, state and industry

cooperation to allow these science activities to be conducted. Thank you.

David Hayes:

Thank you Doug. Are - just a clarifying question. Are - is USGS working with

EPA on the study that they are undertaking in terms of potential water impact

issues?

Doug Duncan:

You know, we - I think that we have a member in some of their advisory

committees and I'm not aware the details of that collaboration. But yes, we

are involved.

David Hayes:

Yes. Good. Okay, Tom you're next even though I introduced Mark first. But

not going to get in your way so please give us your remarks and we'll follow

with some questions. Thank you.

Tom Doll:

All right. I did not bring a Power Point so it would've been quite boring. Just didn't want to insult your intelligence on reading word for word what our rules might say. I do want to thank the Secretary and the staff and the folks that are here, you all, for being here.

This is a great opportunity for me personally and for the state of Wyoming to let you know what we've done in the past year and a half to address hydraulic fracturing, well stimulation in general in the state of Wyoming.

I'm not too sure but I think about 68% of the minerals in the state of Wyoming are on federal lands or under federal lands, if you will. And in other then shallow coal bed methane wells that are primarily in Northeastern Wyoming, those wells are not hydraulically fractured but 100% of all the oil and natural gas wells in the state are.

If we weren't able to use hydraulic fracturing in the state of Wyoming, our wells would not be economic by any stretch of the imagination. These are tight reservoirs. They're thin. They require hydraulic stimulation to be economic.

That would be, without hydraulic fracturing, that would be a negative impact on Wyoming's economy. We gain tax revenues from severance ad valorem sales tax and other sources. And, in fact, my agency is funded completely from industry on a conservation tax.

Wyoming has no income tax and low property and sales taxes and so hydraulic fracturing is the reality and it means something to each individual in the state of Wyoming. We started off about a year and a half ago to look at our rules and amend our rules to bring some of the statutory language and the rule language up to modern times.

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The state legislature had decreed that we needed to address carbon

sequestration unitization language and that is what prompted our rule changes.

And as we evolved through this, the governor of the state, Dave Freudenthal,

said he wanted us to address hydraulic fracturing rules, put a well stimulation

rule on the books.

So we struggled with that over about a six month period of - with public input

from all sides. And we had four main areas that we wanted to look at. First of

all was the identification of the shallow ground waters, wells that exist within

a quarter mile of a drilling and spacing unit that someone might be trying to

permit to drill an oil or gas well on.

We didn't put into our rule but a good best management practice there would

be to actually sample those water supply wells to confirm what the quality and

the quantity is prior to any drilling activity at all. These are shallow wells that

would be monitored and permitted through the Wyoming State Engineer's

Office who handles all of the ground water appropriations in the state.

The second issue that we wanted to address was to detail our requirements for

well integrity. We are using the API standards for the steel casing that is used

in the state of Wyoming as well as the cementing requirements must meet API

standard as the minimum.

We do stipulate stronger requirements depending upon the areas within the

state that operators may be asking to get a permit, an application for permit to

drill.

The main issue that was driven by the - initially by the governor and then by

the commissioners themselves was chemical disclosure. And as our third main

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bullet under what we were trying to accomplish is we wanted to get every

chemical that was going to be used in the well, all chemicals to be injected to

be identified by chemical name, by the chemical abstract service number, by

their chemical type and then their concentration or rate.

And then the fourth item that we really wanted to address was the handling of

the flow back fluid, whether it's swab back or flowed back out of the well

after the frac job or the well stimulation even if it was an acid job, and how

that was going to be recycled, reused, disposed of, handled on the surface.

And so those were the issues that we wanted to address and we believe that

our rule language addresses all of those points. Now those rules went into

effect on the 15th of September of 2010. And we have had an interesting time

with some issues that we didn't anticipate when we went out to get the

information starting on the 15th.

The disclosure is done by application for permit to drill or by sundry notice of

intent to perform a well stimulation. What we found is that the secondary

chemical market was not contemplated when we were addressing disclosure.

And so there are chemical suppliers who supply these larger service

companies with chemicals that all of the sudden they found out that Wyoming

had the disclosure requirement and they said well this is all proprietary.

Well, in our statutes we don't have any provision to protect proprietary

chemistry or information though we can protect trade secrets. And so under

the rule we can, in fact, and have on about eleven occasions to this point

issued a trade secret exemption to our disclosure requirement.

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I don't expect that that's going to be a massive flood of requests but we do

have those requests coming in weekly from various different chemical

suppliers and manufacturers.

Since 1950s, when we got our oil and gas conservation commission set up, we

have had no confirmed cases of ground water well contamination due to well

stimulation in the state of Wyoming. We do require that we will approve

federal wells via these applications for permit to drill and sundry notices prior

to any work commencing on federal minerals as well. And our Web page

provides all of our disclosure information for the public. Thank you.

David Hayes: Thank you very much Tom. Can you clarify that last point, relationship with

state regulation and the federal lands?

Tom Doll: Yes, in Wyoming we require a permit to be submitted for our approval even if

it is on federal minerals. And so the operator has to provide us either the form

that they submit to the BLM or they can submit that information on our form

but they do need to provide both. And they need - there are requirements

within the rules. When they spread the well, when they do a BOP test on a

federal well, they have to inform us as well. And so it's - there's some duality

there but that is what our statues require, yes.

David Hayes: So as a practical matter does that mean that operators will follow your

regulations as well as BLMs or is there more of a notice to you all?

Tom Doll: No, they have to follow our rules and regulations.

David Hayes: Right.

Tom Doll: And that's brought quite a few companies to the commission's attention to

straighten those issues out.

David Hayes: Right.

Tom Doll: But they do have to have that approval and follow our rules as well.

David Hayes: Right. Good. It's an important point. Thank you. And let's finish the

presentations before we get to Q&A with Mark Fesmire of New Mexico.

Mark.

Mark Fesmire: Oh, one of the disadvantages of going last is everything that you wanted to

say has already been said so I could probably just fill in this time by saying

ditto and pass it. But as Mr. Hayes mentioned, I am a lawyer. I've got seven

minutes to talk and by God, I'm going to talk.

First of all, I too want to thank the Secretary and Mr. Hayes for organizing this meeting. Fracking is an incredibly important technology in developing New Mexico's (all) gas resources. And it's a technology that we think is

fundamentally environmentally sound if you follow three precepts.

First of all, don't frack USDWs, second, maintain your well (bore) integrity and third, maintain control of your waste. We think unfortunately fracking has been the whipping boy and that the general public has picked up on a lot of issues that they are blaming on fracking when really those issues were

violations of the three principles that I just mentioned.

With respect to not fracking USDWs, New Mexico's been pretty lucky in that to the best of my knowledge we do not have a gas reservoir that's also an aquifer for usable water and with the one major exception in the southeast

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portions of the state, most of our deep usable water is still sufficiently

separated vertically from the oil and gas reservoirs that fracking the oil and

gas reservoirs is not an unreasonable risk to those aquifers.

With respect to maintaining well bore integrity, New Mexico, we've been

again lucky in that since the mid-1930s we've had rules in place that require

operators to case and cement their wells in such a manner as to prevent fluid

flow from any zone into any other zone.

Ironically the rule was put in place to protect the oil reservoirs from being,

"drown," by fresh water but it works both directions. The last issue is

maintaining control of your waste. That's the most problematic and we think

that's the source of most of the problems that other states have been having.

Operators have not been maintaining proper control of their waste and some

of those - these wastes have gotten into surface and ground water. In New

Mexico, we're again pretty lucky. We have rules in place that require proper

disposal or reuse of frack fluid flow back and since June of 2008, we've had a

rule in place that required the pits to which these materials were flowed back

to either be - to be adequately sited, adequately constructed and adequately

lined.

Unfortunately that rule is under attack. The governor elect has said that she

will eliminate that rule and if she does I think that we can expect New Mexico

to start having some of the problems associated with fracking that they're

having in other states.

The reason that we don't think fracking itself is such a problem is that it's an

inherently self-regulating process. When a producer pumps a frack, those

fracks themselves are very expensive and they're not going to be inclined to

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use that money to create and prompt fractures that are not going to contribute

hydrocarbon production to the well.

The second issue is that during the life of that well, if you frack into a water

zone, in order to maintain your pressure sink in the well you're going to have

to lift and dispose of all of that water coming from that water zone. Again, the

operators are going to do everything they can to prevent that. So fracking

itself is not a real problem.

And one of the advantages of fracking is that once you've designed a frack as

you're pumping it you can see something go wrong. You have to have an

engineer on site watching it and if they see something go wrong, they can

make adjustments or if necessary they can stop the frack. Sometimes that

results in a two (finger) casing full of (profit) laden fluid but it's better then

fracking out a zone. And, again, it's real time data. You can see it. You're not

going to frack out a zone if you're paying attention.

I'm not going to attempt to address a couple of other issues that people have

spoken about today. I am going to mention that the fracks in New Mexico are

getting bigger. There's going to be more pressure on the rules because - well,

we're pumping fractures - (frack gumps) now that are upwards of 30 stages in

horizontal wells and upwards of a million gallons of fluids.

As those volumes increase, there's going to be pressure on managers to reduce

the cost of properly disposing that fluid and we're going to see that that is

going to become a bigger problem even though we had the rule in place.

I'm not going - New Mexico hasn't done anything with respect to disclosure.

I'm really embarrassed sitting next to Wyoming who's done all that. We think

it's an important issue. We have been - we have participated in the GWPC

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process and we think it's a good idea but New Mexico really hasn't done

anything about it.

So I guess in closing, I can say that fracking is an extremely important process

to New Mexico and that it's an environmentally sound process if you don't

frack USDWs, maintain well bore integrity and maintain control of your

waste. Right now New Mexico has the rules and regulations in place to do

that. That may not be the truth after January 1.

If the governor elect does what she says she's going to do, I anticipate

problems with water contamination due to fracks in New Mexico. Thank you

all.

David Hayes: Thank you Mark. First, just a clarification. Can you explain the acronym on

your first principle - UDSW?

Mark Fesmire: Underground sources of drinking water defined by the EPA. Generally it's

less then 10,000 parts per million total dissolved solids but there're some

other requirements on it too.

David Hayes: Great. Great. And how about the question I asked Tom about the inner section

between your regulations and practices on public lands in New Mexico?

Mark Fesmire: Well, we have a really phenomenal relationship with the New Mexico BLM

offices. We treat the federal lands as co-regulated. When you file a form, for

instance, an application for a permit to drill, you file on a federal form in the

federal office. It's then routed to us for approval after the feds have approved

it.

Where the rules and the regulations seems to conflict, we worked out a real neat system and I'll give you an example. Well bore integrity tests, New Mexico has a 300 PSI max requirement and a bleed off, an allowable bleed off. The feds don't. They have a 500 PSI max requirement and no bleed off.

If somebody calls us to witness a casing integrity test, it meets our requirements, we'll say, "Congratulations. You passed the New Mexico requirements. We're notifying the feds." And we tell them, you know, and they - if it didn't meet the federal requirements they will not pass it and we will honor the federal decision.

David Hayes:

And how about your - the - you mentioned in particular the waste management approach that New Mexico takes. How does that compare with the federal waste management approach?

Mark Fesmire:

I haven't had a chance to really compare the two. Like I said, our procedure, our pit rule has been extremely effective. We haven't had a single case of ground water contamination caused or at a facility regulated by this rule since the rule was implemented 2-1/2 years ago. I think we're a little more stringent then the BLM requirements but the BLM supports our work in the state.

David Hayes:

Great. Thank you. Let me say I think, Mark, your sort of segregation of these issues is particularly helpful and actually a number of the questions that came in are relevant to that. And, Doug, I'm going to put you on the spot a little bit because we heard from Tom and from Mark that in those states where there's a lot of fracking, there have not been contamination issues that maybe I think that's what both of you said essentially, water contamination issues.

So how does that square with your points that there have been contamination issues. Is - can you help us?

Doug Duncan:

Yes. I think - sure. I think that the purpose of my talk was to talk about potential issues and really not to demonstrate their specific examples of those. But I think if you look at the trend of oil and gas development, some of the easier geologies are exploited first and I think perhaps one of the concerns would be if we got into some more marginal geologies where the formation, the producing formation was much shallower then what has been practiced today and perhaps the ground water was much deeper.

So the separation between the underground source of drinking water and the producing formation where much - was much closer. And so that would be a concern and perhaps something worth looking at.

David Hayes:

Well that's an important question. And I ask any of you who can speak to this to comment about this. Often in the west, I think the aquifers are lower, are deeper, then they are in the east. And does that mean that there is less opportunity for communication between the fracking and the ground water that - the ground water aquifers in the west then the east? Or is - can any of you help us on that? Or is that an open question?

Tom Doll:

Well I'd say in Wyoming, what the commissioners looked at were not only the identification of where the shallow ground water wells were but also an identification of all of the geology between the surface and the pay zone, if you will, the reservoir depth to include the identification of potential deep aquifers.

If those come through on the APD, the Application for Permit to Drill, our staff looks at that information and then makes sure that the surface casing is set at least 200 feet below that deepest known aquifer or potential aquifer and then cement it back to surface.

David Hayes:

Okay.

Tom Doll:

And the surface casing job then has to be cemented back to surface. In some cases we will require then that the cementing job on the production casing's (drained) from total depth has to come up into the surface casing or be circulated to surface. Again, that's so specific to the area and to the site that it's hard to make that general comment but that's how we look at that in our rules.

David Hayes:

So your requirement that you have a certain separation from shallow water wells, is that primarily because of a well integrity issue as opposed to a fracking issue? As I understand it your fracking's going to be much, much deeper and so the likelihood of contamina- of a communication there may be modest but perhaps there's a concern that in the shallow water if you didn't have well integrity you could have a problem with communication?

Tom Doll:

I expect that that would be the case in a shallow well if they didn't follow - the oil and gas company - didn't follow the rules. The - what I've identified as I've spent my almost two years on the job and from my career is the fact that the - there's very little known about these shallow ground water supply wells.

They get a permit from the state engineer to appropriate a certain volume of water. In that, they tell - the permit comes back. It tells the land owner or the well driller what the minimum requirements are.

I think that most people unfortunately believe that their water well is a pristine and engineered well when it is just a hole in the ground with some plastic pipe or some steel pipe and may have only been grouted in and may only be just tens of feet deep instead of hundreds of feet deep, and may in fact be allowing

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cross flow between different ground waters that are causing contamination

problems.

Yet when the red or blue or white or green truck rolls through there, now

we've got somebody we can go and attack. And I have to admit that a lot of

this has been hyped up because of those kinds of facts. And we need to really

look at what is the cause and what is the effect and we feel strongly in

Wyoming that we've put rules in the books that we administer and inspect

these wells to ensure that the well integrity is there.

And we don't have that confidence in these shallow drinking water wells that

have been drilled, you know, in some cases. And I think that we have science

to back up. There're casing special logs, there're cement bond logs, there're

all kinds of additional information and under our rules I have the discretion to

require additional testing if I feel that there is the potential for compromise in

our current design.

So through feedback with our field inspectors and with our communication

with our operators and with the environmental community, I think we've

addressed those as they come up.

David Hayes:

Good. And just one follow-up. The requirement of cementing I think you said

a couple hundred feet below an aquifer to avoid communication, is that a

Wyoming rule? Is that an ATI based rule? Is that a best practice that is

widespread?

Tom Doll:

That was a clarification of a rule that we had on the books to really detail how

deep we needed to be below that known aquifer to ensure that there wouldn't

be a path. I think it boils down to what is the potential pathway for...

David Hayes: Right.

Tom Doll: ...fluids to migrate within a well bore and that pretty well takes care of that

issue.

David Hayes: Mark in New Mexico, do you have any similar requirements?

Mark Fesmire: Oh, we have essentially the same requirements that they have in Wyoming.

Your first casing strength has to be - has to have cement circulated to the surface. It has to be set sufficiently below the water (sum) to make sure that

there's no cross flow. We, too, generally use about 200 feet.

David Hayes: And Steve, how about BLM? You have some well integrity requirements. Are

they as specific as this?

Steve Salzman: The BLM generally follows the requirements that are set forth by the various

state regulatory agencies. For example, in the secretarial pond ash area there

are very rigid cementing and casing requirements to protect the pond ash

reserves. And in those areas I believe there're two separate casing strengths

that are cemented back to surface to protect those pond ash salts.

Generally speaking, we follow the same guidelines that the - our standards are

mainly based on API standards so we follow the same guidelines.

David Hayes: That's an important point that BLM has some well integrity requirements in

addition to the fracking specific regulations that you mentioned. We've got

lots of good questions so we'll take a few more. This is for Tom and your

disclosure requirements. Can you clarify how you distinguish between

confidential business information and protected trade secrets and how you

determine whether chemical mixture is a protected trade secret or not. What are the standards?

Tom Doll:

That's a great question. The Wyoming Public Records Act is very specific in what is a trade secret. It's a very narrow definition and I work with the Attorney General's office to review the application. A chemical company would send me a letter saying that we would like to have trade secret protection under this statute.

They would attach their justification which would include how they keep the chemical trade secret internally, how they - what they - may detail what they've spent for research and development, what it means to their company if it was to be disclosed and they would lose a competitive edge, and on it goes.

There're several different methodologies that they can utilize to convince the commission that the chemicals should be held as a confidential under our disfrom our - and held back from our disclosure requirement.

Then they have to disclose two - the commission in that letter as an attachment to the actual product, chemical compound makeup, so they have to list all of the compounds, the cast numbers, and provide that to us that we would hold that confidential.

So I have in my files that information and we would then say, okay this is or is not a trade secret and would be held confidential and my staff would be informed of which chemicals those were and if anybody needed to see that on my staff, I would have that. But it would be held back from public disclosure unless there was an incident.

David Hayes:

Do you have any sense, Tom, of what percentage of the fracking fluids that are in use in Wyoming, of the companies that supply those fluids, have asked for this kind of protection?

Tom Doll:

Yes, I've had several inquiries and we've issued right at, well, eleven for sure and possibly a 12th will be issued, the trade secret status and that will be held confidential. So that's since September 15 so it's not a large number to this point.

David Hayes:

As - do you have sense of how many folks have not? I mean, just a (relevant)...

Tom Doll:

Well it's - right now there've been four companies. A fifth may have submitted a - they were planning to submit their information and their request but I haven't seen it yet. So that's - right now that's about the extent of it at this point. But that includes some of the - what I call the secondary chemical market. The small companies supply, I'm going to call them custom chemical blends for the major service companies to provide their overall mix here.

David Hayes:

Great. I've got a question here that is a bit of a statement too. There're a bunch of these. People feel strongly about this issue. Shale energy is found in source rock to cover areas measured in hundreds or thousands of square miles. This scale is an order of magnitude greater then conventional oil and gas development. Existing regulations are not in place to address the enormous scale of shale gas development. The industrialization of the land and affected communities needs to be addressed to maintain public acceptance.

To minimize footprint and reduce impact cooling of top site facilities, multi well pad drilling and unitization tracks is essential. I'm going to broaden the question in saying what is - what are your states and what is BLM doing to

deal with this question of the - I think it's sort of the horizontal scope, if you will, of the resource and the question of dealing with the surface impact and trying to minimize the impact. Go ahead (Bill).

(Bill):

I'll speak to that briefly. You know, this kind of brings to mind what's currently occurring up in North Dakota in the (bock) and shale. We have responsibilities for oversight of the operations on trust lands up there.

And, you know, those resources to have a very large aerial extent. Because of directional drilling and because of this new fracturing technology that's been developed, they're able to develop those resources on 1280 acres (facing) further reducing the footprint or the impact, you know, associated with that type of development.

So I think in this situation maybe, you know, the same type of best management practice will apply there depending on the nature of the reservoir and what, you know, a typical, you know, modern completion is capable of draining.

David Hayes:

Just to follow up, does BLM have a regulatory requirement limit, the footprint, if you would, or is it a discretionary thing?

(Bill):

It's not necessarily a regulatory requirement. It's part of our reservoir management program. These rules, these spacing rules were developed, you know, mainly by the state of North Dakota based on the technology, what a typical well was capable of draining if it was drilled and completed properly in that formation.

BLM generally is part and parcel to those developments of those state rules although in certain situations the BLM does reserve the right to set its own

spacing for federal and tribal lands. But generally we are in agreement with the states on spacing rules and that type of development because it is based on science and best management practices.

David Hayes:

Great. I don't know if Doug, you have any comment on this? I don't want you to feel left out but...

Doug Duncan:

No, it really is with the BLM in the space. And so I think to the extent that the USGS would be involved we would look at these landscape scale impacts, for example, in fields that are being built out and if we were able to better characterize those impacts and we could come up with perhaps suggestions on ways that the impacts could be minimized.

David Hayes:

Tom and Mark, quick comments on this point? It's an important point I think.

Mark Fesmire:

With respect to the surface management, the surface unitization, New Mexico's got some experience in these massive areas. We have one unit, the Bravo Dome CO2 field in northeast New Mexico that is - well, it was initially proposed at over a million acres. It's now down to around 950,000.

But we are seeing with horizontal drilling and fracking, we are seeing some unique problems with respect to unitization and ownership. People will want to unitize an entire section where they own the north half and somebody else owns the south half and the people in the south have say we've got all the reservoir. They just wanted to drill the wells from the north half into our reservoirs.

And we're in the process right now of trying to develop rules to regulate that. So that is an area where it's going to some concern but New Mexico does have some experience with massive units.

Tom Doll:

And also our rules address the spacing and as far as the well stimulation is concerned, we have asked the operator to come forth with a drilling completion or recompletion plan for an area. It doesn't have to be with a unit. It would be, say, the Pinedale area - Pinedale and the (Klein) area. There're three or four major operators there.

They've each submitted a plan on their drilling completion, recompletion so that we have a plan that they can refer to and then when they send in an individual application for permit to drill or a sundry notice then they refer to that plan. There've been no changes. We've already previously approved that.

Wyoming doesn't have a NEPA type authority or requirement and so that's about as close as we've gotten to looking at that. Our standard spacing is 640 acres. Anything that you want above or below that, you have to come in front of the commission and get approval and it takes good science to do so.

David Hayes:

Well I'm going to be true to my word and finish this early. I'd like to give the panel - let's all give the panel a big hand. And I just want to say one or two minutes of closing remarks.

First of all, I want to acknowledge a couple of people that are heavily involved in this activity and that includes (Liz Klein). Is (Liz) still here? (Liz). (Liz) is my counselor very much involved. And (Neil Kimcar) is - works with Steve Black as his counselor and will be heavily involved along with Marcilynn and (Bill) and others at BLM.

I want to thank (Ray Rivera), our external affairs lead who helped us pull this thing off. Thank you for reacting very quickly to the agenda that came out over Turkey Day or there - or shortly thereafter.

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Let me just say in conclusion that this is - I think this afternoon is exactly

what we were hoping it would be from our perspective and I hope from your

perspective. We are engaged in a process at the Department of the Interior to

explore whether we need to revisit our current policies with regard to

hydraulic fracking on the public lands.

And those policies range from what the Secretary mentioned, the question of

disclosure and whether the BLM should follow the lead of Wyoming or others

in terms of requiring a disclosure of fracking constituents and also to the

question of standards.

The - you saw the current BLM standards here, talk about routine and non-

routine fracking activities without really tethering that to any specific types of

operations. We will, in the coming weeks, as the Secretary mentioned, be

evaluating where we go from here, whether we move forward, if we - with

some sort of formal reexamination of our current practices, whether we don't.

The Secretary indicated his interest in exploring the disclosure issue very

vigorously but we also are going to look at the question of in consultation with

all of you of whether the BLM should (pressure) its approach here to how it

oversees the hydraulic fracking activity that occurs on the public lands.

I want to emphasize that what brings us here is BLM's responsibility over the

public lands, its own lands and also the four service lands and other public

lands, the 700 million acres or so that we have a responsibility to make sure

that appropriate and safe mineral extraction activities are undertaken.

We are not engaged in a broader effort to suggest what states should do, what

other organizations or parts of state or local governments should do. What

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we're about here is figuring out what the federal government should do where

it has jurisdiction and responsibility as it has here and as we've discussed.

But if we do go forward, we will want to take advantage of the brain trust in

this room, work with state players, work with interested NGOs, work with the

industry very carefully but all that to be determined. And - but today has been

a terrific way for us to kick off this evaluation and for us to figure out next

steps. So please stay tuned. In the meantime, thank you very much for

participating.

END