

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING FOR PUBLIC  
COMMENT ON THE DRAFT GENERIC  
ENVIRONMENTAL IMPACT STATEMENT  
FOR IN-SITU LEACH URANIUM  
MILLING FACILITIES

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Friday, August 29, 2008

Large Meeting Room

Senior Center, Old Grad School

627 Pine Street

Newcastle, Wyoming

The meeting convened at 7:00 p.m.

PANEL MEMBERS:

FRANCIS X. "CHIP" CAMERON, Facilitator

KEITH I. McCONNELL, Deputy Director, Division of  
Waste Management and Environmental Protection

JAMES R. PARK, Project Manager, Draft GEIS

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AGENDA

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P R O C E E D I N G S

MR. CAMERON: Good evening, everyone. My name is Chip Cameron, and I work for the executive director for operations at the Nuclear Regulatory Commission, which we'll be referring to tonight as the NRC. And it's my pleasure to serve as your facilitator for the meeting tonight, and in that role I'll try to help all of you to have a productive meeting.

We probably don't need to use the microphones for everybody to hear, but we're using the microphones tonight so that our stenographer, Brenda Thompson, back there, will get a good transcript. And that transcript will be the record of tonight's meeting, and it will be publically available.

The subject tonight is the NRC's draft generic environmental impact statement, or draft GEIS, that has been prepared on the issue of uranium milling, and specifically on a technology called in-situ leach, or ISL technology. And the staff will be telling you more about that in a few minutes.

I just wanted to go over a few things about meeting process so that you know what to expect tonight. And I'd like to thank you all for coming out, especially on a Friday night on Labor Day weekend. But I'd like to

just tell you what the format of the meeting is going to be, some simple ground rules so that we'll have a productive meeting, and introduce the NRC staff that's going to be speaking to you tonight.

In terms of format, it's really a two-part meeting. The first part is to give all of you some information and background on the draft GEIS, what the preliminary findings are in a draft GEIS, how the GEIS might be used in later site-specific licensing decisions by the NRC, how you can help the NRC to finalize this draft GEIS.

And after the NRC presentations we'll go out to you for questions and then we're going to go to the second part of the meeting, the most important part for us, which is to listen to your advice, your concerns, your recommendations on the draft GEIS.

And we're asking for written comments on the draft GEIS also, but we wanted to be with you tonight to talk to you personally. And you may want to amplify on anything you say tonight in a written comment, you may hear something tonight that someone from the NRC says, or someone in the audience says that prompts you to submit a written comment.

And anything we hear tonight is going to have

the same weight as a written comment. So you don't have to file a written comment, you can get it on the record tonight.

In terms of ground rules, if you could just please wait, hold your questions until after the NRC presentations are done, and we'll try to be as brief as possible. We have two presentations for you. So we want to get all the information out to you before we go to questions.

And if you do have a question, when we get to that point in the meeting, just signal me and I'll bring you this cordless microphone, and if you could just introduce yourself to us and then we'll try to answer your question. I would ask that only one person speak at a time. I don't think we're going to have an issue with that tonight. Sometimes when we do these types of meetings, everybody is jumping up to talk all at once and over one another.

But I usually ask people to just follow the ground rule of one person at a time, most importantly so that we can give our full attention to whomever has this microphone, and secondly so that the stenographer, Brenda, can get what I call a clean transcript so that she'll know who is speaking at that particular moment.

And when we get to the comment portion of the meeting, if you want to talk, it's helpful for us if you fill out one of these yellow cards, but that's just so that we know how many people want to talk. So you don't need to fill out a yellow card if you want to talk. I'll ask you if you want to speak after we get done with these speakers and we'll see who else wants to talk.

And so that everybody can get a chance to speak, I ask people to try to follow a five-minute guideline in terms of their presentation, or comment. And usually five minutes is enough time to summarize what you have to say, and you can amplify on it in a written comment.

But it fulfills a very important purpose, which is to alert the NRC staff to some issues that they should start thinking about right now, and perhaps talk to you about after the meeting. They will be here after the formal close of the meeting to talk to you as long as you want.

But it's important for all of you in the audience and the community to hear what people are saying and that may alert you to some issues or concerns that you haven't talked about.

FEMALE VOICE: Well, can I ask you one

question, because I don't know the --

MR. CAMERON: And see here's a good example of how -- we have to get you on the transcript and you have to introduce yourself.

FEMALE VOICE: No, I just want to know the people. Like who you all are and where you're from. Did I miss it?

MR. CAMERON: No.

FEMALE VOICE: I was late.

MR. CAMERON: But that's coming. Okay. So you anticipated that. Okay. Thanks. No, I'm going to introduce the NRC staff in a couple of minutes here.

And although it doesn't necessarily need to be said, finally, just extend courtesy to everybody tonight.

You may hear some opinions that differ from your own, but just respect the speaker who's giving that opinion.

And with that, since I had a strong recommendation from someone in the audience to do this, I'm going to introduce the NRC staff. And our first speaker is going to be Keith McConnell, and he's our senior NRC official here. He's from our headquarters in Rockville, Maryland, and Keith is the division director of the Division of Waste Management and Environmental --

MR. McCONNELL: Deputy.



MR. CAMERON: -- deputy. Okay. Deputy director, that's right, of the division of Waste Management and Environmental Protection. And he's going to tell all of you a little bit about the NRC and set the stage for the specifics on the generic environmental impact statement.

And the specifics on that are going to be given by Jim Park, who's right here. He's a project manager for the development of this draft GEIS, and Jim is also from our headquarters in Rockville, Maryland.

And those are our speakers. But let me introduce the rest of the NRC staff. First is Gregory Suber, right here, and Greg is chief of the branch, the environmental branch that is preparing this GEIS.

And, Jim, you work for -- you're in Greg's branch, so --

MR. PARK: Yes.

MR. CAMERON: -- Greg, again, Rockville, Maryland.

And we're lucky to have Joan Olmstead with us here, and she's from our Office of General Counsel, again, headquarters in Rockville, Maryland. And if we have any questions about any legal process, Joan will be able to answer that for us.

And this is Antoinette Walker-Smith, and she is an administrative specialist with us and takes care of all of the important logistical details so that these meetings are a success.

And do we have -- Tarsha is outside. Okay.

And, Patrick, do you just want to introduce yourself?

MR. LaPLANTE: Sure. My name is Patrick LaPlante, and I'm a contractor for the NRC that help provide technical support on the development of the GEIS.

MR. CAMERON: And thank you, Patrick.

FEMALE VOICE: And you're from where?

MR. LaPLANTE: I'm from the same area, Rockville, Maryland, essentially.

MR. CAMERON: Okay. All right. Well, we're going to get started with Keith's presentation now, and, again, thank you all for being here to help us with that.

Keith?

MR. McCONNELL: Thanks, Chip. Thanks, Chip.

On behalf of the U.S. Nuclear Regulatory Commission, I want to welcome you here tonight to talk about our draft generic environmental impact statement for in-situ uranium recovery facilities.

And like Chip, I want to thank you for coming

out tonight and participating in what we believe is a very important meeting, because it's through public meetings like this that you, members of the public, can have input into NRC's licensing process. So it's a very important meeting from our perspective, and I think from your perspective also.

We're here tonight for two main reasons. First, we want to describe our activities to date to assess the environmental impacts of future in-situ uranium recovery facilities. And Jim will be providing more site-specific information to give you a better idea of why we're here in this particular area.

But, in essence, we're here to describe what we've done to date. And what we've done to date is encapsulated in the draft generic environmental impact statement that you all have before you, if you got the little diskette, but it's also available on our website, which is [www.nrc.gov](http://www.nrc.gov).

The GEIS and all of our environmental reviews, are driven by the National Environmental Policy Act of 1969, which required federal agencies like the NRC to do an environmental reviews for any major federal action they contemplate doing. And licensing individual uranium recovery facilities is considered a major federal action.

So we do that because of the National Environmental Policy Act.

The National Environmental Policy Act also has a process defined for the involvement of the public, and that leads to the second reason we're here tonight, and that is to hear your comments, gain insight from you and your perspective on these activities so that we then can incorporate them into our generic environmental impact statement.

I would note that this meeting is actually the third meeting we've held this week, and is the second in a series of meetings that we're going to hold. We held scoping meetings last fall in the August/September time frame, one in Casper, one in Albuquerque, New Mexico, and one in Gallup, New Mexico.

In this set of meetings that we're holding in this time frame, there are these three meetings, one up in Spearfish on Monday, one down in Chadron on Wednesday, and this one.

And then two weeks from today, or actually two weeks from Monday we'll be in New Mexico again to do Albuquerque, a meeting in Albuquerque, a meeting in Gallup, and a meeting in Grants. And then the third week in September we'll be back in Wyoming. We'll do western

Wyoming with a meeting in Casper, and then a meeting in Gillette.

And as Jim will tell you more about, the reason we focused on those areas is that's where we expect the major activity in terms of in-situ recovery license applications to occur. And that's actually divided into four geographic areas. This area, which basically is a northwesterly trend from Nebraska to South Dakota and into northeastern Wyoming. So I think what we're trying to do is get out to the public in all the areas where we expect to see major uranium recovery in-situ leach operations.

So what we're going to do tonight is three things basically. I'm going to try to provide some brief introduction on NRC roles and responsibilities. Some of you may be familiar with the NRC, others may not. And hopefully this brief introduction will just tell you who we are and what we do. And we'll focus on our responsibilities under the National Environmental Policy Act, or NEPA as we call it.

Then I'll turn it over to Jim, and Jim's going to describe the draft GEIS in more detail. He's going to talk about the purpose and the approach. Some of our draft findings to date, and then talk about next steps in terms where we intend to go with this, and then provide a

schedule.

And then as Chip mentioned, we want to open it up for comments and questions, and we will stay after if you'd like to talk to us after the meeting. That's fine too.

Just some background on NRC, and what we are, or who we are and what we do. We're an independent federal agency. We were created by the U.S. Congress by an act in the mid 1970s. We're different from organizations like the Department of Energy, or the Department of Interior, the Department of Transportation in that we report directly to Congress. We don't report up through the executive branch.

And what Congress did when they created us is they gave us one mission, and that was to protect public health and safety and the environment in the use of commercial -- or commercial use of radioactive materials.

In that regard we have no role in the promotion of the use, it's only when that use is wanted by a company, when a company is interested in using radioactive materials that's the only time we become involved because we license that use. We don't license the defense side of facilities. That's done by the Department of Energy.

So it's only the commercial use that we're

involved in. And we do license commercial activities that can include things like nuclear power plants that generate electricity, it can also relates to gauge holders that well logging with radioactive materials, we license those gauge holders.

We also have agreement states which implement our regulations by agreement with us. Wyoming is not an agreement state, but states like Colorado and Utah are, and so they implement a similar program in those states that we implement in Nebraska, South Dakota, Wyoming, and New Mexico. So a similar type situation.

And one of the, I think, key points I want to make is openness and transparency in what we do is very important to us. That's why we're here tonight, that's why we're conducting a series of eight meetings over the next three weeks. It's very important that we hear your concerns and any comments you have on the activities that we do.

You know, it should be no surprise to you in terms of what we do, why we do it, how we do it, or when we do it. We try to effectively communicate. We're not always perfect, but we do try to get the word out about what we're doing, why we're doing it.

Just to bring it back a little bit more into

focus in terms of our National Environmental Policy Act responsibilities, our regulations for implementing that Act are at -- in our regulations at 10 C.F.R., and that's Code of Federal Regulations, Part 51. And those regulations are on our website if you're interested in those things.

And those regulations were developed with guidance from the Council on Environmental Quality which was designed to implement NEPA, which was given the task of implementing NEPA.

The next thing I'd like to do is run through our licensing process to give you a little bit better perspective on where a draft GEIS fits in, and how we go about licensing an in-situ uranium recovery facility. It gives a little bit of context about how we do it and why we do the things that we normally do.

And generally, the process starts when a company, like Crow Butte in Nebraska, in northwestern Nebraska, decides they want to get into the in-situ leach uranium recovery business. They go out and collect a substantial amount of information, including things like ground water hydrology, and the community, and any sort of geotechnical engineering aspects that need to be done in order to have this operation work safely. They also



generate a lot of environmental related information.

And what that results in is a license application that is composed of two major parts, a safety report and environmental report. And, you know, it's a stack of papers about this high that they subsequently submit to us.

And I'd also note that it also includes a ground water restoration plan that they have to provide at the time they submit their license application, which basically describes what they're going to do to ground water, since this process is basically working in an aquifer.

Now, what they're going to do to that aquifer and how they're going to restore it, and they also have to provide us with an independent cost estimate about what that's going to -- or how much it's going to cost to restore that aquifer to the baseline conditions. So all three of those things come in to us when an application is submitted.

Now, our expectation, since the price of uranium has gone quite high over the last couple of years, our expectation is that we're going to receive somewhere on the order of 28 to 30 license applications over the

next three years. We've got four in house right now.

And with that, that's an avalanche of work for us. And we had to do -- in order to process that work and maintain the integrity of our review, maintain the rigor and completeness of that review, we had to look at how we can make our process more efficient and effective.

And one of the things we chose to do was to develop a generic environmental impact statement per in-situ recovery, which is the vast majority of the applications we expect to receive, because that allows us to, particularly in these geographic areas that Jim will talk about, allows us to, in one document, put together some of the common information that facilities in that region might have in common.

And so, in essence, we will use that document to then do a site-specific environmental review, which we would use the draft generic environmental impact statement as a foundation. And Jim will talk more about that later.

So we get that application in the door, it's I mean this stack of papers, and what we do is conduct a review in two steps. First we do an acceptance review, which takes 90 days, and we look for two things. We look to make sure the application is complete, and we also look to see if there are any fatal flaws in the application,

such as them not being able to demonstrate they meet one of our requirements, our safety requirements, or environmental requirements for that matter.

And if that happens, we give the -- if there is a fatal flaw, we give the licensee, or the company, two alternatives. They can withdraw the application voluntarily, or if they choose not to do that, then we would not stop our review, basically not accept it for detailed review, and send it back to them.

And I would note that we have in the past year had one company withdraw their application because it did contain a fatal flaw. So it does happen, and it usually -- those things are identified early because we don't want to spend our resources working on an application that's incomplete or is fatally flawed. And because, in essence, every hour we work at the NRC is billed to our -- to the company. We're a fee recoverable agency, so everything we do is billed to the companies.

Presuming that the application is complete, we then take the second step, which is to start our detailed review. That detailed review is conducted in basically two parallel parts.

One is the safety review which looks at the safety requirements that we have, you know, is ground

water going to get off the site, is ground water going to be protected in terms of the uranium that's in the site that's being mobilized and then brought up the well. Those are our safety requirements, so we conduct a safety review.

At the same time, Greg's group and Jim Park and others will be conducting an environmental review, and both of these would focus on site-specific factors, what's unique about that particular site that needs to be brought into this process, both in terms of safety and environmental.

And what we're principally here to talk about tonight is the environmental side of that review. And, again, to use this draft generic environmental impact statement as a foundation to build the site-specific environmental review on.

After we go through that process and the review -- and I should note -- let me back up a second. When we do accept a license application for review, three things happen. We docket that application, which means that we assign it a formal tracking number, and it's noticed on our website that it's docketed.

And that docket number is basically the reference number for that application throughout the

licensing process and continuing through, whenever they might amend that license in the future. So that's one thing.

The second thing we do is to basically issue a *Federal Register* notice that notifies the public that we have accepted the application for detailed review, and that we also offer the opportunity for a hearing, a formal hearing on that application. And it tells the members of the public how to apply for a hearing, and what needs to be given in order to get a hearing.

And that request actually goes to a different group in NRC that is not conducting the review. It's called the Atomic Safety and Licensing Board. So it's a separate group within NRC that has the hearing, decides whether there's going to be a hearing, and then actually has the hearing. It's basically usually a three-panel -- three-judge panel, and one or more of those judges is a technical judge, the others are attorneys. And then the third thing we do is conduct our detailed review.

But after we get through that processing, including the hearing process, then the NRC decides to either grant or deny a license. If the license is granted then the company has the permission basically to move forward with the process as defined in its application.

I would note that that's not where we stop our process though, because we also have a group in our Region 4 office in Arlington, Texas that conducts inspections. And the inspections are usually conducted once a year at each licensee.

If they find during that inspection that the licensee is violating the safety requirements, then we do have the ability to take enforcement action. The level, or severity of enforcement action is usually tied to the safety significance of whatever the violation happens to be. So it can range all the way up to fining the company.

And just getting back again to focus on what we're here to talk about tonight, which is the generic environmental impact statement, as I indicated to you, one of our core values is openness and transparency in our process. And we think, and we'd like to hear your comments, that what we are doing in terms of this draft GEIS accomplishes that core value, which is to have multiple opportunities for the public to comment on what we do and why we do it.

And so what gone on with the GEIS is we've had the scoping meetings with the public meetings I mentioned; we're here now to talk about the draft GEIS, which is the next step; and we'll be in New Mexico and in western

Wyoming later I guess in September.

And then what we intend to do is take those comments back, fold them into the final generic environmental impact statement, which Jim will talk about in terms of schedule, and then what we would do then was, whenever we get a license application, we do a site-specific review, and that environmental review would also be issued for public comment. So multiple opportunities for the public to become involved in our process.

So with that, again, I think we're interested in hearing your comments, concerns, questions. We'll do the best we can to answer your questions. If we can't answer them here tonight, you know, we'll take your name and address down and try to respond to you that way, or via e-mail.

FEMALE VOICE: Do we ask questions now?

MR. CAMERON: I think -- can we just get through the next one, and then I think it'll make more sense for everybody. So if you don't mind, then we'll go and we'll come back to you.

FEMALE VOICE: But first, have there been applications already submitted for this?

VOICE: There's four.

FEMALE VOICE: Four?

MR. McCONNELL: We got --

MR. CAMERON: Okay. Sorry.

FEMALE VOICE: Sorry.

MR. CAMERON: Why don't you just try not to burst?

FEMALE VOICE: Okay. I'll --

MR. CAMERON: Okay.

FEMALE VOICE: -- try. It'll be hard.

MR. CAMERON: I know. I know it will be, but if you could just try not to burst, we'll --

FEMALE VOICE: Okay.

MR. CAMERON: -- try to do this as fast as possible, and then we'll get to your questions.

FEMALE VOICE: Okay.

MR. CAMERON: Jim?

MR. PARK: Good evening. My name is Jim Park, and I am the lead environmental project manager. I was given the task of kind of organizing and helping to sort of organize the efforts to prepare this document. And I just want to go through a few aspects of this with you tonight.

And I'll go through several things. First I'd like to give an introduction about what this in-situ leach process actually is, and then following that I'm going to



talk in more detail about the generic environmental impact statement, tell you why did we need to do this, what does it cover, what approach we took in the document, some of the findings at this preliminary state that we have, and after all that's done, I'll sort of go over with you how you can submit any comments on the document.

So the in-situ leach process. It's different than a conventional style of mining and milling. There are no open pits associated with this process, there is no underground mines and shafts associated with this process.

Instead, it's -- there's three components, and in my following slides I'll go through each in turn.

There's the mobilization of the uranium below ground that is brought to the surface and processed to take the uranium out. And once a company has complete the processing, it is required to restore the water below surface from which the uranium was extracted.

First is mobilization. This is a picture of an in-situ leach facility, a well field as they call it, in Wyoming. We have two licensees currently. One, as Keith mentioned, the Crow Butte site which is in -- near Chadron, Nebraska, and this is from the Smith Ranch facility near Douglas.

And on the surface this is what you would see.

The white sort of -- the white that you see are covers for the wells that are involved in this. They don't have to look like that, sometimes they have little boxes to cover the tops of the wells.

All of those wells are connected below ground with piping, and they're connected back to that building you see in the middle foreground, and it is in that building where the water that's involved in this process is sort of modulated, and sort of metered, and sort of distributed among these various wells.

And just for scale you can see there's prong-horned antelope in the near foreground. That'll give you a sense of what you would see. Again, this is what you see at the surface.

This is intended to show you what's happening below the surface. And it's a very simplified diagram that shows the basic components. And I'd first like to draw your attention to the sort of light yellow color down there. And that is what we refer to as an aquifer. It's a water-bearing unit below ground that within it contains the uranium deposit in gray that the company is interested in extracting.

That water-bearing unit in yellow is confined above and below by two other layers in green that you see

there, which are clays in this case. And that's -- those formations are less permeable, which means water doesn't travel through them as quickly as it does through the aquifer. So it sort of confines the uranium and the water in that yellow level.

You also notice there are some wells associated with this, and that's the heart of what's going on in this process. One well has blue arrows -- I'll draw your attention to those first -- one has blue arrows going downward, and another has red arrows going upwards. The blue arrow wells are known as injection wells, and the red ones, associated with the red arrows, are either production or recovery wells.

And in this process, the water that's down there is used by the company. It's drawn to the surface, and to it is added oxygen and carbon dioxide, CO<sub>2</sub>, or sodium bicarbonate. And with that added to the water, it's pumped down that injection well, the blue -- with the blue arrows.

And what that does below ground is it liberates the uranium that's contained down there. It frees it up so that it can be -- so that the production well can draw it back to the surface. And so the uranium in the water is drawn back to the surface through the production or

recovery wells, those red arrows, and then sent back to a central plant, which I'll show you in a slide or two, where that uranium is actually taken out.

And after the uranium is taken out, the company, again, adds the oxygen or carbon dioxide and the sodium bicarbonate and injects it back underground to continue this process. So it kind of goes around and around in a circular kind of process.

You'll also notice some other wells on that diagram and labeled as monitoring wells. And I'll get into those in the next slide, but you'll notice that the monitoring wells are at two different levels here.

They're at the level where all this activity is going on in the aquifer, and they're also completed in a level above the upper clay, or green level. They could also be completed below. And they're completed up there, and I'll go into that in the next slide.

Okay. In this slide, this is intended to show you, if you were looking down on top of this, from the top down, you would -- you might see something like this. The boxes in the center with the dots in the middle, those are the injection and production wells. In the center of each box is the recovery or production well. At the four corners of each box is an injection well. So water is

being injected at the corners and draw up through the center.

But surrounding this entire -- and that's known as a well field. All those boxes together as one is known as a well field. And that well field is designed to cover the area below ground where the company is seeking to extract that uranium.

Now, a concern obviously here is how do they know that uranium is going where it needs to go, and anything else that's been freed up by this process. That's why we have the monitoring wells. They're required. And they surround, or ring the well field as a whole.

Those are the ones that I showed you in the previous diagram that were completed at the level where all this activity is happening. In addition, there are wells, as I showed in the previous diagram, right in the middle of the well field, which are drilled above or below where this activity is happening.

So you're monitoring around it in a lateral or horizontal direction, you're also monitoring in a vertical upwards or downwards direction. And this is required by conditions in the license that is granted to the company, and this is what they sample, these wells, regularly as

part of their activity.

And the purpose of that is to -- as an early warning, or early detection system, if anything is moving beyond that central well field. And it's kind of -- with all this water being moved below ground, the possibility exists that the fluids that they're working with and the uranium that they're freeing is moving beyond where they're controlling it.

Okay. That possibility exists and it has happened that these monitoring wells have detected early the movement of that material, that solution, outside of where the well field's happening. And that's their purpose, early detection.

This is a picture, again, at the same facility, at Smith Ranch in -- near Douglas, Wyoming, and the larger of the buildings is what is known as a processing plant, and it's there where the uranium is extracted from the water, it's concentrated, it's precipitated out in a process -- they dry because there's a lot of water involved in this, it's kind of a slurry, they dry it to a fine powder, and then they package that powder in 55-gallon drums.

That powder is known in the industry as yellowcake. And sometimes -- and often it has a yellow

color associated with it, and that's where it got its name.

And they barrel that in 55-gallon drums, and then those drums are sent off the site to another facility, currently in Illinois, where it's processed further.

Also within that same building, there is the restoration of the affected ground water. Again, after this company has done what it's done below ground, and can't recover any more uranium, they have to restore the water below ground that they've been affecting by this process.

And there's various components of that restoration that are contained within this building. And the purpose of the restoration, as Keith mentioned earlier, is to bring that now affected water back to what it was before they even started the process. That's the primary goal of this restoration effort.

Keith referred to a license that the NRC granted. Well, a license for an in-situ leach facility covers every aspect of the life cycle of that facility, from the time it's constructed, all the well fields are put in place, the process building is constructed, the pipelines are put in, to the very end of the process where

they take everything down and they reclaim the surface and restore the ground water back to what it was prior to where everything started.

Now, in addition to that license, there are also other federal and state agencies involved, and they have their own permitting process that the company must get before they can even start to do this process. And the first one refers to aquifer exemption.

Okay. If you remember, in that diagram I showed you, the uranium is down at a particular level, and the company is going to seek to recover it. That water down there is not potable. It's not an underground source of drinking water. It's not -- we can't use it, in part because of the uranium that's there.

And so this aquifer exemption refers to the state and the Environmental Protection Agency agreeing that, Yes, this portion of where this company intends to do this is not a source of drinking water. And those monitoring wells that I referred to earlier are intended to protect the water outside of this exempted area from being affected. And there might be drinking water sources outside of it that they do not want to affect, and the company is not -- is monitoring to make sure that doesn't happen.



The company also needs permits to have the wells drilled, they also need permits for discharge of any waste materials, example, on storm water, or -- let's see if I can -- you know, waste water, there's a lot of water that's used in this system, and some is taken out to make sure this is -- this process works correctly. And finally, the BLM, or state agencies might be involved, Forest Service, if those lands are involved in the company's efforts.

So it is this multiple overlapping state and federal permitting process that helps to work towards protection of public health and safety and the environment.

With that background I'll go to the GEIS. Why did we need to even write this? Well, as Keith indicated, there are a number of companies who are seeking to come to the NRC with license applications. And knowing that work ahead of us, and also that many of them are going to use this process, we felt we could perform a programmatic look at the in-situ leach process as a whole, and it's intended to prepare us for the site-specific reviews that we would actually cover.

So at this point in time, this document, absent any license application, is just an environmental document

that's waiting for that site-specific license application to be used at that time. And what this document is intended to do is to focus NRC's efforts to make sure we have a thorough and rigorous analysis and evaluation of any site-specific application.

So because this process is relatively standardized in the industry around the country, we feel that there are certain environmental issues that would be common to it no matter where it was used, and that's what we're looking at in this document. And as I said earlier, it's intended to prepare us for an actual site-specific review, and to be used at that time.

So what does this document cover? It covers the life cycle of the facility, from construction through the operation, which is the uranium recovery, through the restoration of the ground water, and on to the decommissioning of the facility.

And what we've done is we've looked at the potential impacts on the environment that all those different activities going on through that life cycle might have. And so we did it in terms of certain resources, like air quality, or the water, surface water or the ground water, in terms of the transportation, where people live, how might it affect them in terms of jobs, in

terms of housing. Those are some examples.

And we -- to prepare this document, we used four steps, and I'll go through each of these in turn. So the first step was we identified what we called uranium milling regions. And to do that we had certain considerations. The first was -- as Keith indicated, there are certain states in our country, Colorado and Utah, for example, where they would be the licensing authority for an in-situ leach process. But in other states NRC is that authority.

We also looked at where in the past has this activity occurred, uranium mining and milling, where have the companies indicated to us that they're thinking about applying this in-situ leach process, and finally we just looked historically where has -- where is uranium in -- can be found in the western United States.

And from that we identified four regions in the country where we think future activity, in-situ leach in particular, might come. And this picture is meant to show that. As you can see, there are two that are contained totally in Wyoming, that's in the yellow and in the blue, down in New Mexico there's one in purple, and finally the one, and that's the reason for why we're here tonight, is sort of one that covers portions of Wyoming, South Dakota

and Nebraska.

This is that last region. And as indicated, it stretches from the Montana/Wyoming border down into Nebraska. And I think there's a handout that we have outside that shows this and you can look at in greater detail. On that figure there are certain -- there are triangles and those triangles indicate where companies have told us they're thinking about possibly using in-situ leach and coming to us with a license application.

The one nearest to Newcastle is about 20 to 30 miles south of here. It's by a company known as Power Tech, and there's -- and they're near Dewey, South Dakota and it's right on the border with Wyoming, and they're looking at properties on the South Dakota side and also on the Wyoming side of the border. And that's the nearest one to date that we -- companies have identified to us.

The next thing we did after identifying those regions, we describe the in-situ leach process. And we did that, again we discussed it in detail, the entire life cycle of what you might expect if this process was used. We looked at how companies would have to handle the nuclear materials, the radioactive materials safely, what sort of -- how are they handled the waste that were associated with it, transportation issues.

Financial assurance refers to companies have to put money ahead of time that basically is the money they set aside so that a third-party, not that company, not the NRC, but a third-party, if it had to, could come in and clean up that site and restore the ground water. And that's a requirement by the NRC, it's a value, a dollar amount that is updated on an annual basis.

And we all draw -- we also discuss at the same time what have we seen from in-situ leach facilities in the past. NRC has licensed these types of facilities for over 30 years, and there are certain environmental impacts that we know and that we have seen, and we give a summary of that in the document.

The third thing that we did was, in each of those four regions that I identified to you earlier, we tried to describe the environment that we find in there. And we do that in terms of 13 areas, 13 resource categories, and I'll give you the list on the next slide.

And those 13 come from a document we know as NUREG- 1748.

And what that document is, is it's guidance to NRC staff on how it is supposed to do its environmental reviews. So it directs the staff on how it does its work for environmental reviews. Here's the 13, and as you can see, it's a wide-ranging and thorough discussion of the

environment.

Each of these topics is discussed in detail, as much as we know on a regional basis. Obviously, when a company comes in for a particular site, they have to characterize that site, that area, in great detail. So this is intended to be a more regional discussion and to be used perhaps as background information in the site-specific environmental review that we do.

The final step was to evaluate the potential environmental impacts in each of the regions. We did that, again, for each region, for each phase in the life cycle from construction to decommissioning, and for each of the 13 resources areas.

And these evaluations were conducted by experts in their fields, experts in ground water, experts in air quality, experts in transportation. And they did this evaluation to see what type of potential impacts are associated with this process, I mean that could potentially be seen.

And out of all that work we used three basic categories of the significance, the level of the impact, and these are what they are, small, moderate, and large. And that level refers to the extent that it can disturb or alter that resource, air quality or transportation or your

ground water.

And it might be small impacts, it might be a range of impacts, it might be small to moderate from you see, it could be small to large depending on characteristics at the site. So, again, this document prepares us for the site-specific review. It does not take the place of that, but it prepares us.

And this is how we intend to use it. As you can see, in order to complete our site-specific review, there's multiple sources of information that the NRC is going to use in its evaluation. At the top is the generic environmental impact statement. From it we hope to use the background discussions and incorporate them in our environmental reviews, and if they are applicable at a site, we might use some of the conclusions that we've drawn from the potential impacts.

Again, we have to see whether they are applicable at each site. So each site gets its own review and we look at that and see what aspects of the GEIS we can actually use. Obviously, as Keith reported earlier and said to you, there's an environmental report that the company has to supply to us, and that's a detailed characterization of the site and the process that they intend to use.

The other relevant information that I referred to is what the NRC staff on its own part collects through visits to the site, through consultations with affected local communities, federal agencies, state agencies, Native American tribes. We do our own independent collection of information independent of what the company supplies to us.

And with all that, let me give you some -- a summary of some of the findings that we have come to. This, again, is the region that we're in tonight, and is of interest to our discussion. This is the list of resources for which we believe at this time there's a potential for small impacts. Small refers to they're either minor or not detectable. You won't see much change in these resources related to the in-situ leach process. Again, this is potential impacts.

There's also the small to moderate, and I referred earlier to a range of impacts that could be seen.

This refers, again, to there are conditions at the site that may move things toward a more noticeable impact on various of the resources, and that will depend on the site. And it's for these categories that we think there's a range of small to moderate impacts.

And finally, this is for the small to large,



and that's quite a range. It could be anywhere from not detectable or unnoticeable to one that is so noticeable it completely, you know, alters the resource. That's a very site-specific issue.

It's -- and there are various aspects of these in land use, in the soils, in the ground water, you know, and just in going back to ground water, it's their ability to restore the ground water after this process is done. Impacts to the local communities through socio-economics is another potential for small to moderate impacts.

Finally I'll just discuss quickly the schedule and how you can comment on this document. NRC began its process in preparing the document back in July of 2007. Keith referred to the scoping meetings we held. On July 28 of this year we completed the draft and issued it and made it available for the public to comment on it. We are accepting comments through the beginning of October.

And following that, all the comments that we receive we're going to use that in preparing a final generic environmental impact statement that we hope to prepare and issue in June of 2009.

In terms of commenting, these are two ways that you can do it. It's by regular mail or by e-mail.

There's a handout outside that gives all this information so you don't need to write that down; you can take that with you. Again, it tells you either way to do it, and tonight you'll also have the opportunity to make oral comments that will be on the record.

If there are question that you have on this effort and the draft GEIS, there's my information. Again, that's out on the handout, same handout. And if you have questions about this in-situ leach process, there's another name there for you to call and ask questions.

And with that, that closes my presentation, and NRC's presentations, and we're willing to accept any questions you have and comments. Thank you.

MR. CAMERON: Okay. Thank you, Jim.

Thank you, Keith.

And before we go to comment, we'll go out for questions. And thank you for your patience.

I think we'll go to you first.

FEMALE VOICE: Okay.

MR. CAMERON: And can you introduce yourself to us?

FEMALE VOICE: My name is Cindy, and I was wondering about the national forest. I see that this is running -- you know, the Black Hills National Forest, how

do you work with them?

MR. CAMERON: Okay. How do we deal with the fact that there may be exploration or an application that would encompass national forest land?

MR. PARK: In working with anything like that, the first thing that we do is we consult with the Forest Service and we work together in evaluating the impacts associated with that potential activity. And it's a consultative process and we work together for that evaluation.

MR. CAMERON: And do the Forest Service -- the comments that we get from the Forest Service, are they available to the public to see?

MR. PARK: Yes, they are.

MR. CAMERON: Okay. Do you want to ask another question, Cindy?

FEMALE VOICE: Sure.

MR. CAMERON: Go ahead.

FEMALE VOICE: The companies that have applied for this, have there been companies that have applied to do this? Keith said there were four.

MR. CAMERON: Yes, well, we'll --

FEMALE VOICE: Do we get to know who they are?

MR. CAMERON: And we always need to get you on

the record, but let me get -- let's get the answer to your question.

Jim, or Keith, how many applications have we had in this area? How does the public know that an application has come in and from whom?

MR. McCONNELL: Okay. The first part of the question is, you know, how many applications have come in, and we've gotten four. Most of them, or all of them are in western or central Wyoming, none of them in this area here.

As Jim indicated, the closest facility that's planning to submit a license application is the Power Tech facility, or company, down near Dewey. That's the closest in South Dakota. The closest that we know of to date, although if you go on Power Tech's website, they do have an indication on there that they are exploring up in the Aladdin area.

Now, I guess Jim also mentioned we currently have four licensees that are licensed to do in-situ recovery. Only two of those are operating. One of them is the PRI facility over near Douglas. The second one is the Crow Butte facility that's located in Crawford, Nebraska. We have two others that are licensed but are not operating. One is in New Mexico and the other is the

Cogema facility over in the Gas Hills.

So those are the ones that are in our universe now, but we also have a table on our website, and I might have a copy of it, that lists many more that are looking at applying for licenses.

MR. CAMERON: So if Cindy, or anybody else in the public, wanted to find what was going on, or what was anticipated in terms of these types of applications, they could go on our website and go to uranium processing, or --

MR. McCONNELL: Right.

MR. CAMERON: -- and they would get all the information right there.

MR. McCONNELL: Right.

MR. CAMERON: It's all public.

MR. McCONNELL: There's a table on that website that lists every one that we're expecting to get that's told us. And what we did last year was require the companies -- to not require them, but tell them that in order to process your application and have the resources necessary to process it, we needed a letter of intent from you. And so on that website and in that table lists every company that's given us a letter of intent for every particular site that's expected to come in in the next --

between now and 2010.

MR. CAMERON: Okay. Joan, do you want to add something?

MS. OLMSTEAD: Yes, I was just going to add something to -- and not just the letters of intent, but every step in the processes also. There's different tables that you can check on for when there's notification that you can apply for a hearing request after we accept an application for review. There's also a letter -- a table also for when we get a licensing application in, not the letter of intent.

So it's a way you can track the licensing applications and where they are in the process, and when you can do public participation.

MR. CAMERON: And as Jim noted earlier, if you have questions about this, even it might be a question, please update me, is there anything in my area, any application that's come in in my area, you can call the people listed on the slide, Jim Park or Steve Cohen.

And let's -- anybody else have questions?

Yes? Go ahead.

MS. HANSEN: Barb Hansen. My question is, is there an average depth that they're going in to recover this uranium? And you mentioned something about a place

in Texas that comes once a year to check these wells to make sure they're safe, or anyway that's what I got out of the question.

MR. CAMERON: Okay. Thank, Barb.

Two questions; one is the -- what are the depths of the well, is there an average or does it depend on where that aquifer is, and secondly, could we expand a little bit on our inspection procedure, and also what the state might do in that regard.

And, Jim, do you want to do the depth?

MR. PARK: Yes, I'll try to answer the first one. In this area the uranium is found generally between about 200 and 600 feet depth. And that, just to give you a sense, I'm aware that the water that the town uses is about 3,000 feet down, from a different formation completely.

One other thing I wanted to indicate I forgot to say in my talk was that that diagram I showed you, that kind of simplified diagram, each site's going to have a different sort of way it looks, but those were just the basic components. Right. Geologically they're look very different, but they all should have similar things as part of their site.

MR. McCONNELL: Yes, and in terms of the

monitoring. The company is, by condition in its license, required to monitor those wells that Jim showed. So they collect samples from those wells periodically, and those -- the results are recorded.

And then at least annually the people in our Region 4 office come up, validate what they're doing in terms of their process is accurate, that they're doing it the right way, that the results are meaningful and accurate, and they determine if any violations are occurring.

At the same time, the state, as Jim indicated, has a program under the Safe Drinking Water Act for permitting the underground injection control wells, which all those wells are the ones that inject and recover, and they also inspect the facilities.

So there -- as Jim indicated, there's kind of an overlapping regulatory framework that looks at what these companies are doing and whether they're monitoring effectively, and if there's been any excursions or releases.

MR. CAMERON: Okay. Thank you.

Yes, ma'am, did you have a question?

MS. THOMPSON: Yes. My name is Phyllis Thompson, and I just have a couple of questions. One is



how do you restore the water? I mean if it is radioactive, how do you make it safe again? Is it already there and contaminated, or is it going to become contaminated and then restored I guess is my question there.

And the other thing I wanted to ask is about the air, what gets released into the air to us, and what steps do we take to take care of that?

MR. CAMERON: Okay. Two good questions, Phyllis. It's Phyllis. Right?

MS. THOMPSON: Yes.

MR. CAMERON: Jim, or Keith, do you want to address all of the aspects of the restoration of the water?

MR. McCONNELL: Yes. I'll start, and, Jim, maybe you could follow up.

The uranium is there. You know, it basically forms by the same process as it's coming out as. In other words, the water was oxidizing in character and it -- when the conditions are oxidizing, that mobilizes uranium and it can move in the ground water.

What happens in that little U shape is that it becomes reducing in that environment, and that's where the uranium precipitates out. So naturally that's what

happens to form that uranium deposit. And what the company does is reverse that process.

And so they, in essence, by injecting sodium bicarbonate and oxygen, they create an oxidizing environment, the uranium then becomes soluble again.

MS. THOMPSON: Into the existing water.

MR. McCONNELL: Into the existing water. And what they do is they have a closed loop basically --

MS. THOMPSON: Okay.

MR. McCONNELL: -- which, in essence, they pump water down, release the uranium, and pump it up. But they also -- I should note, that they pull more water out than they pump back in.

And so there's also what's called a Class 1 injection well commonly associated with these facilities, or evaporation ponds, where they release that excess water, either to evaporate in those ponds or to inject it very deeply into the ground, which is, again, another permit required by the State of Wyoming. So it's basically a closed loop, but there is some excess that is generated in terms of water.

In terms of air releases, there is air -- what happens is they bring the water to the plant, they run it through ion exchange columns, which are little resin

beads, which precipitate, or grab the uranium out of the solution, and then the water goes back into the, again, the circuit. So it's -- the uranium comes out in the plant out of the water.

MR. CAMERON: And, Keith, the one aspect I think that Phyllis also wanted to know about is what does the company, they're done, what do they do to clean up that aquifer, what's the process of doing that?

MR. McCONNELL: Okay. At the end of the -- usually what happens is, in two to four years most of the uranium has been removed from the ore body, but there is still uranium there, but this process also releases other elements, metals and solids, and they have to go back in and restore that aquifer.

The primary goal is baseline. In other words, they establish baseline when they submit an application. What is the baseline concentration in that aquifer before they start operations. So the first attempt is go back to baseline.

Now, many times they can't get it all the way to baseline for uranium or radium or some of the other constituents. Again, we're working in this part of the aquifer that has been exempted by EPA, but they're trying to get it back to whatever it was, and they're trying to

get the conditions back to where it won't move again like it was naturally.

And so what they have to do is go in there and start pumping, but not injecting sodium bicarbonate any longer, but just pumping and pumping and pumping until they get the uranium, the radium, and these other constituents down to baseline.

If they can't make it all the way to baseline, then they do have the option under EPA standards and our regulations to come in with alternate -- for alternate concentration limits, which means they can be higher than baseline.

And in those circumstances they have to demonstrate that those levels are safe and that it's as low as they can possibly get it. But, again, it's within this confined exempt aquifer.

MR. CAMERON: And when you say exempt aquifer, you mean, as Jim pointed out, it's not -- it isn't a source of drinking water.

MR. McCONNELL: Right.

MR. CAMERON: Is that correct? And in terms of the EPA, these alternate concentration limits, or ACLs, we follow -- NRC follows EPA's lead on those?

MR. McCONNELL: Well, the EPA allows alternate

concentration limits. We are the ones that determine --

MR. CAMERON: Okay.

MR. McCONNELL: -- whether those limits are going to be safe. Now, what we do use as a secondary goal is the State of Wyoming has something called class of use which is a limit that they've defined in their regulations which is higher usually than the baseline, but it refers to what use in the region is that water being used for --

MS. THOMPSON: What about the --

MR. CAMERON: Okay.

MS. THOMPSON: -- land afterwards, is it a waste land --

MR. CAMERON: Phyllis, we have to get you on the record here, and --

MS. THOMPSON: Oh.

MR. CAMERON: -- let's get this last question in, and then we're going to go to some other people. I'm sorry.

MS. THOMPSON: I guess I'm just wondering what happens to the land after it's decommissioned? Is it a waste land; is it something that can go back to being used for ranching or wildlife or whatever?

MR. McCONNELL: Yes, I don't know whether you saw Jim's picture of the well field; you know, it's

basically just a bunch of well heads. And what they do at the end of the -- once it's been restored, they basically seal those wells off; sometimes they can cut the tops of them off, depending on what happens; and it goes back to a normal use.

MR. CAMERON: Jim, you want to add anything on this?

MR. PARK: Well, only in terms of what you had asked about air releases.

MS. THOMPSON: Yes.

MR. PARK: Okay. Dominantly what you would see would be associated with construction activities: trucks moving around, dust associated with that. In terms of processing, as part of what they do in concentrating that uranium to be a fine powder, they have to dry it. These dryers that are used today are vacuum dryers, so anything that comes out -- they don't have any particulates being put out into the air.

MR. CAMERON: Okay. Thank you.

Thanks, Phyllis.

Yes, sir.

MAJOR HARSHBARGER: My name is Robert -- Major Robert Harshbarger. I guess I got several things that have been brought up. Forty-five, 50 years ago, serving

in Europe and so forth under the threat of a nuclear war with the Cold -- with the Russian bloc and so forth, part of our survival was that the surface water itself cannot be radioactive, that it was safe to drink.

Now, you say the water can be radioactive. Which is which? Question one.

MR. CAMERON: Let me borrow that back, Major.

MR. McCONNELL: Well, in this particular instance we're not talking about surface water.

MAJOR. HARSHBARGER: Well, I'm talking about any water.

MR. McCONNELL: Yes. Okay. Any water. But you're right. But there is uranium in that ore body. Okay. Now, what happens when the company goes in there is they allow that uranium to become soluble and move is what happens. And since it's there, they allow it to become soluble and move and then what they intend to do is pump all of that to the surface to recover that uranium.

So there is a process where it's there, but they're allowing it to move, and what the monitoring wells, and our regulations, and the state's regulations attempt to prevent is for that uranium, and other constituents that are liberated, to move off of the site and into the public drinking water domain.

Again, the aquifer is exempted. That is -- which means it's not a source of drinking water. But there are sources of drinking water outside of that exempted area. And the whole process is designed to prevent water from getting off that site.

And what they do is they try -- and there are releases, there are releases to the surface, they do have well failures where there is releases, and what the monitoring wells are designed to do is to pick that up, and when that happens, what they do is pump more out and what that does is form a cone of depression which pulls the water inward towards the well field. That's probably more an answer than you wanted, but.

MR. CAMERON: Do you have a second question, Major?

MAJOR HARSHBARGER: You didn't answer my first one. My first one is, is water radioactive or not?

MR. McCONNELL: The water is radioactive, it has uranium --

MAJOR HARSHBARGER: Any water.

MR. McCONNELL: Yes. Yes. In fact, there's a process under -- am I answering the question?

VOICE: Yes.

MR. McCONNELL: There is a process underway.



EPA has established a maximum contaminant level for uranium in drinking water. And public water systems are required to clean the water up to that level. Now, it varies depending on where you are and the geology in the area, but there is radioactivity in water normally.

MAJOR HARSHBARGER: Second question, how long is an average operation?

MR. McCONNELL: Well, like the PRI facility has been going on for nearly 20 years now over near Douglas. What happens is they do use up individual well fields and those well fields usually last around two years. They can last longer, or they can last shorter, depending on the permeability of the rock.

MAJOR HARSHBARGER: In other words, they're long term, can be a long term.

MR. McCONNELL: It can be a very long term.

MAJOR HARSHBARGER: Yes.

MR. McCONNELL: And just, again, in terms of restoration, that can be a very long term process also. It can be matters of years before they're able to restore an individual well field.

MAJOR HARSHBARGER: Okay. How many -- third question, will water be stored on the surface in ponds and so forth during the process of -- your process -- will you

have holding ponds on the -- at these facilities? And if you do, what is your criteria for the -- working with mosquito larvae and the West Nile disease? I'm on the northeast working group with the sage grouse and we're very concerned about West Nile on the sage grouse population.

And now looking generally in your maps, you're east of where I am in the Sage Brush plateau, but I'm assuming that, in the Dewey area there are sage grouse in that area, and so we have a potential on a sensitive species with large holding ponds on the surface that would be breeding -- for the mosquito larvae carrying the West Nile.

MR. McCONNELL: They do have holding ponds, evaporation ponds is what they're called, where they do -- where they have this production -- excess in production, and they release it into there.

Jim, do you know about mosquito larvae?

I think -- the ones I've seen do have chemicals in them to keep algae down, and I assume that they would also look at mosquito larvae, but I don't know in particular. I'll have to find that out.

MR. CAMERON: And, Greg?

Greg Suber.

MR. SUBER: Okay. Just to make a point of clarification that when Mr. Park was talking about the GEIS and the site-specific review, the points that you're bringing up are exactly the points that we would look at in a site-specific review. As a part of our site-specific review, we'll look at endangered species, and we'll look at the plant, and we'll ask our questions like How can this plant adversely impact endangered species.

And since you've brought up the point that, Hey, if you have a plant, if it has a holding pond, and if they don't do any mitigative actions to make sure that they're not breeding mosquitoes, then those mosquitoes can possibly negatively impact the sage grouse. And what that would do is that that would trigger us to look at their operations and to say that, as a condition of the operation, they're going to have to do something about mosquito larvae.

So that is exactly what we do, but we don't do it at this stage in the review, we do it in a stage where we actually receive an application from Power Tech, or from whatever company that submits a license application, and we'll review it, we'll look at the endangered species, and we'll make sure that the way they operate the plant does not negatively impact the endangered species.

MR. CAMERON: Now, we wish the mosquitoes were an endangered species, but they're not. But I think we should take the Major's point about the mosquitoes as a comment --

VOICE: Right.

MR. CAMERON: -- on this draft GEIS.

Major, do you have one more comment or question before we go on?

MAJOR HARSHBARGER: I'll cut it to one more, then maybe later on. I'm more interested in the -- and I didn't catch the name of it, the one I guess maybe it was central Wyoming, because that's closer to our ranch and operation, and also affects the Cheyenne River Basin upstream of our operation, and you brought -- but anyway the assurances of -- see, was that -- we're going -- we are not personally, my operation not personally affected by CPM. But a multitude of the Powder River Basin is affected by CPM.

And I went before the Environmental Quality Council two years ago with the deterioration of the aquifer of the Cheyenne River and how it affects our repairing areas and so forth and what's happened to our cottonwood trees and so forth. Is barium a product of this process to take the uranium out?

MR. McCONNELL: It wouldn't be on the surface; it could be released at depth.

MAJOR HARSHBARGER: The barium?

MR. McCONNELL: The barium. But that would have to be another one of these constituents that they would have to restore.

MAJOR HARSHBARGER: But how are you going to keep the barium out of my livestock watering?

MR. McCONNELL: Again, in this area there --

MAJOR HARSHBARGER: I'm not talking Dewey, I'm talking this other area.

MR. McCONNELL: Right. You're talking probably --

MAJOR HARSHBARGER: What's going to be -- what's affecting the Cheyenne River Basin, upstream.

MR. McCONNELL: Yes. But you're talking coalbed methane facilities. Right?

MAJOR HARSHBARGER: I'm talking anything that's going to release barium into the -- into our drinking water.

MR. McCONNELL: Yes.

MAJOR HARSHBARGER: Whether it's livestock or potable water for the human beings. And barium's a very toxic material, and there's, whatever, more toxic

material, which I can't put my finger on what it is right now, but that is released in these processes.

MR. McCONNELL: Yes. Yes, what -- I can't speak to coalbed methane. You know, that's beyond our --

VOICE: Basically you're saying operations can --

MR. McCONNELL: Well, except -- and it's my understanding that a lot of the coalbed methane facilities basically pump the water up and then release it onto the surface. In this particular case, the only -- unless they have a spill, which is usually localized, either a seal failure, or something like that.

The only surface waters are in those evaporation ponds. Those evaporation ponds evaporate and the material is excavated and then shipped to a licensed disposal facility. So --

MR. CAMERON: But the NRC does not have jurisdiction over the coal --

MR. McCONNELL: No.

MR. CAMERON: -- methane --

MR. McCONNELL: No.

MR. CAMERON: -- production.

MS. OLMSTEAD: Yes.

MR. CAMERON: Joan, do you want to add

something?

MS. OLMSTEAD: Yes, I want to add something as far as site-specifically we'd be looking at cumulative impacts, and that would be taking -- if you have a license application, looking at activities that are happening around there.

It's not in the generic impact statement, but in Chapter 5 we have a section with topics to look into site-specifically if it's in Wyoming, which would be like the coal methane bed activity in that area, to see how that would add the affect into also the impact of an ISL facility being sited there.

MR. CAMERON: Okay. Thank you.

Yes, sir?

MR. DARLINGTON: Yes, my name is Jim Darlington, and I had a couple of other questions regarding the water formations. You'd mentioned that these aquifers were around 200 to 600 feet deep. Do you know what formations they are down by Dewey, like Dakota, Lakota?

MR. PARK: Yes, they're in the Fall River and the Lakota formations.

MR. DARLINGTON: Okay. And the injection wells and the water going both ways, I'm assuming these wells

are properly cased?

MR. PARK: Yes, that is correct. They'd have to be constructed in accordance with the state requirements on how they're constructed and completed --

MR. DARLINGTON: Okay. Yes --

MR. PARK: -- as well as abandoned.

MR. DARLINGTON: -- so my main concern about the aquifer exemption, oh, 35 years ago when they were looking at the coalbed slurry pipelines, they discovered the Madison formation. We were told at that time that this was brackish water and, you know, half the towns in Wyoming are using it to drink now.

MR. CAMERON: Okay. Thank you.

Let's get some of our public comments on and then we'll --

Oh, you have a question? Go ahead.

MS. ANDERSON: Hi. I'm Shannon Anderson, with the Powder River Basin Resource Council. One question I had is, you know, you mentioned this bleed rate that you have about 1 to 3 percent for a typical mine. In documents I've reviewed, that's about 20 gallons per minute to 35 gallons per minute per well. How much does this kind of equal over the lifetime of the mine?

And then my second question is, you mentioned



that metals are mobilized in this process and sometimes released with the uranium. What metals exactly are we talking about, arsenic, selenium?

VOICE: Both.

MR. McCONNELL: Yes, I don't know if I have a figure.

Jim, do you, on terms of the total --

MR. PARK: Answer the second first.

MR. McCONNELL: Okay.

MR. PARK: Answer her second question.

MR. McCONNELL: Okay. We'll do the second question first. Jim's looking for the answer to the first question.

In terms of -- there's a whole list of potential constituents that are regulated that are in our Part 40 guidance, but there can be arsenic, can be selenium. Selenium is a big issue. I think the State of Wyoming, in our discussions with the Wyoming DEQ has pointed to selenium as perhaps one of the big actors in this particular area. Total dissolved solids can increase, the pH can change in this -- again, in this exempted aquifer zone.

So there can be quite an effect in terms of releasing, because in essence a lot of the minerals are

there because it was a reducing environment, and when you oxidize it, you release a lot of things in addition to uranium.

MR. CAMERON: And, Jim, any information on the other question?

MR. PARK: You referred to what is known as production bleed. That's the excess water that is pulled out of the ground to ensure that the water flows from the injection well to the recovery well. That can be about 1 to 3 percent of the total water that's involved in this process, and as you indicated, this can be a substantial amount of water over the lifetime of a facility.

We talk about that in the generic environmental impact statement in terms especially of sort of when you're taking that water out of the system, it can't be used by anyone else. That water goes either to the evaporation ponds that Keith mentioned earlier, or to be disposed on a very deep disposal well.

To give you a sense of kind of how much water that could be, if we assume -- basically NRC licenses these facilities, they give out what's called a flow rate.

It's the amount of water that -- a limit on the amount of water that the company can be circulating at any one point in time.

And if we assume that it's 6,000 gallons per minute over the entire facility, and that's their upper limit of what they could actually do, and they pull off 2 percent of that, over the course of a year that could be as much as 63 million gallons of water. Okay.

To put a kind of handle on that, that also can be used -- you can -- to get a sense of it, it's -- in terms of what if that same amount of water was used to irrigate some fields, how much land could that be used in the same year, and roughly -- I'll just look at down at my notes, based on a report that we found that refers back to irrigation rates in the year 2000 for the Wyoming, that would irrigate about 44 acres of land in the course of a year, that same 63 million gallons. Just to give you a sense of the amount of water that's involved.

MR. CAMERON: I guess just to put that in context, the water from that -- if they weren't doing ISL, if they weren't processing uranium out of that aquifer, because it's not drinking water, would it still be eligible to be used for irrigation?

MR. PARK: No. That's just simply meant to be an example of a sort of a -- they cannot --

MR. CAMERON: So it's an --

MR. PARK: -- use the --

MR. CAMERON: -- equivalent, but it's not like you're losing --

MR. PARK: -- cannot be used that way.

MR. CAMERON: Okay.

MR. PARK: No. And that's why --

MR. CAMERON: Right.

MR. PARK: -- I referred back to it either has to go to an evaporation pond or put down a deep disposal well. It can't be used for any other purpose.

MR. CAMERON: Okay.

MS. ANDERSON: It could not have been before that either. Right?

MR. CAMERON: I think that's what he's -- that's the point.

Okay. We're going to go to Shannon Anderson first, then to Major Harshbarger, and then to Jim Darlington. We usually ask people to come up here, but if you're uncomfortable with that, we can bring you the microphone.

This is Shannon Anderson, Powder River Basin Resource Council.

MS. ANDERSON: Hi. Good evening. I offer these comments on behalf of Powder River Basin Resource Council and our members who live, work and recreate in

areas that will be impacted by proposed uranium mining.

Powder River Basin Resource Council is a member-based Wyoming non-profit organization. The vast majority of our approximately 1,000 members are family ranchers, or other rural landowners in Wyoming. Our members support energy development, including uranium mining, in Wyoming, but we believe it must be responsible and protective of Wyoming's abundant and priceless natural resources.

First off, I'd like to note that it's Friday night of Labor Day weekend. I think we all know this. Some of our members who would like to be here unfortunately couldn't make it because of family and other obligations. This brings up a point about the scheduling of the public meetings all across Wyoming. Admittedly the public hearing schedule is much better than the scoping process, but the only place to go from there was up.

There is still a need for much greater public involvement in this process, which could be obtained by holding meetings in locations that are closer to where projects are actually planned. In particular, there are no public meetings scheduled for the western Wyoming area, and a meeting could have easily been scheduled in Riverton or Lander. Our members in Fremont County do not have the

time or money to drive to Casper to participate in this process.

Public meetings should not be designed for the convenience of the companies, and instead should be planned in a way that will foster public involvement. That's what NEPA intended, and that's what the NRC should do.

And I have a document that's a press release from a recently released report from The National Academies that talks about how public involvement actually fosters environmental decision making. So I'll offer that for the record.

With that said, I have a laundry list of comments, so please bear with me. I'll try and keep them short. We'll be submitting extensive written comments later on down the line and so I'll just try and keep to the highlights.

From the beginning, the draft EIS fails to fundamentally address the cumulative impacts of NRC's programmatic decision, which is, from what we can tell, a west-wide resurgence in uranium production on a large scale. If the generic EIS is, in fact, similar to a programmatic EIS, which is used much more often in oil and gas and other planning contexts, it should be somewhere in

its analysis. There's no limit of analysis in the EIS,

How many projects are we talking about? How many wells, transmission lines, roads, the list goes on. What is the limit of this programmatic action? When will a supplemental analysis be required? And what are the true impacts of that programmatic decision?

NEPA regulations require that agencies shall make sure the proposal, which is the subject of an environmental impact statement, is properly defined. Why didn't NRC go forward with four programmatic EISs that could have more comprehensive geographic area specific analysis and information.

Our members are concerned that the EIS will be used in a way that will limit public involvement in the NEPA process, that will prevent adequate consideration of site-specific impacts. What other federal agencies have prepared generic environmental impact statements in the past, and how have they been compliant with NEPA? NRC has not answered this question.

Importantly, the draft EIS fails to consider alternatives. Anyone conversant in NEPA regulations, knows that alternatives analysis is called the heart of the environmental impact statement. Unfortunately, if this is true, this EIS would be dead on arrival.

By essentially considering only three options, no action, planned action, and action that is not economically feasible, which is not even considered in detail, NRC has inherently failed to rigorously explore and objectively evaluate all reasonable alternatives, which is one of NEPA's main requirements.

Where is the true alternatives analysis in this document? Why were alternatives suggested during scoping rejected by NRC? NRC needs to consider alternatives such as enforceable mitigation and monitoring, alternative ground water restoration methods, or phased development that would decrease impact to public health and the environment.

NRC also fails to analyze cumulative impacts of this programmatic action. Simply put, lists do not count as analysis. Although NRC could tier to previously produced NEPA documents, a mere list of these documents does not replace NRC's independent obligation to disclose and analyze cumulative impacts of this programmatic action.

For instance, none of these previous EISs discuss the potential cumulative impact of cross-contamination, or cumulative ground water draw down resulting from ISL uranium wells co-existing with other



types of wells, including CBM, domestic stock wells, and other oil and gas.

Additionally, the mere listing of these documents does not fully disclose the extent to both private and public projects in the geographic areas that can contribute to cumulative impacts. Is NRC waiting to discuss cumulative impacts at the site-specific level? If so, the impacts may be significant and will probably result in an EIS every time. Isn't it better for NRC to discuss probable cumulative impacts up front in this EIS, at a time before any agency action?

The draft EIS also fails to adequately consider impacts to public lands. NRC did not, at least from what we can tell, consult with BLM and Forest Service on public land impacts and U.S. Fish and Wildlife Service on wildlife impacts. NEPA regulations require NRC to obtain the comments of any federal agency which has jurisdiction by law or special expertise. BLM and U.S. Forest Service have the scientific and technical expertise as public land managers, and therefore should be consulted in this process.

NRC also failed to consider to consult with tribes in a manner consistent with NRC's trust responsibilities. The EIS claims that this will happen at

the site-specific level, but no tribal consultation was done for this document, which should be required given the programmatic decision's impacts on tribal lands and resources.

The draft EIS does not consider climate change impacts and other foreseeable impacts of uranium mining, including increased exploration, environmental impacts of nuclear energy including nuclear waste. Reasonably foreseeable impacts must be considered in an EIS.

Additionally, the draft EIS fails to consider the compliance history of the companies and likelihood of license violations. Although the document, in several places, mentions that excursions, spills, or other license violations could occur, the EIS does not fully disclose the likelihood of these events, and the impact to water, land and air resources as a result.

I won't go into detail here, but I think it's common knowledge that uranium companies do not have the best track record when it comes to complying with state and federal laws and regulations. And it's also a matter of open public discussion, including tonight, that the NRC, state, and regulatory agencies, and even the companies, are having difficulty in finding qualified staff to oversee these projects.

Will these staffing shortages prevent monitoring and remediation that will be necessary to mitigate environmental and public health impacts? NRC also needs to address whether its regulatory framework is sufficient to handle this booming uranium mining. Are updates to regulations needed? If so, how will that be addressed during this EIS process?

The draft EIS also fails to appropriately consider a whole host of environmental impacts and socio-economic impacts. Throughout the document, NRC impacts -- labels impacts as small, or temporary, when, in fact, they may be significant.

It appears NRC is setting up the process for EIS before complete analysis compliant with NEPA is conducted. This determination is consistent with numerous agency records that reveal a coordinated attempt between NRC staff and the industry to avoid the preparation of any further site-specific EISs.

Finally, what is the true purpose and need of this environmental impact statement? Is it merely to speed up the licensing process, or is it to promote uranium mining that could be used for domestic power? Either way the EIS must discuss the public purpose and need of this proposal.

As far as the domestic power purpose, uranium is an international commodity and there is no guarantee that uranium mined under licensing actions covered by this EIS will stay in the U.S. for domestic power. Uranium from Wyoming is exported to Canada and France. In fact, scientists from the French Embassy just toured some uranium sites in western Wyoming last week.

It's disingenuous for NRC to allude that the uranium produced from new mines will be available for domestic power. There also needs to be discussion about stock piles of uranium available as an alternative to new mining.

All in all, we believe NRC needs to go back to the drawing board with this document and take the requisite hard look at environmental impacts. NEPA regulations require that if a draft document is so inadequate as to preclude meaningful analysis, the agency must prepare a revised draft and recirculate it to the public. That is what we believe NRC must do in this case.

Thanks.

MR. CAMERON: Okay. Thank you very much.

(Applause.)

MR. CAMERON: And --

MS. ANDERSON: And here's the document.

MR. CAMERON: And we will attach that to the record.

MS. ANDERSON: Also, this is the --

MR. CAMERON: Can we do both?

MS. ANDERSON: Sure.

MR. CAMERON: All right. And, Tarsha, I don't know if we have a copying capability here, but if we could do this and then give it to Brenda. Thanks, Tarsha.

Well, we're going to go next to Major Harshbarger.

MAJOR HARSHBARGER: This will strictly be from the cuff, as I wasn't expecting to -- I didn't know what was going to occur tonight.

I am a member of the Powder River Resource Council. I don't agree with everything. I believe uranium and nuclear power plants for the generation of electricity in the United States is essential. And if we have to provide that source, as we're doing with the coal and the coalbed methane, we can do it.

But I do go along that we need protections from it and so forth. And what I heard tonight from the original briefing, which I was quite contented with, as far as the professionalism that was presented, it is much appreciated.

All the questions, of course, are not answered, and so we have many things to go through in the NEPA process, and the EIS process is one of those avenues that we as citizens individually should explore and do. I don't know how many EISs in my 20 years in Wyoming that I have worked on, mainly with the prairie dogs and CBM and things like that, so.

But I think in my comments I made earlier, to reiterate that, the answer was uranium operation is long term process, 20 years at least, maybe longer, which is stability as far as the economics of the community. This is good.

How large of a field, we didn't nail that down, compared to the coalbed methane, which entails thousands and thousands of acres, or square miles within the Powder River Basin, and that has had very detrimental effects on the ranching community in the Powder River Basin. The CBM also has affected the 4W Ranch, and we have adjusted to those problems.

Uranium extraction will happen. But it can be done safely. CBM has happened and it can be improved upon. But we were at the baseline of this potential of economic growth within the community. But I am very concerned about the aquifers. How they can say that they

will go down into an aquifer and extract the uranium out of there by introducing the carbon dioxide, the bicarbonate and what else they -- and keep it within that aquifer without sealing that aquifer off, boggles my mind right at the present time.

Pretty much it. I was led to believe, and you didn't quite answer my question, that water is not radioactive. This is what I was taught 45 years ago: if I was shot down in Eastern Europe under a nuclear thing, if I could survive that first 24 hours, then that puddle of water that was laying out there for my drinking water, as long as I didn't break the surface, I was safe. And I believe that today.

So that's pretty much without a formal thing to read off of. This country, if it's going to survive and be independent of the foreign countries, for our -- not only our energy, but our food, we have to make sacrifices.

And we can make sacrifices, and develop the energy we need, and still produce the best quality of food the world knows.

And so we need to work it out, but we can't say, This is all bad, and this is all good. It has to be a compromise, which can be done. We are intelligent enough, and desperate enough, and a big enough society

that we can do it.

(Applause.)

MR. CAMERON: Okay. Thank you, Major Harshbarger.

Those are the commenters that we have, and we have some more time, so I thought that we could just see, from people that we haven't heard from, see if there are some more questions for us.

And we're going to come back -- we're going to start here, and then we're going to come back.

FEMALE VOICE: They may go first.

MR. CAMERON: Pardon me?

FEMALE VOICE: Take them first, they might ask my question.

MR. CAMERON: Oh, okay. We'll do that.

MALE VOICE: Then you wouldn't have to ask.

MR. CAMERON: Okay. There's a lot of pressure on you --

MALE VOICE: Okay.

MR. CAMERON: -- you know,

MALE VOICE: Then entire labor. First off, I just want to thank you for coming here on Friday night before Labor Day weekend. I'm sure you as individuals would rather be with your families.



Second, my question has to do with transportation of the yellowcake. When it comes -- you mentioned that it's packaged in 55-gallon drums. Can you elaborate a little bit on the construction of that, and also when it comes to, say, trucking it out, specific routes for it, or, you know, what is the potential environmental and health impact of an accident, whether it's going by rail and it derails, or by truck, et cetera. Thank you.

MR. PARK: Okay. With your approval, Pat LaPlante, who's here from our contractor did that analysis, and he can discuss that in detail, if that would be acceptable.

MR. CAMERON: Patrick, do you want to talk to this? And it's -- I think it covers the whole waterfront, so to speak, of transportation of this material.

MR. LaPLANTE: Sure. Thank you.

My name is Patrick LaPlante. I work with Southwest Research Institute. We're an NRC contractor. And I actually worked on the transportation analysis in the GEIS.

Now, you asked about the construction of the containers. The shipping containers would be DOT specification drums. Essentially the equivalent of 55-

gallon drum that have sealable tops. They would be shipped in a fairly standard truck. They would take -- they should take the most direct routes to the interstates and go on the interstate system. They would be traveling -- most of them would be traveling to a facility in Chicago, Illinois.

The GEIS includes an analysis using representative routes. We don't know exactly the routes that they would take. It's not necessarily -- specific routes aren't necessarily required, but --

MALE VOICE: That would be covered in the --

MR. LaPLANTE: Site-specific review. The licensees would be required to say which routes, or at least describe the transportation activities and routes that they would take. Those would be analyzed for route-specific hazards, if any exist.

The transportation of the material has to comply with NRC regulations that also incorporate Department of Transportation regulations. There's a long history of implementing these regulations for transportation of material like this yellowcake, as well as other radioactive materials.

The safety record is actually very impressive when it comes to transportation of radioactive materials.

It's been done for many decades.

Now, the specific material that's transported here, the yellowcake is classified by the Department of Transportation and the Nuclear Regulatory Commission as low specific activity material. It's -- technically the term "low specific activity" in a plain language sense, means low concentration of radioactivity per mass.

So it's, as material, is categorized for transport, it's at the lower level. It doesn't mean it's completely inherently safe. The material is hazardous, it's an inhalation hazard, it's a congestion hazard.

Accidents have happened in the past. They're not common, but trucks do crash. Where accidents have happened the shippers of the material are responsible for responding to accidents. There's also local emergency response like there would be with any accident. The response is a coordinated activity.

The site is secured and this material, if any, would be spilled and there has been accidents in the past where material has been spilled. It is cleaned up. It's bright yellow material, it's easy to detect, it can be detected with instruments. The site is cleaned up and, you know, things go back to normal basically.

The GEIS does include an analysis of a

potential accident condition. It's considered to be an accident analysis that would tend to overestimate the potential consequences. It assumes that 40 percent of the inventory that's shipped in the truck is released. And then that material is dispersed in the air and then inhaled by a local population. Even with that type of analysis, the impacts, the consequences of that type of accident are generally low.

So I don't know, does that answer your question?

MR. CAMERON: Okay.

MALE VOICE: With the site-specific then, does that get involved with the local fire department emergency management services so that they can properly prepare for that type of material moving through their district?

MR. LaPLANTE: I might want to ask if the NRC would like to say something about that. My understanding is that the shippers of the material, and normally I believe these shipments are contracted out to companies that are specialists in transporting this material. They are required by law to have emergency response programs and plans in place prior to shipping the material.

Now, I believe, as part of their plans, they coordinate with local emergency response for these

shipments, notification and so forth. I'm sorry if I can't completely answer your question.

MALE VOICE: Can I make one comment, and I'll shut up.

MR. LaPLANTE: Sure.

MALE VOICE: I would just like to suggest that having been an EMT, and part of a volunteer fire department, and hospital CEO, and a member of a community emergency management system, in a town that had -- a small rural town that had two major highways and a railroad come through, that we had a lot of stuff come through that we didn't always know about and didn't know how to deal with.

And it would be beneficial, very beneficial to put something in your regs or whatever that these plants get together with the local emergency management systems and coordinate with them and provide feedback to the Regulatory Commission so that you know that, say an annual exercise is being done with the local community and such like that, that would be one of my concerns. Thank you.

MR. CAMERON: Okay. Thank you very much, sir. Thank you, Patrick.

MR. LaPLANTE: Could I add a quick point?

MR. CAMERON: Sure. Go ahead.

MR. LaPLANTE: One thing I failed to mention

also, just to give you an idea of the magnitude of this shipping activity, these yellowcake shipments are expected for an individual facility to be on the order of 35 to 50 shipments per year. So that's part of the whole, you know, risk picture. This is not a very large trucking activity, so you wouldn't expect to be seeing a lot of these trucks on the road in your daily life.

MR. CAMERON: Okay. All right. We're going to go -- do you have any other questions today? That was one of them, wasn't it? Are you done, or do you have another one?

MS. BALLANDER: Well, I have one.

MR. CAMERON: Okay. Why don't you ask a question. Then we'll go up to, I think, Mrs. Harshbarger?

MS. BALLANDER: Okay. My name is Sunday Ballander. And is NRC aware of our current pollution levels? We have the refinery in town, we have coal trains going through that haul other toxics, we have three new coal-fired power plants that are going in and they're not going to be using clean coal technology. The refinery is planning to expand.

So if you keep adding and adding, at what point do we reach the place where the straw breaks the camel's back?

MR. CAMERON: Okay. I think we already heard about the need for cumulative impact analysis from Shannon. Can we address, again -- can we address how, either in the generic statement and the site-specific, how cumulative impacts like that are going to be addressed?

MR. SUBER: All right. This is Gregory Suber. Yes, when we did the generic environmental impact statement, because every location was going to be different, the cumulative impacts was going to be based on things on a microscale level. We deferred deeper analysis of cumulative impacts to the site-specific review.

But in the site-specific review we do two things. The first thing we do is we do establish a baseline, and we do that when we describe the affected environment. And we take a look at the environment as it is today, and so we would take into consideration any pollution rates from any facilities that are currently operating.

And then we look and see what is reasonably foreseeable, which means, not only do we look at the particular plant that is being proposed in the action, but we also look at other potential sources of pollution. We look at other facilities that are planned for what we call the reasonably foreseeable future. And we take and we

analyze all of those within our cumulative impacts analysis.

MR. CAMERON: Okay. Thank you.

And we'll -- I'll be back. I'll be back.

Yes. And please introduce yourself.

MRS. HARSHBARGER: Well, I'm Jean Harshbarger, and as my husband said, we have a ranch southwest of here.

I have three questions, and two of them should take about a one-word answer. I would like to know, if you people know, what is the total acreage of the place -- the Smith place down by Douglas that is in this process?

MR. McCONNELL: My recollection -- the Smith Ranch-Highland facility, it's about 11,000 acres, is my recollection.

MRS. HARSHBARGER: That they are doing all this in-situ in?

MR. McCONNELL: That's the area they have under their control right now. I don't think that the entire area is currently in operation.

MRS. HARSHBARGER: Okay. Let's see. Oh, it sounds to me like getting one of these applications through would be very time consuming. What is the average time it takes from the time a company comes to you with an application before they get it approved, if it doesn't



have anything, as you say, a major flaw?

MR. McCONNELL: What we've indicated to industry is it's going to take 18 to 24 months to run through our process if there is no hearing.

MRS. HARSHBARGER: That's too long. Well, then my third thing is, we have wells, cattle wells, you know, stock water wells that are 2- to 300 feet deep. Is there a potential that -- the uranium is down there in those seams, but not moving because it doesn't have the sodium and the bicarbonate whatnot in it? Is it just sitting there just waiting for us to pull it up and do something?

MR. CAMERON: And that's a -- do we have an answer for that? In other words, there's a stock water well down there -- and this doesn't have anything to do with a company coming in and mining it, but from what we know of hydrogeology, if that happened to be one of those areas that had uranium there, how would that uranium move under normal circumstances. If -- do you understand the concern?

MR. McCONNELL: I think so. I'll try to give an answer. If I don't, let me know. It'll probably be too long, but basically, the way the uranium gets there is that it dissolves from rocks somewhere else. It then gets into the water, surface water, it then percolates down

into the ground water, and it percolates down into the aquifers.

If that source, or anything along the way, has uranium in it, and it's an oxidizing -- in an oxidizing situation in terms of the pH of the water, then it can dissolve the uranium and the uranium can migrate in any aquifer.

And it can -- if it hits a zone where the pH of the water changes to a reducing environment, like hitting a coal seam, or hitting any other reductant, what we call a reductant which reduces the oxidation state, then in essence it can precipitate out and be there in place. And so it can be in any aquifer, just depending on the situation.

MR. CAMERON: Okay. Do you -- if someone wanted to, is it fairly easy for someone to test their water?

MR. McCONNELL: Yes. Now, I would say that if you're pumping water, the likelihood, if it's not in an oxidizing environment, the likelihood that you're going to release that uranium is probably not very great. At least at high concentrations. Because, again, in order to get that uranium to move, they need to oxidize -- turn that into an oxidizing environment. And that's what they do,

that's their process.

If you don't have that sodium bicarbonate and oxygen being injected, I mean you might get some uranium, but it's not going to be at levels. All right.

MR. CAMERON: Okay. Let's go here again.

Did you introduce yourself to us? Okay. And then we'll see if anybody else, Cindy or someone else, Phyllis, has a question.

FEMALE VOICE: Okay. In response to his answer to my first question, is there going to be truth to modeling? When we've dealt with DEQ before, they used the highest level ever recorded at Wyodak and something from back in the '60s from Black Thunder, and used that as a background level to compare to and say, See, we're not doing anything dangerous.

MR. CAMERON: Greg, is there --

Keith, do you understand the concern?

MR. SUBER: Are you asking what type of models are we going to use, or is there going to be truth in modeling?

FEMALE VOICE: Is there going to be truth in modeling rather than allowing the industry to just pick and choose whatever background level they want to insert.

MR. SUBER: Okay. That's a good question,

because now you're raising a very interesting point. What the NRC does is we independently verify the information that's submitted by the licensee. And that's important because what we want you to recognize is that the applicant will present information to us, but we don't swallow it.

We take it, we look at it, we analyze it, and oftentimes we'll run our own models and do our own analysis, because we have to independently verify -- we're responsible for the license, and we're responsible for protecting you, and they're responsible for making money.

And I'm not being cynical about that, but I'm just saying that we have different objectives.

Our objective is to protect the public; their objective is to make money. We don't want to keep them from making money, but we want to make sure we protect the public. So everything that they send to us, we take it, we look at it, we analyze it, and we critique it and we come up with our own numbers.

So did that answer your question?

FEMALE VOICE: [away from microphone]

MR. CAMERON: Okay. We're going to have to get this comment on the record, and then we're going to go see if there's other questions up here.

Yes?

FEMALE VOICE: Will that be exclusive of EPA and DEQ, your own checking into it to see if it's accurate, or do you take their word for it?

MR. McCONNELL: We basically -- as Greg indicated, we basically do our own modeling. We have hydrogeologists and health physicists working basically on every application. They look at it, as Greg indicated, independently, they model it independently, and basically the baseline is it has to be approved by the NRC.

FEMALE VOICE: What if a citizen refutes with documentation you're modeling?

MR. McCONNELL: I'm sorry. Say that again?

FEMALE VOICE: If a citizen refutes your modeling with documentation, would they still get the permit?

MR. McCONNELL: If they refute our modeling, they would have to demonstrate to us why our modeling is incorrect.

FEMALE VOICE: We have done that with DEQ, and they still got the permits.

MR. McCONNELL: Well, I can't -- you know, I can't --

FEMALE VOICE: What's your --

MR. CAMERON: I don't think that we can -- we don't have anything to comment on that, but in terms of how a citizen would be able to challenge --

Joan, did you want to speak to that, or something else?

MS. OLMSTEAD: Well, there's the hearing process, so they can in a hearing present -- if they have a contention that's accepted in for the hearing, then that can be presented as evidence and decided on by the Board when they're evaluating the license and whether to grant it or not.

There's also, during the NEPA process, that you could put in information for the environmental review as comments on the environmental impact statement.

But does the modeling go in for -- normally for the environmental review, or is that in the safety?

I'm going to have ask the technical fellows.

MR. McCONNELL: It's usually in the safety review, but it is certainly a part of the environmental review.

One other available opportunity for public involvement is if there is an issue about the license application, perhaps the modeling, what usually occurs is there's a public meeting between the NRC and the licensee,

and that difference of opinion is discussed in that meeting. And it's noticed in the *Federal Register* and the public can either participate in person or by phone.

MR. CAMERON: Okay. We have a comment here.

Yes, ma'am. And just please introduce yourself.

MS. CARTER: Certainly. My name is Iva Carter, and I'm a local business owner, as well as a member of the councilperson for the City of Newcastle.

First of all, I want to thank the NRC for coming to our town. It's not very often that we get the big boys to come to us. Sometimes we have to go to the bigger cities to get these meetings. So thank you very much for coming to our community.

I want to say that in the '70s I spent 10 years working in a uranium mine in the Gas Hills of Wyoming, and seeing what you've done here today, what they're doing today with this technology compared to the mining and milling operation which was open pit mining, we were milling, we were drying uranium with a corn flake dryer in a ball-mill process.

It was amazing, but it's an amazing concept to see the steps that the uranium industry has taken from what I was 30 years ago doing, to what they're looking at

doing now, and the safety and the amount of concern, and what it -- to protect our people and our community to get such a valuable resource that could be such a boon to our community, and our country, our people.

The people of Weston County need this type of production, and to bring jobs and stuff into our communities, secure our future and that of our families and our children. Hopefully with the NRC, which at -- when I started this, they weren't there. This was just coming on board. So you've come a long way with what you're doing, and I just want to say thank you.

(Applause.)

MR. CAMERON: Okay. Thank you.

Is there anybody we haven't heard from yet? Question, that -- anybody wants to ask a question? Because otherwise we're going to go to Phyllis. No, we'll be back to you.

But, Phyllis, do you have another question or something?

FEMALE VOICE: I'm not Phyllis, I'm --

MR. CAMERON: I'm sorry. Cindy.

FEMALE VOICE: -- Cindy. Well, my whole thing is about the water, because they classify water as drinking water. And when I first heard about how they are



going to use the water, it's almost -- because they say well, it's not drinking water. Seventy-three percent of the water in the United States is used for agriculture purposes.

And, you know, it's almost like, if we use this water right here, it's not going to affect everybody else.

South Dakota, two years ago, received \$5 billion in drought relief. We know that we're having less snow pack and so our water -- I mean we have reservoirs in our country that are at the lowest level ever.

And I can't understand how you can believe that what you're doing with the water is not going to affect absolutely every state and every person around this area.

We are all connected with this water. So I'm saying that you're messing with something that we need to survive.

MR. CAMERON: Okay. Thank you, Cindy. We're going to take that as a comment.

And, Phyllis, did you have anything else?

MS. THOMPSON: No, you answered my question.

MR. CAMERON: Okay.

MS. THOMPSON: I was just in opposition to this.

MR. CAMERON: All right. Thank you.

FEMALE VOICE: Oh, the last thing I wanted to

say was about wind energy. Why is -- I don't understand how all this -- because we have so much wind in Wyoming -- and Cheyenne and Casper are the top of the windiest cities in our country, and I don't know why we aren't bringing in plants to produce the wind energy, and also solar. I don't -- you know, I'm completely confused by that.

MR. CAMERON: Okay. And I guess I would just add on that it's an issue that comes up a lot in whatever types of public meetings we're doing. But the NRC's responsibility is to evaluate and to regulate and license these types of uses; the NRC is not responsible and not authorized to get into energy-policy choices like that. So I just would add that.

And, yes, let's go back here and then we'll come over for another question.

Yes, sir.

MR. HOLLENBECK: Thank you. I'm Mark Hollenbeck. I was raised in Dewey, my dad still ranches in Dewey, my brother ranches south of Dewey -- two brothers ranch south of Dewey, and I ranch north of Edgemont. I was raised in that area.

And I have a chemical engineering degree from the School of Mines, and I have taken a job as project manager for Power Tech, and so I understand Cindy's

concern.

Those were exactly my concerns when I took the job as to what's going to happen with the water, and I appreciated the lady's comments about how we used to do this.

In the '80s there was a project to de-water the area at Dewey-Burdock completely and do an underground mine. They were going to pump 500 gallons a minute out of the aquifer so they could mine the uranium. And then they were going to put underground miners underneath there to do it. Now we're going to be able to do it from the surface, and we're going to be able to do it with a 1 to 2 percent bleed.

So I just want to say that this can be done. If I didn't think it could be done safely, I wouldn't be buying into it. I've done a lot of research on it.

I appreciate everything that you folks have done, and I appreciate you coming out here in the country close to where it's actually happening.

But I wouldn't be doing this and raising my family there if I didn't think it could be done safely. Thank you.

MR. CAMERON: Thank you very much.

And let's take one more, and then maybe go to

the informal part.

So do you have two more? Why don't you ask two more and then we'll move on.

FEMALE VOICE: How about public disclosure in case of accidents or infractions, can that be required, or you just come to behind the scenes consent decrees like DEQ does now with all the other polluters?

MR. CAMERON: I think you'll find that all of ours is very public.

And, Keith, can you talk about that?

MR. McCONNELL: All of the reports and everything are on what's called in the docket, which means it's all available for public viewing. It's in what's called in our -- what's called our ADAMS system, which is our document management system.

If you need help in understanding how to get to it, or how to get to the information, we can provide that.

But it should be all public. Everything we do is basically public.

FEMALE VOICE: What I mean by public -- you know, public disclosure is if it's in the newspaper, if somebody is apprised that there has been an accident. Heretofore, EPA and DEQ notify no one. Everybody's just kept in the dark. If you didn't see it happen, it didn't

happen.

MR. McCONNELL: Yes, generally we don't make that sort of public disclosure. What it is is it's just all available within our document system for that particular licensee.

MR. CAMERON: And if you go -- if there's an enforcement action connected to a violation of the regulations, that's on our website for everybody to see. And in some cases, depending on what the severity of the penalty is, there's a press release issued on that enforcement action.

FEMALE VOICE: That's the problem that we're running into is the fact that nobody knows to look on the website. Because if you didn't see the incident happen, nobody tells you so you would not go to the website to look for an accident.

And also, self-reporting is the rule of law in Wyoming. There's no oversight. So if the industry itself does not report the accident, EPA and DEQ didn't see it.

MR. CAMERON: Are there -- and could you talk about the obligations of the licensee to report things that happen at the facility, and then we can also add something on the enforcement mechanism if we find out that

they deliberately did not report?

MR. McCONNELL: Yes, they are required to report to us in a timely way any releases, any spills, anything that could potentially affect public health and safety. And we do go out and when we do our inspection we do it annually, but it can be made more frequent. In the case of PRI, it's now semi-annually, the Smith Ranch-Highland facility.

If we find out that they violated the regulations by not reporting to us, then they are subject to the enforcement process, as Chip has indicated. If we find out that the -- it's been a willful violation, then the enforcement action is escalated. We have the ability to shut the facility down by order, if that's necessary.

To my knowledge it's never occurred, and to my knowledge there's never been a willful violation, because the licensees, at least in terms of our responsibility, know that there's a serious penalty for particularly willful violations of our regulations.

MR. CAMERON: If there's a possibility with a willful violation -- with a willful violation, one of the potential penalties is criminal penalty also, which doesn't happen often, but it is there.

And I'm going to ask Keith to close out the

formal part of the meeting for us, and the staff will be here for informal discussion.

Keith?

MR. McCONNELL: Again, we do thank you all for coming. I know it is a holiday weekend and people have other things to do, but we are serious about hearing your comments and concerns, and we appreciate it.

Many of the comments, you know, I think are just fantastic in the sense that they make us think and they make us do a better job. So, again, I thank you for coming out tonight, and thank you for your participation.

(Whereupon, at 9:15 p.m., the meeting was concluded.)