Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 7:59 AM
To: Thornton, Marisa
Subject: Fw: Transcripts
Attachments: SupbartWHearing-Transcript-9-4-2014-Session.pdf; SupbartWHearing-Transcript-9-3-2014-Session.pdf

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From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:10 AM
To: Collections.SubW
Subject: FW: Transcripts

From: Nesky, Anthony
Sent: Wednesday, November 05, 2014 2:31 PM
To: Rosnick, Reid
Subject: FW: Transcripts

Here you go!

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Thursday, October 30, 2014 9:07 AM
To: Rosnick, Reid
Subject: RE: Transcripts

I got the last one yesterday, and uploaded them into the Docket. They are attached. I'm teleworking this morning, out this PM. My phone number is 703-329-6272.

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Rosnick, Reid
Sent: Thursday, October 30, 2014 7:10 AM
To: Nesky, Anthony
Subject: Transcripts

HI Tony,

When do you expect the final transcripts from the Subpart W hearings? Thanks

Reid

_____

Reid J. Rosnick
US Environmental Protection Agency
Radiation Protection Division
202.343.9563
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Public Hearing on
Proposed Revisions to National Emission Standards for Radon Emissions from Operating Mill Tailings

9:00 a.m. to 3:53 p.m.

Thursday, September 4, 2014

1595 Wynkoop Street

Denver, Colorado 80202

EPA PANEL:

ELYANA SUTIN, Chair; EPA

TOM PEAKE, EPA

DANIEL SCHULTHEISZ, EPA

C O N T E N T S

P R O C E E D I N G S

MS. SUTIN: So good morning everyone. I think we are going to get started. My name is Elyana Sutin, and I am the regional judicial officer here in EPA Region 8. Thank you all for coming this morning.

I will be presiding over the hearing today. And joining me on the panel is Tom Peake and Dan Schultheisz from the Office of Radiation and Indoor Air in Headquarters. This hearing is now in session.

We are here today to listen and receive your comments on EPA's proposed revisions to the National Emission Standards for Radon Emissions from Operating Mill Tailings, also known as 40 C.F.R. Part 61, Subpart W.

EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes general available control technology or management practices, also known as GACT, for this area

source category.

EPA announced this proposed rule on May 2nd, 2014. The comment period started on May 2nd and was to end on July 31st, 2014 -- on July 31st, 2014. On July 21st EPA extended the comment period to October 29th.

In a moment Tom will explain in more detail what was proposed in that notice. But before I turn it over to Tom, I'd like to explain a bit about how the hearing will work today.

There will be two sessions today, one this morning from 9:00 until noon, and one this afternoon from 1:00 until 5:00 p.m. here in this conference room.

Please be sure to have checked in at the registration desk even if you are not planning to speak today.

I will call the scheduled speakers to the chair in front of me and you will -- you will then speak. Your comments will be transcribed and included in the record of comments on the proposed rule.

In order to ensure that everyone has the opportunity to speak, and to ensure fairness, please limit your testimony to ten minutes. We will signal to you when you have one minute left to speak. When one minute has passed I will ask you to complete your testimony. There is no pressure to speak the ten minutes. If your remarks are less than that, please don't feel like you have to say more.

With that said, if you have more to say after your ten minutes and you would like to speak again with information that is new and discreet from your previous testimony, and is not a rebuttal to someone else's testimony, we are happy to have you speak again if there is time. And I believe there will be.

After you finish your testimony, members of the panel may ask clarifying questions. We are not here today to answer questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing.

If you have written copies of your testimony or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript. If you have additional comments you would like to make you can submit them in writing. Comments must be received on or before October 29th by 5:00 p.m.

Let me assure you that the EPA gives just as much consideration to written comments as we do to comments that we receive in public hearing. Instructions for submitting comments are included in the fact sheet at the registration table. And you can pick that up at the table outside of the door.

Today's public hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not registered to do so, please sign up at the registration table outside of the room.

Now I'll turn it over to Dan, who will summarize the proposed rule -- I'm sorry, Tom, I

apologize.

MR. PEAKE: Hello. My name is Tom Peake and I'm the director for the Center for Waste Management and Regulations in Washington, D.C. We're in the Radiation Protection Division of the Office of Air and Radiation.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the National Emission Standards for Radon Emissions, or NESHAPS, from Operating Mill Tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technologies, or GACT, to limit radon emissions from tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new definitions to the rule, revise existing definitions, and clarify that the rule applies to uranium recovery facilities that extract uranium

through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailing impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities and heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limit the amount of byproduct material that can be exposed.

For conventional impoundments, limit tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings

exposure using phased disposal and maintain a 30 percent moisture content in the pile.

For evaporation ponds, require at least one meter of liquid be constantly maintained in the pond.

We are proposing to add definitions for when a uranium recovery facility is in operation or standby.

Lastly, the proposed rule would require the owner/operator of a uranium recovery -- a uranium recovery facility to maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. The comment period ends on October 29th. And we are looking forward to hearing from you.

Thank you.

MS. SUTIN: Okay. We will get started. Our first speaker is Scott Bakken. Again, if you could please spell your name, especially your last name for the record -- for the court

reporter, that would be great.

MR. BAKKEN: Good morning. My name is Scott Bakken. Last name is spelled B-a-k-k-e-n. I'm an environmental manager with Energy Fuels. Our company is currently America's largest conventional uranium producer, supplying approximately 25 percent of the uranium produced in the U.S. in 2013.

The focus of my comments today are on the applicability of the proposed revisions to nonconventional fluid retention impoundments located at in-situ leach or ISL uranium recovery facilities. These nonconventional impoundments, commonly referred to as holding ponds, storage ponds or evaporation ponds, are used to store and/or treat liquid effluents during the wastewater disposal process at facilities regulated by the U.S. Nuclear Regulatory Commission and/or NRC Agreement States.

It is Energy Fuels' position that regulation of radon emissions from nonconventional fluid retention impoundments by

the EPA is unnecessary. The administrative records in Subparts T and W, as well as the EPA's Method 115 rationale and procedures strongly suggest that radon emissions from nonconventional impoundments are low, if not negligible, pose little risk to public health and the environment. And, thus, do not warrant the application of standards to control radon.

Given that the NRC and Agreement States already have robust standards in place, the proposed revisions to Subpart W would result in dual regulation while providing little to no additional benefit to public health or the environment beyond what is already in place under the Atomic Energy Act.

Energy Fuels believes that the "one-size fits all" approach to nonconventional impoundments is not appropriate, and that any standards imposed on ISL facilities should be appropriate for the nature, scale and relevant risk associated with various impoundments.

Based on review of the proposed revisions

and supporting documents, it is Energy Fuels' opinion that the "base case" and other assumptions used to evaluate impacts to ISL facilities is not necessarily representative in terms of the number, size and type of various impoundments in place at current and planned ISL facilities.

The result is that the proposed revisions may result in much greater costs or operational impacts than those evaluated, including costs above and beyond what was required to license them under the NRC, contrary to what is stated in the proposed revisions.

Energy Fuels questions the methodology implied by the EPA in regards to radon attenuation and control attributed to the proposed control measure of maintaining one meter of water in nonconventional impoundments. In the proposed revision the EPA states:

"The benefit incurred by this requirement is that significantly less radon will be released to the atmosphere. The amount varies from

facility to facility based on the size of the nonconventional impoundment, but across existing facilities radon can be expected to be reduced by approximately 24,600 curies, a decline of approximately 93 percent."

It is perplexing as to how a 93 percent decline was attributed to this control measure. In Table 46 of the background information document, for example, a radon attenuation factor of 0.07, that is a 93 percent reduction was applied to the calculated maximum radon release of 36,500 curies per year from an operating ISL facility.

As described in section 4.4 of the background document, this calculation was based on either theoretical or actual release values and as such should be representative of radon releases for both processing facilities and impoundments.

Further, considering that the EPA has acknowledged that radon release from nonconventional impoundments is small, that is

less than 1 percent of the facility total radon release, it is assumed that -- it is assumed that the majority of this calculated radon release was associated with processing facilities, not the impoundments.

Assuming that the 36,500 curies per year radon release for the aforementioned ISL facility is from both processing facilities and impoundments, and that even 1 percent of this amount is attributed to impoundments, the annual radon release associated with the impoundments would be 365 curies.

Based on this analysis, a 93 percent reduction in radon release attributed to maintaining 1 meter of water in impoundments would only result in a maximum facility wide reduction of approximately 340 curies per year, not the 33,100 curies per year that is presented in Table 46 of the background document.

This represents a radon release reduction of less than 1 percent for the overall facility versus a decline of approximately 93 percent, as

stated by EPA in the proposed revision.

Clearly, an incremental reduction in "almost nothing" is still "almost nothing". Thank you for the opportunity to comment.

MS. SUTIN: Thank you.

MR. PEAKE: You said that the base case analyzed by EPA wasn't representative.

MR. BAKKEN: That's correct.

MR. PEAKE: In your comments, will you be providing information or data that you think is more representative?

If you say that what we have isn't representative, will you be explaining why that is not the case and have other information?

MR. BAKKEN: Yes, we will, in our written comments we will provide more detail.

MR. PEAKE: And will that include data or just calculations or --

MR. BAKKEN: It will include data in terms of the variety of wastewater treatment and disposal systems that are in place at ISL facilities, that range from, for example, small holding ponds,

storage ponds located at facilities. Also you utilize deep disposal well injection for disposal of wastewater. It would include nonconventional impoundments that may be used to store water prior to disposal via land application and conventional evaporation ponds that are located at ISL facilities.

MR. PEAKE: Okay. Thank you.

MR. BAKKEN: You're welcome.

MS. SUTIN: Thank you.

Next if we could have Sarah Fields?

MS. FIELDS: Thank you. My name is Sarah Fields, S-a-r-a-h, F-i-e-l-d-s. I'm with Uranium Watch in Moab, Utah. Thank you for the second -- or fourth, I think, opportunity to speak.

I want to say just a little something about your nonconventional impoundments that the previous speaker talked about, the nonconventional impoundments at ISL facilities. However, under the proposed regulations your nonconventional liquid impoundments would also include those liquid impoundments at conventional

mills. They're currently at the White Mesa Mill. You have a Cell 1 and a Cell 4B that are just receiving liquids. So they would be currently considered nonconventional impoundments.

And based on EPA's calculations as to the amount of radon emissions per picocuries per liter of radium, Cell 1 is releasing 228.9 picocuries per meter squared per second at this -- for 2013. And Cell 4B would be 102.2 picocuries per meter squared per second.

You also have liquid impoundments on top of Cell 3. And Cell 4A is also mostly liquid at this time. And Cell 3, 573.3 picocuries per meter squared per second, and Cell 4A, 110.6 picocuries per meter squared per second.

So these liquid impoundments, based on Energy Fuels' data regarding the amount of radium in these liquid impoundments, and EPA's determination as to the emissions per -- based on the amount of the radium in these liquid impoundments, these are not negligible emissions. So you can't lump all nonconventional

impoundments together.

If there's a determination that the nonconventional impoundments at ISL do have minimal emissions, first you'd have to look at the radium content, you'd have to look at actual data and put those data into a formula, into a model, and use a little bit of math and figure that out. Unfortunately, that really wasn't done.

Now I'd like to a little bit about what -- these new impoundments. Now, my assumption is you're not going to be able to remove the emissions standard for existing impoundments because you don't have a factual basis for that. Your factual basis doesn't hold water. So we have to look at the new impoundments.

There are two new impoundments at conventional mills since 1989. Those are cells 4A and 4B at White Mesa. They are approximately 40 acres. 4B is now just being used for liquids, but eventually it will receive the solid tailings

slurry.

You don't have a -- any radon emissions standard. And I think that's a grave error. I think you need -- and one of the reasons is that you don't -- your requirements for a double lined impoundment and the forty acres really does little to stop -- to stop the emission of radon. You're just assuming that throughout the whole life of that impoundment that everything will be okay.

In the Federal Register Notice, they talk about the use of soil and water to attenuate the radon for these impoundments, but there is no requirement for -- in the proposed rule for the use of soil or the use of water to attenuate the radon throughout the life.

Let's just assume we're talking about Cell 4A. So now assume gradually over the years it will get filled up. And at some point it will have -- they will stop putting liquid in the impoundment. And through either a natural process or active dewatering, that will start to

dry out.

Well, if that were an existing impoundment with radon monitoring, and the requirement to keep it under 20 picocuries, the licensee would start covering it with soil as it started to dry out. But under your current regulations there's no requirement to start covering it with soil.

And that impoundment might sit there for decades uncovered, without an interim cover, emitting radon. The licensee doesn't intend to put a permanent radon barrier on any of those impoundments until the closure -- until at least 4A and 4B have been -- have ceased operation and are ready for the final radon barrier. But you can't put a final radon barrier on until it has dried to a certain point because the impoundment has to settle.

So there are two reasons to dry it out. One is to reduce the heads so there will be no more leakage. And that's why they accelerated the process for drying out Cell 2, because that

was done under their groundwater discharge permit, not their radioactive license -- I mean, that requirement to accelerate the dewatering.

So what you would have at Cell 4A is an impoundment that's drying out. There's no requirement to monitor the radon, there's no requirement to keep -- put a soil cover on after it -- once the liquids on the top or -- and the liquids in -- within the cell are eliminated. And that's the situation.

But it seems like the EPA doesn't really have a very good concept of what exactly happens at a tailings impoundment. It's certainly not reflected in the Federal Register Notice.

And another thing about the available technology, one of the available technologies that is currently being used and relied upon to reduce the amount of radon emissions at conventional mills is measuring and monitoring the radon emissions. And then if the radon emissions are above the standard, taking

corrective actions to reduce emissions -- the emissions.

But if you have no requirement for monitoring, you have no knowledge of what exactly is going on at a tailings impoundment, what -- so that no action can be taken because nobody knows what's going on.

And that's what you're asking us to believe is an adequate means of controlling radon. It's like -- it's a little bit bizarre in my mind that you would think that --

MS. SUTIN: One minute, Ms. Fields.

MS. FIELDS: -- not knowing is the best approach to controlling the radon emissions. Not knowing what the emissions are, not having any requirement to take corrective actions to reduce the emissions is the best way to regulate the conventional tailings impoundment. I find that really ridiculous.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

Next if we could have Travis Stills?

MR. STILLS: Do I need to hold the mic or --

MS. SUTIN: Yes, so folks in the audience can hear.

MR. STILLS: I didn't know if which -- and now that I hear the echo, it's even more fun.

Good morning. My name is Travis Stills. I'm an attorney with Energy and Conservation Law. And today I'm here with the Plaintiffs who brought the lawsuit that compelled this rulemaking, including Colorado Citizens Against Toxic Waste.

You know, the key issue that we're dealing with is in the rulemaking we're writing new law responding to a real problem in the world as far as what should be done to reduce radon emissions associated with uranium processing.

I think you have heard quite a bit from the public about the inadequacies of the -- both the NRC regulations and the Clean Air Act regulations that apply, that have resulted in emissions far beyond the 20 picocuries that were adopted in '89, far beyond the 10 picocuries that

really should have been adopted as the numeric standard in 1989.

But let me back up and welcome you to Denver and to Colorado. I appreciate that you're here, that folks have come from Washington.

Unfortunately, and I won't dwell on this, you have basically come to the industry's headquarters. I know EPA has a regional office here as well. But it's well known that Denver is the headquarters for the industry. And you have seen that reflected in the attendance here.

I'll renew and reiterate the request of many groups, community groups, Native American tribes, who have asked that the folks from D.C., you know, get away from the lobbyists, the consultants, the abstract models, and come out on the ground and talk to people, who you've heard a couple, and will hear a couple here, who probably know these sites better than the operators themselves.

You hear a lot of, you know, measurement in a bucket to simulate what a uranium mill does

and what the tailing cells do. Come out and actually take some measurements and talk to people, find out the real impacts on the ground.

And like I said, I understand that the folks here are not the ones to mete this criticism out to, but please take that back to Washington and let folks know that there's a lot of good folks with a lot of good information that you would very much benefit in this rulemaking if you went to the sites and you went to the affected communities.

As a matter of environmental justice, I think the EPA's own policies compel that.

So again, this is a Clean Air Act rulemaking. There is no serious question that EPA has authority to regulate hazardous air pollution, and in particular, radon from uranium processing.

The National Mining Association, who meets regularly with the EPA and NRC, and are perhaps in this room but -- you know, they floated these arguments over and over and over again. And note that their arguments are based

on staff memos of NRC who has over the decades attempted to push EPA out as far as a regulator when it comes to uranium processing.

The groups that I work with very much welcome and invite and encourage and depend on EPA to regulate in this field.

It is the norm, it is not the exception for multiple laws to apply to a given facility. Any kind of industry knows that inside or outside of the energy field.

There is some mention today by Energy Fuels of deep well injection of some of their wastes. That is also an EPA program, the Safe Drinking Water Act -- Safe Drinking Water Act Underground Injection Control Program. This is not unique.

The National Mining Association's one stop shopping argument has failed, and it should fail again. And it really should be ignored as a diversion to the real work at hand. It's not a serious argument, it doesn't have a serious basis.

Congress has also rejected that single regulating approach when adopting UMTRCA, which is a response, a direct response to an industry that has failed to operate cleanly, has cost billions of dollars in taxpayer money on clean up, and has caused unnecessary deaths and health impacts due to the failure to follow laws and to -- and based on the aggressive lobbying against environmental protection laws.

What we're dealing with in this rule is largely -- although processing facilities, as you have heard today, is also a major source of radon emission that should be looked at within this rulemaking -- and now I have information from Energy Fuels on the record that says that the processing facility itself should probably be regulated because of its contribution to overall emissions.

But what we're mostly dealing with here today is open air processing and disposal, whether it’s heap leach or the disposal.

This is dark ages kind of stuff for folks

who work outside of the uranium industry. Processing -- industrial processing in an open air setting, that's absurd. I don't know why in the world that's even still on the table.

What the focus should be in the rulemaking, where it should really shift the focus back on the mechanisms that are used in the Clean Air Act, the mechanisms adopted by Congress as the policy of the United States to keep it clean.

You should be looking at numeric limits, probably more in the 5 picocuries or 4 picocuries level that was analyzed in the 1986 and 1989 documents. At a -- you know, at a 10 would be probably too high. It was raised to 20 for economic reasons. If you want to protect -- be protective of health, you need to be looking at 5 and 10 numeric limits, actual monitoring, actual reporting and actual enforcement.

When this lawsuit was brought to bring this rulemaking, Region 8 didn't know who regulated what. We have emails in the court

record back and forth saying, oh, does it say do that, oh, I don't know, maybe the EPA does, let's find out.

This is an important regulatory field. And we are happy to help EPA bring it back into line with the Clean Air Act. And not as far afield as the National Mining Association is arguing to take you as far as, you know, you don't even have a role here. And that's -- that's just absurd. The EPA has a role. We welcome it, we depend on it, we look forward to it.

Control technologies, that's what the Clean Air Act is about. Open air processing with some water on it is not a control technology. Limiting the number and size of open air storage is not -- is not control technology.

Our written comments will talk in a little more detail about the generally available versus maximum achievable. You know, this is radon, this is radioactive materials, this is cancer and this is health effects, not to mention

the environmental effects that haven't been really looked at.

This should be looked at and implemented under a maximum available control technology. But unfortunately, as written, there are really no technologies -- they're not analyzed in the rule. I don't seen anywhere where EPA has taken a good look, either directly or comparatively, across technologies. Phased disposal is not a control technology. It's dump and wait and clean up someday in the future. That should be -- that should be abolished. It barely squeaked through in the 80's. It is not a 21st century technology.

When it comes to the industry's financial capacity, this industry has not been -- has not really been viable financially, you know, probably since the price accords were taken away in the 1950's. It depends on open air and open water dumping.

You know, dumping water underground to pollute our groundwater, dumping their waste into the open air, that's not a -- that's not a viable

21st technology.

This industry will not change on its own. We've seen that in practice at White Mesa, we've seen it at Cotter, we've seen it at Uravan. This industry only responds to regulation.

MS. SUTIN: One minute, Mr. Stills.

MR. STILLS: Okay. Thank you.

And to close, what we really need to look at here is the full life cycle of processing, creation of tails and wastes -- I won't get into the fake nuances that were put forward as far as the differences there. Liquid wastes or 11e.(2) byproduct, that's well established.

But this rulemaking is an opportunity to pull back and look at 21st Century control technologies, which should probably also include a prohibition on open air processing, also known as heap leach, and open air dumping of wastes, which is the phased disposal, in favor of pace technologies (phonetic), continuous cover, all different forms of tailings disposal that are used throughout the mining industry. And get

past what I would describe as a filibuster by industry to keep the EPA's regulations from moving into the 21st Century.

MS. SUTIN: Time is up.

MR. STILLS: We are private citizens and we are here to help. I hope you all from the federal government are here to help too.

Thank you very much.

MS. SUTIN: Thank you, Mr. Stills.

MR. STILLS: S-t-i-l-l-s, T-r-a-v-i-s.

MS. SUTIN: Mr. Stills, we have a clarifying question.

MR. STILLS: Certainly.

MR. PEAKE: In your written comments, will you be providing specific language as part of your comments? You know, as far as rule language that you're recommending?

MR. STILLS: If that will be helpful as part of the process, I think we are contemplating that. And given your interest in it, I think it's more than likely we will.

MR. PEAKE: Thank you.

MS. SUTIN: Thank you, Mr. Stills.

Okay. Next, if we could have Richard Blubaugh?

MR. BLUBAUGH: Thank you.

My name is Richard Blubaugh. And I am the vice president of health, safety and environmental resources with Power Tech USA Inc.

Power Tech is currently completing permitting activities for a Dewey-Burdock ISR project in Southwest South Dakota. Power Tech is in the process also of completing a business transaction with Azarga Resources Inc. And the new company will be named Azarga Uranium Resources, Inc.

However, Power Tech USA, which has recently received a license to operate an ISR in South Dakota from NRC, is a South Dakota company, a wholly-owned subsidiary, and will not be affected by the transaction, the corporate change.

Our headquarters are located in the Denver Tech Center, and our initial project is

the Dewey-Burdock project.

As a prospective operator of an ISR facility, Power Tech is concerned about the regulations under which it must operate. We believe regulations should be protective of human health and environment. We also believe they should be fair and reasonable, and not punitive, particularly to small business entities.

While the proposed rule appears to be reasoned and technology based, there are errors and omissions in the proposed rule that should be reviewed and reconsidered.

However, there are some changes to the rule that are commendable, some that were mentioned earlier, eliminating the limits on pond number and size for ISL and ISR operations, eliminating the requirement for radon monitoring ponds that maintain the water level, and choosing to regulate these facilities under the generally available controlled technologies and management practices, or GACT.

Our comments here today are going to

focus really on just a couple of issues. And they will be followed by written comments prior to the extended deadline.

In the preliminary discussion of the rule there is a quote that reads in part, “EPA cannot allow a situation where the reduction of radon emissions comes at the expense of increased pollution of the ground or surface water. Therefore, all piles will be required to meet requirements of 40 C.F.R. 192.32(a), which protects water supplies from contamination."

Interestingly, the statement that immediately follows this quote reads, therefore, all impoundments are required to meet the requirements at 40 C.F.R. 192.32(a).

While EPA may not clearly distinguish between piles and impoundments, those of us in the ISR side of the industry do not accept the premise that our facilities generate tailings, which EPA on page 20 of the document clearly describes being generated by conventional uranium mills.

Power Tech potentially will be using a dual system for disposal of wastewater, deep disposal wells, which is a preference, and land application, or possibly both.

In either case, Power Tech will treat the water to remove radium, the precursor to radon and its progeny. Consequently, there will not be any radon levels to reduce in the storage and holding ponds. The radium will be contained in one of two radium treatment ponds upstream of the storage holding ponds which will have the required liner system.

It appears that the agency did not consider this technological situation for ISR facilities and that its requirement that all impoundments are required to meet the requirements at 40 CFR 192.32(a) is another one size fits all remedy that EPA seems to prefer.

There's a statement the ISL facility ponds contained uranium byproduct materials. It apparently assumes that no ISL operator removes radium prior to disposal of wastewater. This

assumption should be revisited.

Power Tech has proposed and NRC has licensed a treatment process that removes radium 226 before the water is piped to a storage pond. From there it will go to a deep disposal well or used as irrigation water on the native soils.

On page 25 of the risk assessment -- and again, this is from the April 17th version, Table 15 -- EPA demonstrates the effectiveness of barium chloride in removing radium from the Church Rock ground point sample groundwater, which reflects a 95 to 99 percent radium removal efficiency for barium chloride given by the EPA in 2006.

So without reconsideration and revision of the proposed rule by EPA Power Tech will likely be required to construct (unintelligible) designed ponds at considerable cost, even though there will be no radon gas emissions, nor a realistic risk of contaminating groundwater or surface water.

The description of the liner system

indicates that 40 CFR 264.221 requires a triple liner with a leak detection collection system. I know it was said earlier that it was a double liner, but you're talking about three feet of compacted clay. That's also a liner.

There will be no hazardous waste deposited in these storage or holding ponds, nor do the radium treatment ponds contain hazardous waste. They contain byproduct material.

I hope you will consider these comments. Thank you for your attention.

MS. SUTIN: Thank you, Mr. Blubaugh.

Could you please spell your name, your last name for the record for the court reporter?

MR. BLUBAUGH: Sure, I'm sorry.

B-l-u-b-a-u-g-h.

MS. SUTIN: Okay. Next if we could have Sharyn Cunningham?

MS. CUNNINGHAM: Hello, my name is Sharyn Cunningham. I'm from Cañon City, Colorado, specifically from the Lincoln Park area, which is the Superfund site that the Cotter Uranium Mill

caused with the contamination that moved away from their site. I'm also a co-chair of Colorado Citizens Against Toxic Waste, which is a local Cañon City, Fremont County group that formed in 2002 to follow and address and try to help with the Superfund issue and the issues happening at the Cotter Mill.

I live about one-and-a-half miles or less downhill from the Cotter Uranium Mill. I have two wells that have been contaminated, one still above standards.

I feel like what often is missing is just this real life experience. I fear that people are sitting in Washington or here in Denver at their desks and looking at things in a very generalized way.

And just an example of that is ever since our group began we have climbed a ridge on the south side of Cotter, above Cotter, with permission from the owner, and taken photographs of impoundment ponds. And one of the things in this rule is that you're going to -- the proposed

rule is you're going to depend on these work practices to reduce radon.

And everyone commenting has talked about the water cover, that prevents radon, you know, reduces it down to a very, very low emission rate.

What you don't realize, and if you could look at photographs we've taken over these twelve years, you would see that every year the water coverage changes. If we have two or three years of drought, the water shrinks, because the Cotter Corporation at that time had to pay for city water to treat its city water to keep that 157 acre impoundment pond covered with water. So some years there would be tailings (unintelligible), and then other years we were fearing it was going to overflow when we would have a lot of rain.

This all began after our group began. I mean, this rulemaking we're at right now, when we became concerned about the radon situation at the Cotter Mill. Their flux reports went up and

down. Some years they would be low. One year in particular it was almost at 20 picocuries per square meter per second. And we were concerned. We read at that time that anytime a radon flux gets close to that standard that the agencies could step in and say, okay, you need to do something, like put some dirt out there or water, and they did both over a number of years. Or you need to do a radon flux test monthly for a little while. That didn't happen.

Also, Cotter's whole method of determining radon emissions at their mill, whether at the boundary with their air stations, came into question and they were told to create a method of doing that.

And we've had two world renowned scientists look at their method of determining the radon. And that's what we are going to depend on now. If a conventional mill like this with their impoundment don't have to do those radon flux tests, then the people that live near them are depending on that company's method of

determining background from radon and whether or not they're in compliance with standards.

Also, we were concerned because Cotter's 157 acre impoundment pond is divided into two cells. One of them is called a secondary impoundment. And they filled it with old tailings and covered it with water, and said we're not putting anymore tailings in this, therefore, we don't have to do radon flux tests.

So for all of the years that radon flux tests were required, they didn't do them on the secondary impoundment. And we were concerned about that. And so we probably made enough noise that somebody came in, either the health department here in Colorado, or maybe EPA, and so Cotter in 2007 did a radon flux test on that secondary impoundment. And it was -- it was above the standard, it was at 23.

So they then put dirt where they thought they needed dirt in order to reduce it and they got it reduced down. But then they never did another radon flux test.

And I think the point's been made. In real life, when you're a mile from this place and you see it frequently, you know that it -- the conditions change as time goes by with weather and so on.

Then in 2010, Cotter had -- was on standby. And they said, well, we're not going to use that primary impoundment anymore. That was when they were putting stuff in. And so we're not going to do radon flux tests anymore.

And so at that point EPA said, well, you're supposed to. But then we never saw anything else about that. Cotter came back and said we don't think we have to. Then in January of 2012 -- oh, yeah, in July -- January of 2012 Cotter submitted to the state their request for termination of their license. So they kind of officially finally said that they were going to close.

And then in July of that year, I don't know who -- why they did it, they were -- I'm sure they didn't do it voluntarily, somebody

probably asked them to do it, the health department or EPA, they did radon flux test. So they hadn't done radon flux for 2 years.

So in 2012 they do one in July and the primary impoundment is above the standard. It's at 23 something or other. So Cotter goes out there and they cover with dirt some of the hot spots and so on. But they didn't send -- they weren't required to do it, they claimed, so they didn't send an official report to EPA on it.

So basically, one of the issues I wanted to address is the risk assessment that was done by Cohen. And from -- in layman's terms, you asked them to look at and do a risk assessment again. And the purpose of it is to do an analysis of the dose and the risk to revise the risk assessment for NESHAPS.

And it's basically about the risk from radon. And you -- Cohen went to a number of sites, conventional mills, ISL facilities, et cetera. And then you at EPA base your decision on how to change these regulations using that

risk assessment.

And one of the things that I was very upset with living next door to this, and in this -- I am inside the Superfund site, was that there were several huge errors by Cohen in regard to the Cotter Mill.

First of all -- and when we send our written comments out we'll do more details on this. But on page 22 of the report Cohen claims that there was no Cotter radon data for them to get. And so instead they used the radon flux reports to then do a calculation as to the amount of radon coming off of the mill site.

Well, Cotter's been collecting radon data for decades. In fact, in a 1995 annual report -- this is sentence from it -- they got Colorado State University to do a risk assessment in 1995. And they said the data that CSU collected included airborne particulate data and radon 222 data. But Cohen's report says that --

MS. SUTIN: One minute.

MS. CUNNINGHAM: Okay. That there was no

data.

The second real big problem was the population. They used a 2000 census, did a calculation when -- Cohen's report came out in November 2011. They could have used the 2010 census data.

Cohen claims in a two mile radius around the mill there are 400 people. No, within a two mile radius there's 6,000 people.

And there was further problems with that. A third one was meteorology. They claimed that there was no meteorological data from Cotter. And they used meteorological data from Colorado Springs. Cotter has had a meteorological air station on their site for decades. It's in their annual report every year.

There's more. If I have time later I may say something else. We came to you in 2000 -- we started in 2006 with concerns about this radon. And we look to you to protect us and you -- I hope that you will reconsider doing real measurement rather than assuming that a company

is going to put dirt on there when they feel like it when no one is out there inspecting them for months and months at a time.

So anyways, thank you for the chance to talk.

MS. SUTIN: Thank you, Ms. Cunningham.

Next if we can have Kay Hawklee?

MS. HAWKLEE: It's K-a-y, H-a-w-k-l-e-e.

Thank you all for allowing us to testify. I'm member of the community advisory group to the Cotter Lincoln Park Superfund Site, the CAG. But I'm here speaking as an individual, I'm not speaking for the CAG. I've been a member of the CAG since 2007.

And January 3rd of 1965 the Denver Post published the first article saying that Cotter was going to close. This January that will be fifty years. So for fifty years they have been going into lengthy times of standby and saying that they were going to close, but here we are fifty years later.

UMTRCA was created so that uranium mills

would not linger with contamination. But in Cotter's case, with a leaking impoundment, leaking into Lincoln Park's groundwater and causing a Superfund site that's been here for thirty years -- the Superfund site has been around for thirty years -- Cotter is the prime example of lingering contamination.

Under the Clean Air Act the EPA needs to look at the full history of this industry. This is why what is ongoing at Cotter needs a new rule. We're concerned because the Cohen study was just wrong in many places. And you've proposed a rule that relies on this misinformation by Cohen.

So what I'm asking is, will you correct the rule to reflect the proper actual data. And often it's us, the affected citizens, who check those facts. And we're inviting you to come to Cañon City and meet with us to go through the actual data that Cotter has not provided yet, but is -- that is there, that is out there and has been done.

We would like for you to check on actual radon flux measurements that have been taken and have at times exceeded the 20 picocuries limit. You do have the authority to do so no matter what the NMA says.

Instead of relying on hypothetical models of Brown and Cohen, we would like for you to come out and look at the reality, our real world examples using real world data. It would take more time than I have today to detail what has fallen through the regulatory cracks at Cotter.

And here we go again. This rulemaking is creating another very large gap. So what we're asking for you to do is help us close the gap. That gap is being created where there is no radon flux measurements between closure and the placement of the cap, which could be decades away still. And we would like you to use authority under the Clean Air Act to regulate hazardous pollutants from these uranium mills.

We look forward to working with the EPA. You've heard from the National Mining Association

that there are no emissions. There are. And they've been measured many times above the limit. This is a real world problem. We need a real world solution from EPA.

I just brought a study that I have gotten that talks about the need for monitoring. And I will give it to you. I don't have the capacity to upload it at home and send it so -- but there's a line in here that says the implications for the various assessments of long term releases of radon are discussed, including aspects such as the need for ongoing monitoring of rehabilitation at uranium mining and milling sites and life cycle accounting.

And I would just ask you to please relook at this concept of no monitoring because Sharyn lives a mile from the toe of the impoundments, the Arkansas River is a mile-and-a-half from the toe of the impoundment. And not taking measurements is such an avoidance of documentation that is -- in my mind is absurd and it's outrageous. And I would just ask you to

please look at that again and reconsider that aspect. So I will give you this paper.

Thank you.

MS. SUTIN: We have a question too.

MS. HAWKLEE: Oh, okay.

MS. SUTIN: Thank you.

MR. PEAKE: Okay. You said that you have data that you want to share with us. Will you be providing that in your written comments?

MS. HAWKLEE: Yes, we can.

MR. PEAKE: Okay. Thank you.

MS. SUTIN: Thank you, Ms. Hawklee.

Okay. We have heard from all of the registered speakers so we will pause the hearing until someone arrives that would like to speak.

Thank you.

We're going to take a break and come back at 10:30.

(Whereupon, a recess was taken.)

MS. SUTIN: Okay. We're back on the record. And we have two additional speakers. First is Sarah Fields.

MS. FIELDS: Thank you. My name is Sarah Fields and I'm with Uranium Watch in Moab, Utah.

I think, as some of the discussion has revealed, that one of the big issues is what happens when a tailings impoundment or a mill as a whole enters some sort of closure period. And the EPA, or in Utah the Division of Air Quality, determines that Subpart W compliance for an existing tailings impoundment is no longer applicable.

In both Cañyon City and White Mesa you had closure and ending of radon monitoring, but no compliance with EPA 192 or NRC criterian 6A of appendix A which require reclamation milestones. For Cell 2, there is no approved closure plan. These are long processes.

So recently at White Mesa a determination was made that Subpart W no longer applies. And whether or not there is an approved closure plan, and whether or not there are reclamation milestones for dewatering, interim cover and the final radon barrier, those tailings impoundments

are going to sit there for decades. And there will be no requirement to monitor the radon emissions and determine whether or not the radon emissions are increasing, and no requirement to take corrective -- any corrective actions.

Fortunately for Cell 2, even though in 2008 they ceased putting waste in the impoundment, there were six years where even though you might say essentially they had entered the closure period, they had not officially requested that they no longer be required to comply with Subpart W.

So for six years they continued to accumulate data. And when they found that the 20 picocuries standard was exceeded they took corrective actions. But from now on for the next, I don't know, fifty years, there will be no data.

So as a friend of mine has often said, "no data, no problem". So as long as the EPA feels that they don't need any data on radon emissions because the impoundment has entered

closure, or the whole -- as in Cañon City, the whole mill has entered closure, there will be no data. And there will be no problem. And with no problem there's no requirement to take any corrective action.

I don't call that regulation. I don't call that protecting the public health and safety. And it really goes back to the rescission of Subpart T. Subpart T would have required compliance with 20 picocuries throughout the closure period.

Subpart T was rescinded a number of years ago. And it was basically to take -- to address certain situations at a number of mills that had already been closed down.

Well, currently any of those mills that were addressed in the 1991 memorandum of understanding between the EPA and the NRC in the agreement states, "those mills have either had the completion of the radon barrier or they are currently under a requirement to maintain a 20 picocuries limit on the radon emissions because

they have gone beyond the initial reclamation milestones." So they've had the milestones extended. Because they requested those extensions of the milestones they have to now comply with the 20 picocuries.

The rescission of Subpart T really didn't address the issues that you now see at the Cotter Mill or at the White Mesa Mill. So what you see now will be extensive periods of time before there is a final radon barrier where there will be no monitoring and no requirement for corrective actions.

It will be even worse for the new impoundments because throughout the life of those new impoundments at White Mesa there never will be a requirement for any radon monitoring. There will be no requirement for keeping the tailings impoundments wet, there will be no requirement when they do start to dry out for putting an interim cover and soil on the impoundment because it seems they enter closure and there's no closure plan, there are no reclamation

milestones. So these impoundments, Cell 4A and 4B, will likely, at least under EPA regulation, just sit there emitting radon. No one will know how much radon for decades.

I don't think that this is what the EPA had in mind. I think the EPA should reinstate Subpart T because I think it is important for these -- for the Cotter Mill and for the White Mesa Mill to have continual radon monitoring throughout the closure period.

I think it's important that corrective actions be taken in a timely manner to assure that the radon emissions are kept within the 20 picocuries limit.

And they -- the situation for Cell 2 has shown this is a very doable solution. And it also demonstrates how as the tailing impoundment dries out, the radon emissions will increase.

You have a regulatory gap. You shouldn't have this gap. You shouldn't have a whole period that may extend for decades when there's no data information on the radon emissions and no

requirement to reduce those emissions.

And I also agree with Mr. Stills, you have to also consider the possibility that -- reducing that 20 picocuries of limit. And it would have been helpful in the rulemaking if there had been additional data on each of the mills, the history of all of the impoundments, what their radon emissions have been over the years. Unfortunately, that data wasn't included in the rulemaking.

Thank you.

MS. SUTIN: One question, Ms. Fields.

MS. FIELDS: Thank you.

MR. PEAKE: In listening to what you were saying, it sounds like you're addressing the issue of operations of the facility as far as the definition.

In the regulation and proposal, we have a definition of operation. And so I would like to ask to help clarify, you know, how do you think EPA should define when operations end for compliance with Subpart W?

MS. FIELDS: Well, you could extend the period of operations until the placement of the final radon barrier. In fact, Energy Fuels assumed, and this is stated in their annual Subpart W compliance reports, that closure began after the placement of an interim cover.

I mean, that was their assumption. So there has always been a confusion as to when closure actually began. I mean, differing opinions as to when closure began -- or when it begins.

So that is something that you could do, is extend that period of compliance with Subpart W. But just having an interim cover doesn't always -- you still need the radon monitoring throughout the period of drying of the impoundments to give you a heads up on different areas where you might need additional soil, a heads up on the fact that wind-blown tailings had come from another impoundment and they needed to be removed, or maybe - and in this case they put a barrier between impoundments. With the

placement of the different charcoal, these little charcoal monitoring devices in the different areas that tells you which area needs additional soil.

And there's a big question, like at White Mesa, it might be fifty years before they put the final radon barrier because they're not going to put a final radon barrier on one impoundment, and then another impoundment, and then another impoundment. Their whole idea in their reclamation plan is to put them over all of the impoundments.

Well, the rescission of Subpart W assumes that once one impoundment was closed and dewatered, you would have at least within seven years a placement of final radon barrier, not an indefinite period. And right now it's an indefinite period because who knows when all of those additional impoundments will be filled up and they'll want to put the final -- and then they go through closure period, dewatering, settlement and time to put the final radon

barrier on.

So you have a lot of reality issues that the EPA has never -- hasn't really considered, at least for White Mesa and for Cañon City.

MR. PEAKE: Thank you.

MS. SUTIN: Next Sharyn Cunningham.

MS. CUNNINGHAM: My name again is Sharyn Cunningham. I'm co-chair of Colorado Citizens Against Toxic Waste from Cañon City.

I also forgot to mention that I have been a member of the Community Advisory Group for the Cotter Lincoln Park Superfund site since it began in 2004.

I thank you for this opportunity because there are a couple of other points that I wanted to make that I didn't have time, ten minutes went fast.

I had mentioned with the Cohen Risk Assessment that there was actual data at Cotter that they did not make an effort to get for the risk assessment.

In fact, every three months we

participated in a teleconference call with EPA on this Subpart W rulemaking since 2008 or 2009. And on one of the calls after the Cohen Risk -- the first draft came out of the risk assessment, I brought up the fact with the problems with population being wrong, et cetera. And Jim Cain of the Cotter Corporation was on the call -- I believe it was Jim Cain -- and he stated that Cohen never contacted them for specific data from their site.

Now, I don't know if after that some contact may have happened, but it's not reflected in the November 2011 version of the risk assessment.

I mentioned that there was no radon data, which was available from Cotter. There was available meteorological data that they did not use. But there was another important part, I thought.

In 2003 the health department asked Cotter to submit an inventory of the contents of the impoundment ponds. Right at this moment

there is close to 6 million tons of contents. And that includes all of the tailings over all of the years, plus buildings, semi-trucks, heavy earth moving equipment. It's all in that impoundment pond now. And there is a good million or more that will have to go into it as they finish cleaning up.

So if Cohen had gotten that inventory from 2003 they would have known the exact amount of radium and its radiological concentration from that inventory, which would have helped them determine the potential radon emissions, as well as the yearly radon flux tests that happened.

And then another point that I wanted to bring up in regards to the risk assessment was that it's about radon, it's about risk from radon. But the radon progeny, or daughters is what I used to refer to it as, is not mentioned or considered in this.

And I live a mile or so from this impoundment pond. I'm not worried about inhaling radon gas, I'm concerned about radon traveling

through the groundwater. But nobody tests for that in the groundwater.

And I'm concerned about the progeny because it changes within three-and-a-half days or so, it changes to radioactive lead, which attaches to dust, which lands on the ground. And every time the wind blows it gets lifted up and re-suspended and moves farther down.

And in fact, the NRC was concerned about these progeny and they put out a draft interim guidance, September 2011, called Evaluations of Uranium Recovery Facilities Surveys of Radon and Radon Progeny in the Air. And this is a -- and I'll provide that paper in written comments.

Here is a direct quote, "as discussed later, radon progeny are addressed because most of the dose to people from the releases of radon is actually due to exposure to radon progeny." And one of the things -- and that can include radioactive bismuth, radioactive lead.

I think that should have been a part of this risk assessment. You have to realize we've

never had any epidemiological studies at our site. All that's ever been looked at is cancer, the cancer registry.

When you look at radon and its daughters, then you're looking at health effects that are more than just cancer.

And then the last point I wanted to make again, which has been made, the gap. I'm concerned about the gap. I have heard health department and EPA staff state that the final cap may not go on that impoundment pond for twenty to fifty years. And as it's been stated, at least when you're doing radon flux tests, you know when some dirt needs to be put out there to reduce the radon.

For twenty years or -- to fifty, you know, we're not going to have that protection. And we'll be exposed to radioactive lead blowing in the wind.

Also, it causes us to rely solely on Cotter's method to determine background and compliance with radon standards at their boundary

of the air stations. And we question Cotter's method. There's a written method, we gave it to Reid Rosnick. He told us to give it to Steve Tarlton at the health department.

We wouldn't have given it to Reid if the health department would have looked at this. And we asked that it be evaluated by a radon expert from the EPA. That started in 2008, six years ago.

We've still never gotten an agency person to evaluate that method. And now, without the radon flux tests, we are solely dependent on Cotter's method of determining that they're in compliance.

And one of the things in the NRC Interim Guidance stated, it said background must be determined very carefully. And that's what this method of Cotter's does, it -- and so we -- I'd like to ask once again, and I'll discuss later with you, having some expert review this method that they're using.

And, you know, finally, I just want to

say that as a layperson, it looks to me like the Clean Air Act provides EPA with the authority to regulate all radon at mills. And I really hope that you will work to close this gap that people who live near these facilities are going to suffer from.

Thank you.

MS. SUTIN: Thank you, Ms. Cunningham.

MS. CUNNINGHAM: Okay.

MS. SUTIN: Okay. We are through the speakers that registered. And it is 10 -- almost 5 of 11:00. We will pause the hearing until 11:30.

If anyone wants to speak between now and 11:30, go to registration table. At 11:30 we will close the hearing and we will start up again at 1:00 O'clock.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: It is 11:30 and we have no additional speakers for the morning session. So we are officially closing this session for today.

(Whereupon, the morning session was concluded at 11:30 a.m.)

MS. SUTIN: Good afternoon everyone. I think we're going to get started. My name is Elyana Sutin and I am the Regional Judicial Officer for EPA Region 8. Thank you all for coming this afternoon.

I will be presiding over the hearing. And joining me on the panel is Tom Peake and Dan Schultheisz from the Office of Radiation and Indoor Air in headquarters. This hearing is now in session.

We are here today to listen and receive your comments on EPA's proposed revisions to the national emission standards for radon emissions from operating mill tailings, also known as 40 CFR, Part 61, Subpart W.

EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes general available control technology or management practices, also known as GACT, for this area

source category.

EPA announced this proposed rule on May 2nd, 2014. The comment period started on May 2nd and was to end on July 31st. On July 21st, 2014 EPA extended the comment period to October 29th, 2014.

In a moment Tom will explain in more detail what was proposed in that notice. But before I turn it over to Tom, let me explain a bit about how today's hearing will work.

There was a session this morning from 9:00 to noon and one this afternoon. Please be sure to check in to the registration desk even if you are not planning to speak today.

I will call the scheduled speakers to the chair in front of me. When it is your turn to speak, please state your name, spell your last name for the court reporter and your affiliation before you begin your testimony. Your comments will be transcribed and included in the record of comments on the proposed rule.

In order to ensure that everyone has the

opportunity to speak, and to ensure fairness, please limit your testimony to ten minutes. We will signal to you when you have one minute left to speak. When one minute has passed, I will ask you to complete your testimony.

As I said before, there is no pressure to speak the ten minutes if your statement is shorter.

However, if you have more that you want to say and there is time, we're happy to take additional comments that are new from what you have said before and are not a rebuttal to someone else's testimony. If you would like to speak again please check in with the registration desk and they will sign you up.

After you finish your testimony members of the panel may ask clarifying questions. We are not here today to answer questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing.

If you have written copies of your

testimony, or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript. If you have additional comments you would like to make you can submit them in writing. Comments must be received on or before 5:00 p.m. on October 29th, 2014.

Let me assure you that EPA gives just as much consideration to comments we receive in writing as we do to comments we receive at public hearing.

Instructions for submitting comments are included in the fact sheet at the registration table. And you can pick up a copy of that outside the door.

Today's public hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not yet registered to do so, please sign up at the registration table.

Now I will turn it over to Tom who will summarize the proposed rule.

MR. PEAKE: Thank you.

Hello, my name is Tom Peake. And I am the director for the Center for Waste Management and Regulations in the Environmental Protection Agency's Office of Radiation and Indoor Air in Washington, D.C.

And with me is Dan Schultheisz, the associate director for the Center for Waste Management and Regulations.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the national emission standards for radon emissions, or NESHAPS, from operating mill tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technologies, or GACT, to limit radon emissions from the tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new

definitions to this rule, revise existing definitions, and clarify that the rule applies to uranium recovery facilities that extract uranium through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailings impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities, and heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limit the amount of byproduct material that can be exposed.

For conventional impoundments, limit

tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings exposure using phased disposal and maintain a 30 percent moisture content in the pile.

For evaporation ponds, we propose to require at least one meter of liquid be constantly maintained in the pond.

We are also proposing to add definitions for when a uranium recovery facility is in operation or standby.

The proposed rule would also require the owner/operator of a uranium recovery facility to maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. The comment period ends on October 29th, 2014. And we are looking forward to hearing from you today.

Thank you.

MS. SUTIN: Okay. I will call our first

speaker, John Cash.

MR. CASH: Thank you.

My name is John Cash. And I am the vice president of regulatory affairs for Ur-Energy. We operate the Lost Creek in-situ facility near Bairoil, Wyoming.

And I really do appreciate the opportunity to make some comments today. And I just want to say that I'm thankful I live in a country where I can make comments on proposed rules.

A number of my colleagues in the industry have already commented earlier today and yesterday on some legalities of the proposed rulemaking. And I'm not going to spend much time on that.

What I would like to do today in my comments is focus more on the Lost Creek Facility that I'm familiar with, and how the proposed rules will impact that facility. So I will try to give you real life examples of the impact of these proposed regulations.

I'd like to start off by talking about a meeting that I had here with Wayne Heili, he's our president and CEO, back in September of 2009. We met I believe just down the hall here in this office, Region 8, to discuss the Lost Creek project, and specifically EPA's decision to reinterpret 40 CFR, Part 192, health and environmental protection standards for uranium, uranium mill tailings, to include holding ponds at in-situ facilities in the definition of mill tailings.

At that time and currently we do not agree with EPA's proposed action to redefine or re-interpret the term mill tailings to bring in-situ holding ponds under the jurisdiction of 40 CFR, Part 192 regs.

It continues to be our position that the framers of the regulation did not intend water impoundments to be regulated as tailings. And a plain reading of the regulations supports this conclusion.

Despite our holding a contrary

understanding of the regulations from EPA's new interpretation, we felt compelled to submit a holding pond application to the EPA in order to advance the permitting process so that uranium recovery could occur in accordance with corporate objectives.

The engineering design of the holding ponds presented in the application, and subsequently approved after a lengthy review process by the EPA -- and I'll just interject there that that review process I believe was slightly over a year -- on December 20th, 2011, complied with the design criteria enumerated in 40 CFR 264.221.

It should also be noted that EPA approved the design of the Lost Creek holding pond while Subpart W rulemaking was in progress.

We are greatly concerned that the proposed regulation does not expressly grandfather in nonconventional impoundments like the ones recently permitted by the EPA at Lost Creek, and subsequently constructed at

significant cost.

Earlier this week, before I traveled down to Denver for this for this meeting from Casper, I spoke with our engineers who designed and constructed the facility. And they went and they added up all of the costs of the facility that we had built, the holding ponds, and it's right at about 600,000 dollars that we have invested to construct those ponds. That is a significant amount of money.

The EPA approved design and permit does not require maintaining a minimum of one meter of fluid cover. And such a requirement will render the new ponds virtually worthless since the water level must also be maintained at least three feet below the top of the embankment to prevent overtopping.

We respectfully request that EPA remove this requirement from the proposed regulation, or at least grandfather in all existing approved facilities.

And I would like to interject one other

point here. It's not just EPA that approved these holding ponds after over a year of review, there are six other agencies that were involved in the review and/or permitting of the facilities, including the Wyoming State Engineers Office, the NRC, Wyoming Department of Environmental Quality Land Quality Division, the BLM.

And then there were a couple of agencies that were involved in regulatory reviews, and that included the Wyoming Game and Fish Department and the U.S. Fish and Wildlife. Without doubt, these are the most heavily regulated systems at our mine.

And I forgot to mention Sweetwater County also performed a review.

Evaporation ponds are typically designed to be very shallow in order to minimize the thermal mass and therefore maximize the evaporation rate. The proposed, and apparently arbitrarily selected, one meter standard will diminish evaporation rates and operators will be required to build larger evaporation ponds or

seek alternative disposal methods in order to compensate for the loss of evaporation rates.

The consequences of the rulemaking should be fully understood, and the associated costs, including the resulting need to install larger evaporation ponds should be analyzed.

The regulation should specifically address the use of alternative methods to control radon emissions on a case by case basis if the proponent can adequately demonstrate the efficacy of the proposed method.

For example, an operator may wish to install a floating cover to keep birds off the water. And this is a real issue. Such a floating cover may also prevent the release of radon and should be allowed in lieu of maintaining one meter of fluid.

And I would like to switch now to discussion of the definition of byproduct material and the impact of that on operations in relation to this rulemaking.

Since the EPA is expanding the coverage

of 40 CFR 61, Subpart W to include nonconventional impoundments, the agency should recognize that such impoundments may contain byproduct material that, while meeting the strict AEC definition, have been treated to below the effluent standards promulgated in 10 CFR 20, Appendix B, Table 2.

For example, a proponent may wish to store permeate generated from reverse osmosis in the holding pond. The permeate may satisfy all drinking water and effluent standards, but would still be considered byproduct under the Atomic Energy Act, and therefore regulated under the proposed rule.

Waters treated to meet the effluent standards present little or no hazard. And therefore EPA should consider removing them from regulation under the proposed rules, especially if the water meets the radium and radon effluent standards.

Regulating water which does not present a hazard creates unintended additional regulatory

burden and associated cost for industry and the agency while generating no benefit to the public.

The EPA has at least two legal mechanisms to distinguish between byproduct and byproduct which falls below the effluent standard. The Clean Water Act allows for deletion of source categories in Section 112(c), or alternatively the administrator, when developing standards, "may distinguish among classes, types and sizes of sources within a category or subcategory in establishing such standards," as provided for in Section 112(d).

So those -- that concludes my remarks. Again, I think you for the opportunity to provide these to you guys. And hopefully you take a look at these as very site specific issues that we're facing at Lost Creek.

One final comment is, and we've talked about the issue of putting permeate holding ponds, that is something that we are considering at Lost Creek. And that water will meet drinking water standards, even the new proposed standard

for radon that the EPA is now going through the process of promulgating. So it is essentially drinking water. And to leave that under regulation just would create a lot of additional burden unnecessarily.

I thank you for your time.

MS. SUTIN: Thank you, Mr. Cash.

Next if we could have David Frydenlund?

MR. FRYDENLUND: Good afternoon. My name is David Frydenlund, it's F-r-y-d-e-n-l-u-n-d.

I am senior vice president and general counsel for Energy Fuels Resources USA, Inc. We operate the White Mesa Uranium Mill in Utah, which is the only operating uranium mill in the United States.

We are also in the process of permitting the Sheep Mountain project, which is a proposed uranium heap leach processing facility in Wyoming.

I will touch on a few key points this afternoon. Energy Fuels will be submitting more comprehensive written comments at a later date.

First, I'd like to note that Energy Fuels agrees with a number of the positions taken by EPA in the proposed rules. For example, we agree that evaporation of similar ponds should not be counted as one of the two impoundments that may be in operation at any one time under the proposed management practice standards.

We also agree that there should be no limitation on the number and size of such ponds. In order to operate a uranium mill, a large evaporative capacity is necessary. Water balance is paramount at a zero-discharge facility such as the White Mesa Mill.

However, requiring the proposed minimum of one meter of water cover can be prohibitively burdensome with little or no benefit. As EPA has noted, the radon emissions from saturated tailings are only approximately 2 percent of emissions from dry tailings. And adding one meter in water would result in a negligible reduction.

However, there are significant costs associated with this proposed requirement.

First, the cost of maintaining this one meter of water would be significantly greater than EPA has estimated given the high evaporation rates and scarcity of water at facilities such as the White Mesa Mill. We will address these costs in more detail in our written submissions.

Second, this requirement will seriously impact and may eliminate a mill's ability to recirculate tailings solutions back into the process because the addition of fresh water will change the chemistry of the solutions in the tailings.

Third, a mill will be prevented from reducing solution levels in evaporation ponds from time to time to inspect, and if necessary, perform maintenance activities on the impoundments.

Finally, evaporative and holding capacity at a uranium mill is at a premium. And adding fresh water to the system would displace needed capacity for process solutions. This would generally require construction of additional

evaporative and holding capacity at significant capital cost.

Energy Fuels fully supports added protections to public health, safety and the environment when required. However, in these circumstances the added protections are negligible or non-existent, and the cost of the added requirements are prohibitive and cannot be justified.

Energy Fuels recommends instead that the proposed rule be changed to require full saturation or water cover on evaporation ponds during operation, but not to require a minimum liquid level in the ponds.

The next point I'd like to make is that the definition of 11e.(2) byproduct material in the existing and proposed rules is different from the definition in the Atomic Energy Act. We don't believe EPA has the authority to promulgate a different definition of 11e.(2) byproduct material. And in any event, a difference in such a key definition can lead to unnecessary

confusion. Those definitions should be the same.

We also have concerns relating to the proposed application of Subpart W to heap leach facilities. A heap leach facility is not a tailings impoundment while in operation. Heap leaching is part of the milling process. And the proposed rules would interfere with such processing operations.

For example, the requirement to maintain a 30 percent moisture content would have the effect of diluting process solutions and impacting operations.

This is in stark contrast to a tailings impoundment at a uranium mill where Subpart W does not apply to process operations, but only to tailings that have been finally disposed of after processing, and hence cannot impact processing. Subpart W should not extend to regulating process operations.

Once process operations have ceased at a heap leach facility, the facility would then go into closure and be subject to the requirements

of 10 CFR Part 40, Appendix A. Hence, there is no place for regulation under Subpart W at heap leach facilities.

The radiological protection programs required under 10 CFR, Parts 20 and 40, include adequate protections and monitoring for radon at such facilities.

Finally, the removal of the phrase "as determined by the NRC" in 40 CFR 61.252(b)(1), and a number of the additional record-keeping requirements, amount to dual jurisdiction over the construction and operation of tailings impoundments.

This is in contravention of Section 275 of the Atomic Energy Act under which EPA is required to set standards for the management of 11e.(2) byproduct material. And the implementation and enforcement of the standards is expressly stated to be the responsibility of NRC and Agreement States in the conduct of their licensing activities under the Act.

Section 275 of the Atomic Energy Act also

expressly states that no permit is required by EPA for the processing, possession, transfer or disposal of 11e.(2) byproduct material.

Under the proposed rules an operator would be required to simultaneously go through the entire design and permitting process for new tailings cells with the NRC or Agreement State, and with the EPA. Otherwise, the facility would be subject to possible different implementation of the rules by the EPA after construction.

There is no need for such dual jurisdiction in order to implement the NESHAPS requirements under the Clean Air Act. And it will unnecessarily burden the regulatory process. Such dual jurisdiction is tantamount to EPA requiring a permit for the disposal of 11e.(2) byproduct material, in contravention of the Atomic Energy Act.

Thank you for the opportunity to comment. As I mentioned earlier, Energy Fuels will be submitting more detailed written comments at a later date.

MS. SUTIN: Thank you.

Next if we could have Sarah Fields?

MS. FIELDS: My name is Sarah Fields. And I am with Uranium Watch of Moab, Utah.

One thing I would like to point out is that uranium recovery facilities have lived under this, quote, “dual regulations”, since the early 80's. And that was over thirty years ago, or around thirty years ago. And now all of a sudden it’s become a very important issue to some members of the industry and the National Mining Association.

One thing I wanted to touch on is the question of uranium mills that are on standby. The White Mesa Mill is going to go on standby at the end of this year. I do not doubt that at some point -- and it’s just reasonable, that in the future they will start processing ore again. Not only do they have a mill, they also have a number of permitted uranium mines both in Utah, in Arizona -- I think they also have some in Colorado.

It's a totally different situation for the Shootaring Canyon Mill. The Shootaring Canyon Mill last operated for a very short period of time in 1982. There have been several -- the uranium industry is a boom and bust economy. A number of mills closed down in the 80's. Some started up again. And for a long period of time no ore was processed at the White Mesa Mill. And now at the end of this year they're going to shut down.

All during this up and down period in the last uranium renaissance, the Shootaring Canyon Mill did not reopen. So you have a small tailings impoundment. And the only reason really that it's kept on standby is not because at some time the mill will start operating again and need a place to put the new tailings, but because they will not be able to put new tailings in that impoundment because it does not comply with the current requirements for a tailings impoundment. So the Division of Radiation Control would not allow the mill to start operating again without

the construction of a new lined impoundment.

So the reason it's kept open is because at some point, and this may happen at any time, the mill owner will decide to enter -- close the mill and enter reclamation. And they need that impoundment to dispose of the mill contaminating soils.

In fact, they'll put more material closing the mill than is actually in the impoundment right now. Most of the stuff that is in the impoundment is not even from the processing of ore at the mill, it's from the disposal of the waste and equipment from the old hydra-jet heap leach operation.

So both the EPA, and first the NRC and now the Utah Division of Radiation Control, have kind of let that mill stay on standby for over thirty years assuming that at some time it's going to start operating again.

And I don't think that's a very reasonable way of regulating uranium mills, whether you're doing that under the Clean Air Act

or under the Atomic Energy Act.

I think there must be some kind of limit on the length of time that a mill can be on standby. I mean, there aren't even any permitted mines associated with this mill at this time.

So if it was ever to start up again they would need a new lined impoundment. And they now actually need to permit several uranium mines. And no company has come up with the money to do this.

Apparently a new company is going to purchase the mill. They'll have to submit either a plan for reclamation or a license renewal application. So by the end of this year they will kind of know exactly what's going to happen. But leaving a mill on standby for over thirty years does not make sense.

Another thing I wanted to cover is the discussion of possible uranium milling in Virginia, which has a very different kind of situation than the west. The west is dry.

I guess my time is about up -- no, I

don't know what that light means.

Okay. So the EPA seems to think that all you need to do is follow the construction and design requirements of having lined impoundments at forty acre impoundments and that will create a very safe controlling environment for radon.

And yet if you envision a uranium mill in Virginia, you also have to envision a lot of holding ponds, because under the EPA regulations for -- oh, I think it's 440.34 -- they would be allowed to discharge tailings effluent because the amount of precipitation is greater than the rate of evaporation. But they would have to with barium chloride or some kind of other treatment.

So you would probably have a number of treatment ponds. You would have a number of ponds that would be more than you would have at a conventional mill in -- let's say Utah.

So you would also have unusual meteorological conditions. You have the potential of hurricanes, you have the potential for large storms, and you have the potential for

tornados.

So I don't really see how the EPA can think that a liquid effluent, whether they're on top of a more solid tailings impoundment, or just a totally liquid pond, would contain those liquids, or contain those tailings under those circumstances.

I also don't understand how the EPA can conceive of a situation where a solid tailings impoundment could actually dry out in the State of Virginia where you have continual precipitation. You have sometimes very intense precipitation.

And the whole basis for 192, and NRC, EPA regulation of conventional tailings, and the reclamation of tailings, is based on the assumption of eventually the tailings dry out so that there could be a permanent radon barrier. And that permanent radon barrier would prevent liquid, rain and other precipitation from entering the tailings impoundments.

I don't see that happening in Virginia. And I

don't see any kind of really honest evaluation by either the NRC or the EPA as to the whole water balance, the whole conceptual basis for regulating that under either Subpart W or NRC's Part 40.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

MS. FIELDS: Any questions?

MS. SUTIN: Okay. We have heard from all of the registered speakers. We are anticipating others coming later this afternoon. So we will be on pause until the next speaker arrives.

Thank you.

(Whereupon, recess was taken)

MS. SUTIN: So we are back on the record and it is 3:53.

We have had all of the registered speakers that intended to speak give their comments and so the hearing this afternoon is officially closed.

Thank you all for attending.

(Whereupon, the hearing concluded at 3:53

p.m.)

Environmental Protection Agency

Public Hearing on
Proposed Revisions to National Emission Standards for Radon Emissions from Operating Mill Tailings

9:00 a.m. to 4:30 p.m.

Wednesday, September 3, 2014

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EPA PANEL:

ELYANA SUTIN, Chair; EPA

TOM PEAKE, EPA

DANIEL SCHULTHEISZ, EPA

C O N T E N T S

P R O C E E D I N G S

MS. SUTIN: Good morning everyone. My name is Elyana Sutin. And I am the regional judicial officer here in EPA Region 8. Thank you all for coming this morning.

I will be presiding over the hearings today and tomorrow. Joining me on the panel is Tom Peake and Daniel Schultheisz -- Schultheisz -- sorry, I apologize, we are just meeting for the first time -- from the Office of Radiation and Indoor Air in headquarters.

This hearing is now officially in session. We are here today to listen and receive your comments on EPA's proposed revisions to national emissions standards for radon emissions from operating mill tailings, also known as 40 CFR, Part 61, Subpart W.

The EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes generally available control technology or management practices, also known as GACT, for this area

source category.

EPA announced the proposed rule on May 2nd, 2014. The comment period started on May 2nd, 2014 and was to end on July 31st, 2014. On July 21st, EPA extended the comment period until October 29th, 2014.

In a moment Tom will explain in more detail what was proposed in that notice. But before I turn it over to Tom, let me explain a little bit about how the hearing will be run today.

There will be two sessions, one this morning from 9:00 until noon, and then another this afternoon from 1:00 until 5:00 p.m. here in this conference room.

Please be sure that you have checked in to the registration desk even if you are not planning to speak today. I will call the scheduled speakers to the chair in front of us. When it is your turn to speak, please sit and then state your name, spelling your last name for the court reporter, and your affiliation before

you begin your testimony. Your comments will be transcribed and included in the record of the comments of the proposed rule.

In order to ensure that everyone has the opportunity to speak, and to ensure fairness, please limit your testimony to no more than ten minutes. We will signal you when you have one minute left to speak. When one minute has passed I will ask you to complete your testimony.

There is no pressure or obligation to speak for ten minutes. If your testimony is less than that time, that is fine. Just know that you have that amount of time to speak this morning.

We have plenty of time today as well in terms of the number of speakers. So if you have prepared testimony and then would like to speak again later, please go back to the registration desk and we might be able to fit you in if there is other information that you would like to provide.

That is also true for the folks that have come today and were here to listen but have

decided they want to make a statement. Please go to the registration desk and we will be able to accommodate you.

After you finish your testimony members of the panel may ask clarifying questions. We are not here today to answer those questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing and they can help you.

If you have written copies of your testimony, or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript.

If you have additional comments you would like to make you can submit them in writing. Comments must be received on or before October 29th at 5:00 p.m. Let me assure you that EPA gives just as much consideration to comments we receive in writing as we do the comments that we hear today, that we hear at the public hearing

today. Instructions for submitting comments are included in the fact sheet at the registration table. You can pick that up at the table as you leave.

Today's public hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not registered, as I have said, please do so.

Now I will turn things over to Tom, who will summarize the proposed rule.

Thank you.

MR. PEAKE: Hello. My name is Tom Peake. And I am the director of the Center for Waste Management and Regulations in the EPA Office of Radiation. And with me is Dan Schultheisz, who is the associate director of the Center for Waste Management and Regulations.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the national emission standards for radon emission, NESHAPS, from operating mill

tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technology, GACT, to limit radon emissions from tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new definitions to this rule, revise existing definitions and clarify that the rule applies to uranium recovery facilities that extract uranium through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailings impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities, and

heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limits the amount of byproduct material that can be exposed. For conventional impoundments, limit tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings exposure using phased disposal and maintain a 30 percent moisture content in the pile.

For evaporation ponds, require at least one meter of liquid be constantly maintained in the pond.

We are proposing to add definitions for when a uranium recovery facility is in operation or standby.

The proposed rule would require the owner/operator of a uranium recovery facility to

maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. And as previously mentioned, the comment period ends on October 29th, 2014. We are looking forward to hearing from you.

Thank you.

MS. SUTIN: Okay. We will get started. I'd like to call up our first speaker, Thomas Johnson.

MR. JOHNSON: Thomas Johnson, T-h-o-m-a-s, Johnson, J-o-h-n-s-o-n. And I'm just representing myself today.

MS. SUTIN: I'm sorry, we don't have a microphone for you yet. So if you don't mind projecting as loudly as you can, that would be great.

MR. JOHNSON: That's okay. I've been told I'm loud before.

So my comment today is that I was very

disappointed in the rule that was proposed because in my opinion the purpose of the EPA is to protect people and the environment from harm.

Unfortunately, the EPA did not do an analysis of at what level radon emissions are indeed harmful. I don't think you looked at the risk to humans, real humans, rather than imaginary fence line humans. And you didn't look at the need to regulate radon emissions, if indeed a need exists.

The reason I phrase my comment in that fashion is because what we would like to do, I believe, as a regulatory body, is protect people from harm. That should be our number one goal.

Unfortunately, no one has ever demonstrated harm from being around a Subpart W facility. Certainly workers have demonstrated harm based on epidemiologic studies.

However, multiple studies have been performed by people such as John Boice, the National Institutes of Health, that have demonstrated there is no increased risk of cancer

in the areas and the communities surrounding uranium mills.

Furthermore, the EPA continues to utilize the National Academy of Sciences report in which they do say that the linear no-threshold model upon which EPA bases its risk is only a construct and may or may not reflect reality. It is only used as a convenience.

I would hope the EPA would consider that as well as the French National Academy of Science's rebuttal to the linear no-threshold model.

Furthermore, the EPA should consider the Health Physics Society's position statement when looking at radon emissions from these facilities. We should be looking at doses to real people, not imaginary people. We should also be doing things such as measuring doses.

Unfortunately, the levels that EPA currently regulates, Subpart W, are almost impossible to measure in any meaningful fashion and only doses can be modeled to people.

To give you an example of how low the EPA limits are and how difficult it is to measure, I took a radiation measuring device with me today to the parking garage to here. The variation in radiation levels at the parking garage at 1660 Wynkoop over here to over here, was approximately 10 microrems per hour.

Next to my car in the parking lot I read approximately 25 microrems per hour on the fourth floor. Here I am reading approximately 15 microrems per hour.

If you look at the EPA regulation, which says we should only have 25 millirems per year, that parking garage is in direct violation of the EPA's dose recommendations -- or rules, rather, not recommendations -- because this would translate to approximately 3 microrems per hour at the fence line dose for many of these facilities.

Not only is this less than -- it's not only difficult to measure, the natural variability in a place like downtown Denver is

greater than that, let alone a place where we have more bodies, we have naturally occurring structures that can create differences far greater than that.

The other things I noticed about the Subpart W was that the EPA certainly did consider the costs. And you did use your linear no-threshold model exactly to figure out how to minimize doses to the public.

Unfortunately, you did not take a holistic view. If you look at some of the new requirements that would be imposed, it would require large quantities of earth moving equipment, movement of water. And these things, it's been shown time and time again, anytime you use earth moving equipment, and anytime you move large quantities of dirt, there will be fatalities and injuries.

This was not considered by EPA. We need to take a holistic view of the entire worker environment.

One of the other things EPA failed to

consider is the most dangerous thing there is, according to the Department of Labor, and that is for a person to be out of work. So the impact of these regulations on the number of people hired, or the potential for facilities to be operated or not operated, was also not considered by the EPA.

This is unfortunate because there is actually a name in epidemiology for people who do not work. It's called the Healthy Worker Effect. Those people who do have work and find work are considered healthier and have been proven to be healthier by epidemiologists.

And in fact people who work in industries that deal with radioactivity have the most profound work Healthy Worker Effect.

So I would ask the EPA consider all of these things in this rule making and in any future rule makings, and take a more holistic view of not just a single item and single-mindedly pursue the emissions of radon but rather look at the entire health of the population and the people who live near these facilities.

Thank you.

MS. SUTIN: Thank you, Mr. Johnson.

Next if we could have Frank Filas.

MR. FILAS: Good morning.

MS. SUTIN: Good morning.

MR. FILAS: My name is Frank Filas. I am vice president of permitting and environmental affairs for Energy Fuels Resources. Our company is currently America's largest conventional uranium producer, supplying approximately 25 percent of the uranium produced in the United States in 2013.

We have significant concerns with the proposed regulations as it appears that the EPA is attempting to impose dual regulation over portions of uranium recovery operations that are already sufficiently regulated by the NRC and Agreement States.

We don't believe that the EPA needs to regulate very low level radiation sources such as evaporation or holding ponds. We recommend that the Subpart W regulation be limited to size and

number restrictions for tailings impoundments and other permanent byproduct disposal facilities.

We believe that the "one-size fits all" approach of mandating one meter of water cover over evaporation and holding ponds is unnecessary and wasteful of scarce and valuable water resources. The EPA stated the following in its October 1984 Final Rule for Radon-222 Emissions from Licensed Uranium Mill Tailings in its Response to Comments:

"Recent technical assessments of radon emission rates from tailings indicate that radon emissions from tailings covered with less than one meter of water, or merely saturated with water, are about 2 percent of emissions from dry tailings. Tailings covered with more than one meter of water are estimated to have a zero emissions rates.

The Agency believes this calculated difference between 0 percent and 2 percent is negligible. The Agency used an emission rate of zero for all tailings covered with water or

saturated with water in estimating radon emissions."

Again, this is from a 1984 EPA Response to Comments.

Clearly, there would be very little benefit to be gained by requiring one meter of water cover over material that is already saturated with a minimal water cover. Instead there would be a significant waste of water resources through evaporation of an excessive and unnecessary water cover.

EPA's calculation of reduced radon emissions is incorrect as there would only be a 2 percent reduction in emissions with one meter of water, not 93 percent stated in the rationale for this proposed rule.

In addition, the EPA's cost estimates for maintaining such a water cover are low by many orders of magnitude. We estimate that it will cost millions of dollars to drill deep wells of 1,000 feet or more, or pipelines of many miles to supply the additional water needed at

conventional mill facilities.

Evaporation ponds are designed to remove solution through evaporation, not to add water. An additional one meter of water cover would also incur the need for building larger ponds at significant additional cost.

EPA's proposed replacement of the word "tailings" by "byproduct materials or tailings" in the definition for "Operation" is inconsistent with NRC regulations and appear to be an attempt by the EPA to circumvent the previous rescission of Subpart T of 40 CFR, Part 61.

Further, we disagree with EPA's assertion that "the operational life of the heap leach pile be from the time that lixiviant is first placed on the heap leach pile until the time of the final rinse."

As long as the heap is being leached, the ore on the heap is being processed. It does not become 11e.(2) byproduct material until leaching is permanently discontinued.

The heap leaching cycle is essentially no

different in theory than the successive leaching of uranium that occurs in the counter current decantation or CCD circuit of a conventional mill where the ore pulp from the leach circuit is successively further leached in a series of thickeners. The material does not become tailings -- i.e.; 11e.(2) byproduct material -- until it leaves the final thickener and is discharged to the tailings impoundment.

Thank you for the opportunity to comment. Energy Fuels will provide more detailed comments at a later date, plus my colleagues will be providing testimony in subsequent public hearing sessions. I would be happy to answer any questions that you might have.

MS. SUTIN: Thank you very much.

Next if we could have Sarah Fields.

MS. FIELDS: My name is Sarah Fields. And I represent Uranium Watch in Moab, Utah.

Thank you for the opportunity to come here and provide oral comments. I wish that the EPA had been able to also hold hearings in the

vicinity of the communities that will be affected by these regulations.

Earlier, as you were planning the Subpart W rule making, you went to communities into the city and White Mesa and other - I think some other communities. But this time apparently you didn't have the funding to actually go to those communities with the most important aspect of the rule making, which is the proposed rule.

I was very disappointed in the Federal Register Notice. It contains incomplete, outdated, erroneous and misleading information. One thing I noted was that the EPA sent letters to uranium mill licensees asking questions about their mills and 11e.(2) byproduct material impoundments, but failed to send letters to the Sweetwater and Shootaring Canyon Mill licensees, or at least you didn't post those letters and you didn't post any responses.

Also, you sent a letter to Energy Fuels to -- you sent two letters, one was responded to and the second was not responded to. And the EPA

didn't follow up on that.

The EPA justifies the elimination of the radon emission standard for "existing" impoundments. That would be the White Mesa Mill, Shootaring Canyon and the Sweetwater Mills. Based on various assertions the EPA claims that the White Mesa Cell 3 will close at the end of 2014. That appears not to be true.

According to recent documents from Energy Fuels, they plan on keeping Cell 3 open to receive ISL waste because they cannot dispose of ISL waste in the new Cell 4 until more solid tailings have been disposed of in Cell 4A so there is a base for the burial of the ISL waste which is not processed.

And then they would need a license amendment to authorize the disposal of ISL waste in Cell 4A.

And since they plan on closing -- putting the mill on standby at the end of 2014, I don't know when exactly they would be able to use Cell 4A for the disposal of ISL waste. So there is no

basis for the assumption that Cell 3 would close at the end of 2014.

Also, the EPA claims that both the Shootaring Canyon and Sweetwater impoundments comply with the new requirements, requirements for new impoundments in 40 CFR 61.252(b).

This again is not true. The EPA claimed that the Shootaring Canyon Mill has a synthetic liner. It does not have a synthetic liner. So maybe if you asked for more information from the licensee about that impoundment you would have learned that it has a clay liner. Unless you're going to redefine the meaning of synthetic to mean clay, it does not have a synthetic liner.

Also, the Sweetwater impoundment is 60 acres, it's not 40 acres. So it does not meet the 40 acre requirement for a new impoundment.

So in sum, I don't think there is the factual basis for removing the requirement for the radon emissions -- for monitoring and reporting the radon emissions from these existing impoundments. And the EPA should remember that

Subpart W is an emissions standard. It's a standard that's supposed to regulate the emissions. And normally that means setting a limit on what those emissions are going to be. Yet the EPA intends to completely eliminate any requirement -- any kind of limitation on these radon emissions at operating uranium mills.

Now there is only going to be a design work -- the design and work practice standards for conventional ISL and heap leach facilities. And I believe that this does not comply with the requirements of the Clean Air Act exception 112(h).

In the Federal Register, notice that you didn't mention Section 112(h) at all. 112(h) is work practice standards and other requirements. And it says what the purpose is of this section. And that is Section 112 and these regulations are being promulgated pursuant to Section 112 of the Clean Air Act.

It says for the purposes of this section, if it is not feasible in the judgment of the

administrator to prescribe or enforce an emissions standard for control of a hazardous air pollutant or pollutants, the administrator may in lieu thereof promulgate a design, equipment, work practice or operational standard or combination thereof.

So what that means is that the EPA is going to promulgate a design, equipment, work practice or operational standard or combination in place of an emissions standard. The administrator must find that it is not feasible to prescribe or enforce an emissions standard.

Although the administrator could not make that finding certainly for conventional uranium mills because you already have such a standard.

For decades you have shown that such a standard is feasible. It's feasible to measure the radon emissions from these conventional impoundments. I think it would have been really helpful if the EPA in the Federal Register Notice had discussed this provision and how that -- these Clean Air Act requirements affect this

rulemaking. I also think that for liquid impoundments it is possible to calculate the radon emissions.

So under my reading of the Clean Air Act, there must be an emission standard and the EPA -- unless the administrator finds that such an emissions standard is not feasible. And the administrator has not done so.

And then another aspect of the proposed rule is the question of the radon flux from liquid impoundments. In the evaporation pond risk assessment at Table 2, it contains information about the radon flux for various radium concentrations, and shows the radon flux for 3 conventional mills and 8 ISL facilities under concentrations of 1, 100 or 1000 picocuries per liter.

However, the EPA didn't actually incorporate the actual data on what the radon flux is for specific liquid impoundments.

MS. SUTIN: You have one minute.

MS. FIELDS: Okay. And I think the EPA

should have obtained actual data and information on -- as to what the current radon flux is at impoundments such as White Mesa Mill and at other liquid impoundments, the Sweetwater and ISL facilities, so they would have a more accurate picture of what the radon emissions actually are. There is recent data from White Mesa. I will include some of that data in my other written comments.

Let's see -- well, maybe in the second round of comments I will be able to touch on a few other things.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

MS. FIELDS: Fields, F-i-e-l-d-s, and Sarah with an H.

MS. SUTIN: We are still trying to figure out the IT issues here, but I'm going to take one more speaker and then we will take a break so that they can come in and -- they have to shut everything down and start it back up again. So we will have one more speaker and then we will

take a short break and come back.

If I could have Anthony Thompson.

MR. THOMPSON: My name is Anthony Thompson. I am one of a number of speakers on behalf of the National Mining Association. I was the lead counsel for then the American Mining Congress and now the National Mining Association in filing comments on Subpart T and Subpart W. And then was the lead negotiator for the American Mining Congress on the rescission of Subpart T which applied to inactive mill tailings impoundments, as opposed to Subpart W, which applies to active mill tailings impoundments.

And I believe that there is some confusion in the draft about what is an active mill tailings impoundments under Subpart W and what is an inactive mill tailings impoundment that would have been under Subpart T but is now under NRC regulations.

And I point out that during the year or so that the rescission of Subpart T was negotiated with EPA, with representatives -- NGO,

with NRC and Agreement States listening in -- was a very complex operation and it required -- before rescission of Subpart T it required changes to NRC's 10 CFR, Part 40, Appendix A regulations. And those are reflected in Criteria 6. And I will mention that it's very important that EPA go back and look at this. And I'm sure we will say this in more detail in the comments that NMA files.

I don't have the actual Federal Register pages but at one point we talk about in the proposal that after the uranium moves out of the heap what remains is 11e.(2). And to the extent that active leaching is ceased, that's correct. What remains is a waste. And when it becomes a waste it's 11e.(2).

But is not subject to Subpart W because it is an inactive tailings impoundment and would be subject to the requirements in Criterion 6 if it's going to be closed in place of Appendix A to begin final remediation as soon as practicable.

And so I think that is part of a problem

that comes from the definition of operations which Mr. Peake mentioned.

We agree that a standby mill is still operational. Certainly a mill that is actually producing uranium, even if it stops for various periods during the year, it is an operational facility until the day closure begins.

And when the closure begins, it steps out of the Subpart W realm and it would be in what was Subpart T, but which is -- no longer exists and is subject again to the modifications in Criterion 6 of NRC's regulations.

For example, the definition of operational seems to suggest that if you're continuing to put tailings on a tailings pile, that that somehow means it is still operational. And that is clearly an incorrect assumption if you go back and look at the rescission of Subpart T.

For example, it explicitly identified in Criterion 6 is -- where a mill tailings pile could be closed in sections, the Western Nuclear

pile.

And the requirement is that if you say you're going to close down a third of it in one year, then you have to measure the radon 20 picocuries per meter squared per second over that closed part. And then when you do the next third, you have got to do the same thing. But that clearly implies that you have part of a tailings pile open and you're putting tailings in. If you put the mill in the pile, it can't be an operational facility. And so if you are then bringing windblown tailings into the impoundment, if you bring -- if you have -- as explicit in Subpart W, if you have, for example, an evaporation pond either beside, as at Western Nuclear, or on top of a tailings impoundment that is doing groundwater corrective action actively and you need to leave a portion of the pile open, that is explicitly provided for in Criterion 6 if you can show you meet the 20.

So there are situations where you are going to be putting 11.e(2) byproduct material,

whatever it may be -- it could be portions of the mill, it could be windblown tailings, it could be the liners from an evaporation pond long after the mill is gone, long after there is any active processing. And that is not subject to Subpart W.

I think we will explain this in more detail in the detailed comments but that is my primary comment for the morning.

MS. SUTIN: Thank you, Mr. Thompson.

Okay. I think we will take a ten minute break to resolve our microphone issues and we will be back.

Thanks.

(Whereupon, a recess was taken.)

MS. SUTIN: Okay. So let's get going again. I apologize for the delay and I think we are good now.

If I could have Christopher Pugsley.

MR. PUGSLEY: Good morning. I thank you for having me today.

My name is Christopher Pugsley and I am a partner and member of the law firm of Thompson

and Pugsley. And I serve as outside counsel to the National Mining Association.

My comments today will be strictly limited to statutory and regulatory definitions and interpretations because I believe, as everyone here knows, sometimes the most complicating factors associated with any type of statutory program lies in the definitions of terms, materials, and the execution and use of those definitions.

If I can take a few minutes to talk about something that happened about 36 years ago when Congress passed the Uranium Mill Tailings Radiation Control Act of 1978, which amended the Atomic Energy Act of 1954 to define a new class of materials from uranium recovery facilities known as 11.e(2) byproduct material.

What people focus on these days is what is 11.e(2) and how is it managed and what agencies are required to deal with it. What is not talked about is the institutional memory associated with why that statute was passed in

the first place.

The issue was to deal with a class of materials that was previously known as tailings. And tailings itself were defined back then not as tailings impoundments but as tailings piles. And that is important to know going forward because the reason Congress passed this statute was because there were issues associated with potential radiation risks associated with tailings or solid materials that were generated from uranium recovery operations and stored in tailings piles.

Many of these materials on several occasions were used for road fill, foundation materials for buildings and homes. Hence, the folks that deal with radon on a regulation basis know that it's an issue to use these things for foundation materials because radon is at its most dangerous in an enclosed area.

So when the statute was passed in 1978, there was a dichotomy of regulatory authority that Congress bequeathed on two agencies.

First was to the Environmental Protection Agency to propose generally applicable standards associated with the management and containment of the 11.e(2) byproduct material at mill tailings facilities.

The second was through the Nuclear Regulatory Commission, which was to -- they were directed to implement and execute and enforce EPA's generally applicable standards.

Now, with that said, you have heard many people in the industry talk about that program and how the EPA does it. The EPA has a proposed rule hopefully coming out sometime in the next few months, 40 CFR, Part 192. Those are generally applicable standards.

The one part people do not talk about are the definitions of materials that are defined not by EPA, and not by NRC, but by Congress. Congress defined what 11.e(2) was. And it's the tailings and other wastes associated with uranium recovery or processing ores primarily for the source material content, in this case uranium.

What I'd like to talk about briefly today is how important definitions are to this proposed rule. And I would like to start with 11.e(2) itself and who has the authority to deal with this.

The NRC, the Commission, and not the Environmental Protection Agency, have exclusive federal preemptive authority over 11.e(2) byproduct material. If you need a reference for that see the Staff Requirements Memorandum that was issued by the Commission in the year 2000 responding to a paper known as SECY, S-e-c-y-99-023, otherwise known in the industry space as the concurrent jurisdiction decision, in which there was a dispute from the what was then known as the Office of the Executive Legal Director, and now known as the Office of General Counsel at NRC, over whether states who are non-agreement states had dual or concurrent jurisdiction over 11.e(2) byproduct material, or more specifically the non-radiological components of 11.e(2).

The Commission, acting under its

exclusive authority from Congress, determined that the NRC and not EPA, not states, and no other agency had exclusive preemptive jurisdiction over both the radiological and non-radiological components of 11.e(2) byproduct material.

Thus, meaning the Commission has the exclusive authority to define what is and what is not 11.e(2) byproduct material.

This is important because EPA should take care in its proposed rule to assess its definitions as they are currently written to look back on its administrative rulemaking records from the December 1989 final rule on Subpart W and adequately assess where they are going in terms of jurisdictions.

Under the Clean Air Act, the EPA is not delegated any authority to define what is and what is not 11.e(2) byproduct material. They cannot define what are known as tailings.

And as my colleague, Anthony Thompson, said earlier, there are multiple classes of

materials that are considered waste at a uranium recovery facility, hence 11.e(2) byproduct material. But as we like to say, all tailings are 11.e(2) byproduct material, but not all 11.e(2) byproduct materials are tailings.

For example, as Tony said, the mill itself, if not sufficiently decontaminated for resale of scrap or whatever offsite disposal might be, can be thrown into the tailings impoundment as 11.e(2). But no one thinks that the mill building are tailings in the conventional sense.

And that takes us to the next point, which are fluid retention impoundments. As I said before, the Administrative rule making records associated with EPA's initial Subpart W rule identified tailings as piles.

And that is -- makes sense because you're using the definition as articulated by Congress of tailings.

The last time I checked, water is not stored in piles. So in my opinion it cannot be

demonstrated that when talking about tailings, you're talking about water or any radionuclides that are in the water.

EPA is also not delegated any authority under the Mill Tailings Act to define what is and what is not 11.e(2) byproduct material. Congress defined the term, the Commission is empowered to determine what is and what is not.

All EPA can do is propose generally applicable standards for how to deal with 11.e(2) byproduct material which the Commission or NRC has to enforce.

There are several examples of this where the Commission has exercised its authority over defining what is 11.e(2) and how a state or another entity other than the Commission may regulate it.

For example, in the year 2000 the folks in the in-situ field, known as the Milling Underground Decision, where the Commission defined restoration fluid from an ISR operation as 11.e(2) byproduct material. This is a

Commission prerogative to define that.

EPA is not allowed to define tailings as restoration fluid because it is not within their statutory authority.

Another example is when the State of Texas as an Agreement State tried to alter the definition of 11.e(2) byproduct material. The then -- I believe it was then called the Office of General Counsel at NRC -- basically told Texas that either you will revise your definition to be consistent with that of the Mill Tailings Act or you could risk losing your Agreement State authority. And, of course, Texas changed the definition.

Another was a recent example in South Dakota where they had rules that were coming out that could regulate 11.e(2) byproduct material. And the General Counsel's Office sent a letter to the state saying you have no authority to regulate this because you're not an Agreement State, that rests with the Commission.

So what basically the point that I'm

trying to make here today is before we start analyzing the nuances associated with the technical/safety and environmental aspects of this proposed rule, it is critical that EPA go back and look at its jurisdictional authority under the Clean Air Act for these regulations and to make sure that their definitions do not impermissibly infringe on the exclusive federal brand of authority that the Nuclear Regulatory Commission has over 11.e(2) byproduct material, or what the rule calls uranium byproduct material.

And to ensure that EPA looks back at its past administrative record to make sure that the rule -- that the statute and the rule that was supposed to address tailings does not overstep its authority into other areas, such as fluid retention impoundments, because again water are not tailings.

So thank you for your time.

MS. SUTIN: Thank you, Mr. Pugsley.

MR. PUGSLEY: P-u-g-s-l-e-y.

MS. SUTIN: Okay. If we could have Katie Sweeney, please.

MS. SWEENEY: S-w-e-e-n-e-y, Katie, K-a-t-i-e -- there is lots of ways to spell it.

Good morning. I'm Katie Sweeney. I am with the National Mining Association. We represent most of the producers of most of America's minerals, including uranium. We represent producers of domestic uranium, as well as companies that are undertaking exploration projects or have pending applications for development of domestic uranium mining projects.

I know there is going to be several speakers from NMA over the next day or so but we really are divvying up the topics. And today I'm going to be addressing the potential, the very serious and significant potential for overlapping and duplicative regulations under the proposed rule.

So I think my issues follow very nicely from what Chris Pugsley was saying because he described the rules of NRC and EPA under the

Atomic Energy Act as amended by UMTRCA.

But let's talk about those standards as they apply to impoundments. So EPA has generally applicable standards NRC implements. Here EPA, under the proposed rule, is alleging it's acting under its Clean Air Act authority, but truly it is kind of upending the structure of the -- the structure that Congress intended when it divvied it up, certain roles to EPA and to NRC.

So generally EPA does the standards, NRC implements. And this is the way it worked when EPA did its 1983 standards on liners. NRC amended its regulations to conform to EPA's standards. This was recognized in the current Subpart W as it stands now, not the proposal.

In Section 61252(b)12, they specifically talk about phased and continuous disposal in impoundments operated in accordance with 40 CFR 192.32(a), as determined by the NRC.

So there was recognition when Subpart W was originally promulgated that NRC played that role. The NRC -- that the implementing would

approve those impoundments, et cetera.

The proposal as it stands now completely eliminates that reference to NRC's rule, which really confirms industry suspicions that EPA is trying to carve out a new role for itself here in approval of these impoundments, reviewing the records for these impoundments, even though NRC would have already have done that.

So we think that EPA needs to go back and look at the rulemaking as proposed and reconsider the way it doesn't reflect Congress' intent on what EPA and NRC's roles over these types of materials are.

And I guess kind of as an overall statement, NMA doesn't really see -- and I think more speakers are going to get into this later -- what the risk is here and why this rulemaking is even needed if the risks are so minimal.

But if EPA does move forward with the rulemaking, it should certainly aspire to eliminating opportunities for dual regulation. We really don't need to have two agencies

regulating the same thing. It's just a waste of resources not only for the industry but for the regulators as well. I think EPA needs to more clearly understand its role here and reflect that in any proposal moving forward.

Thank you.

MS. SUTIN: Thank you, Ms. Sweeney.

Next if we could have Oscar Paulson.

MR. PAULSON: Good morning. My name is Oscar Paulson. That's P-a-u-l-s-o-n. And I am here to discuss specifically research funded by the National Mining Association on determining radon flux from fluid retention impoundments at uranium recovery sites.

Now, the preamble for the proposed rule states our survey of existing ponds shows that they contain liquids, and as such this general practice has been sufficient to limit the amount of radon emitted from the ponds in many cases to almost zero.

Because of the low potential for radon emissions from these impoundments, we do not

believe it is necessary to monitor them for radon emissions.

The preamble continues and also states the effect of radon emissions from ponds are so low that it is difficult to determine whether there is any contribution above background radon values.

And the preamble also states we are also proposing that there is no maximum area requirement for the size of these ponds since the chance of radon emissions is small. Our basis for this determination is that radon emissions from the pond will be expected to be very low since the liquid in the ponds acts as an effective barrier of radon emissions.

Given that Radon-222 has a very short half-life, 3.8 days, there is simply not enough time for approximately 98 percent of the radon produced by the solids or from the solution to migrate to the water surface and cross the water-air interface before decaying.

These statements are fully supported by

the research that was funded by the National Mining Association and conducted by Energy Laboratories Incorporated in Casper, Wyoming.

Now, this research was performed to determine Radon-222 flux at the surface of water containing Radon-226 in solution and of course its decay product, Radon-222 with equilibrium under controlled laboratory conditions, essentially inside of a controlled building, undisturbed, at constant temperature, using an accepted method of determining Radon-222 flux.

Now, this accepted method specifically is the one that uses large area activated charcoal canisters as described in the paper, Radon Flux Measurements on Gardner and Royster Phosphogypsum Piles near Tampa and Mulberry, Florida.

This is the currently accepted method of determining compliance to the radon flux standards in 40 CFR Part 61.253, determining compliance as part of the Subpart W rule, the current Subpart W rule. And this method is known as Method 115.

Now, by using this already approved method for collection of radon flux data from the surface of tailings and tailings impoundments, the data gathered in the course of this study of flux from fluid surfaces can be effectively compared with other detector -- other data collected in prior compliance monitoring work using large area activated charcoal canisters since the measurement method is the same.

Now, in the study that Energy Laboratories did, they set up five barrels containing the ionized water with Radium-226 activities created by dissolving a traceable Radium-226 standard in the water in the barrels.

And the five barrels contained Radium-226 in activities of zero picocuries per liter -- that's with no radium added -- 5,000 picocuries per liter, 10,000 picocuries per liter, 15,000 picocuries per liter, and finally the last barrel had radium solution at 20,000 picocuries per liter.

These solutions were then allowed to

reach equilibrium so that the Radon-222 activities, the daughter product of Radon-226, were allowed to reach equilibrium in these solutions and obtain the same activity as the parent, the radium.

This was basically done by allowing the fluids to sit uncovered in the barrels for 40 days, which is slightly over ten half-lives for the Radon-222, the daughter product.

Styrofoam floats were created to float the large area activated charcoal canisters over the radium bearing and radon bearing water in the barrels. The large air activated charcoal canisters then were placed on top of the fiberglass floats so that any flux that would pass from the fluid would go through the canisters and the Radon-222 captured by the charcoal within the canisters.

And this was done a number of times on the fluids in the five barrels. Well, the results were as follows:

Radon-222 flux from water surfaces even

in the case of high Radium-226 and Radon-222 activities were minimal. And in the case of Radium-226 activities up to 5,000 picocuries per liter with equivalent activity in Radon-222, they were within the range and variability of natural background assuming a typical planet-wide background flux of 1 to 2 picocuries per meter squared second. And this background flux is provided by SENES Consultants Limited.

Construction of a fluid retention impoundment and filling it with water containing up to 5,000 picocuries per liter of Radium-226 would merely displace normal background flux of the surface soils over which the impoundment was constructed.

For this reason specifically, the very low radon flux from fluid surfaces, there is no need to monitor radon emissions from fluid retention impoundments, nor any reason to regulate the size or number of such impoundments as their emissions would be indistinguishable from background.

Thank you.

Are there any questions?

MS. SUTIN: Hold on, Mr. Paulson.

MR. PEAKE: Were any of the barrels agitated at any time or was it just still --

MR. PAULSON: The barrels were not agitated, they were left stationary in a temperature controlled room. An interesting side, the data for this study was presented at a joint National Mining Association Nuclear Regulatory Commission Uranium Recovery Workshop. And the Power Point presentation with all of the data in tabular form is on the Environmental Protection Agency Subpart W website so it can be regularly reviewed by anyone should the need arise.

MS. SUTIN: Thank you, Mr. Paulson.

Okay. At this time I would like to call back up Sarah Fields.

MS. FIELDS: This is Sarah Fields with Uranium Watch. And I wanted to follow up with some of the statements that have been made by the NMA and Mr. Paulson.

Regarding Subpart W, I don't believe that anything in the Clean Air Act states that the EPA can only regulate radon emissions from 11.e(2) byproduct material. My understanding of the Clean Air Act is that it directs the EPA to regulate radionuclides, including radon. There is no mention of only regulating radon from 11.e(2) byproduct material at uranium recovery operations.

So the efforts to -- or the statements made that appear to want to limit any regulation of radon at uranium recovery facilities to the radon that is emitted by 11.e(2) byproduct material, and therefore eliminating possibly the material that -- the liquid impoundments is incorrect.

In fact, I also believe that the EPA should regulate the radon emissions from ore piles, from the ore pads. And that conventional mills and heap leach facilities -- the ore which does not have the uranium removed also releases a great deal of radon. And yet the EPA has not

taken it upon themselves to even consider regulating this major source of radon.

In your discussion of heap leach operations, it will take quite a while before the ore is placed in an impoundment prior to the leaching of a heap leach impoundment with the lixiviant. And during that time a lot of radon will be released from heap leach impoundments.

And then as ore is stored at conventional mills you have dust, you have releases of radon. And I think the EPA should take a hard look at also regulating these sources of radon at uranium mills.

Also there seems to be a concern that under Subpart W that there is now a requirement for the approval of new impoundments. Well, that's been the case since 1989 because under Subpart A, which under general requirements in Section 61.07, a uranium recovery licensee must apply for a construction authorization.

The EPA a few years ago approved the construction impoundments at the proposed Pinon

Ridge Mill. And in Utah, where the Utah Division of Air Quality administers and enforces Subpart W and other radionuclide NESHAPS, White Mesa has also applied to the Division of Air Quality for the construction of new impoundments. So, yes, there is dual regulation.

The NMA seems to believe that dual regulation is about the worst possible thing that you can have. I don't believe that. I think if the EPA does not want a radon flux standard for uranium mills, then they should have put a radon flux standard in Part 192. They didn't do that. They had a chance to do that but they failed to do so.

So that was an oversight of the EPA and probably Subpart W came along because of the EPA's failure to establish certain radon flux standards for uranium mills.

Now, with regard to the emissions from liquid impoundments. There is recent data regarding the radium concentration at the impoundments at the White Mesa Mill. In the

EPA's evaporation pond risk assessment, they determine that for the White Mesa Mill liquid impoundment, that there would be a radon flux of 7 picocuries per liter per second for every 1,000 picocuries per liter of radium.

What the EPA did not do is go to the White Mesa Mill licensee and get some data as to exactly how much radium was in specific impoundments. They could have done that but they failed to do so. But there is recent data in the November 1st, 2013 White Mesa Mill 2013 annual tailings wastewater monitoring report for the groundwater discharge permit. And this document is available on the Division of Radiation Control website. There is data.

And my calculations are just based on the EPA's determination of what the radon flux would be based on the amount of radium in a tailings impoundment -- in a liquid impoundment. And in this case at White Mesa, they have a liquid impoundment on two -- two tailing cells that also receive tailings, so that's Cell 3 and Cell 4A.

And then at White Mesa, they have two impoundments that are just receiving liquids. That's Cell 1, which is an older impoundment, and the newer Cell 4B. So based on the Gross Radium Alpha for Cells 1, 3, 4A and 4B the radon emissions go from 102 to 573 picocuries per meter squared per second. And that's rather high, that's a little bit above the negligible -- a little bit above 20 picocuries, the current standard for solid tailings, which is 20 picocuries per meter squared per second.

Now, all I have is this data. Perhaps Energy Fuels Resources would have a different take on this. Perhaps if the EPA looked at this data they would have a different take on this. But the fact is the EPA did not look at this data. The EPA did not keep doing research on some of these pertinent aspects of uranium mills. And maybe -- since I probably have a few more minutes, go to the question of GACT, generally --

MS. SUTIN: One minute left.

MS. FIELDS: Huh?

MS. SUTIN: One minute.

MS. FIELDS: Oh, one minute.

Okay. Well, I think maybe I -- since I have covered these couple of issues, so maybe I will save this for this afternoon.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

Okay. Those were all of the speakers that we have listed so far. So we will take a pause in the hearing until there are other people that show up that would like to speak.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: We have a few more speakers.

First we have Steve Brown.

MR. BROWN: Good morning. My name is Steve Brown, B-r-o-w-n, with SENES Consultants of Englewood, Colorado. And I am signed up to speak tomorrow but I just wanted to comment on some things that I heard this morning just very quickly in regards to the subject of radon evolution from moisture ponds and so forth.

Mr. Paulson had made references specific to an empirical study that was done. And I think it was you, Tom, that asked a very pertinent question, would be were they still or were they agitated in some way.

Let me remind the EPA of the submittal by SENES Consultants that was submitted by Energy Fuels to EPA Region 8 in regards to Pinon Ridge Mill application and background information for Subpart W application which address the research of this physics associated with radon evolution in holding ponds. We have included looking at research and literature and information and provided the physics and mathematics, putting different credible wind speeds across the ponds.

I know several speakers this morning alluded to essentially -- and even EPA's own data from the days with 2 percent emission from wet tailings. Radon does not evolve from water bodies, period. It's a matter of the physics. And the EPA is well advised in the interest of the citizens of the United States to look at

physics and research already in the literature.

Thank you.

MS. SUTIN: Thank you, Mr. Brown.

Next, if we could have Anthony Thompson again.

MR. THOMPSON: I just want to take this opportunity perhaps to go into a little bit more detail when we talk about the issue of duplicative regulation.

When the Subpart T regulations came out, the American Mining Congress filed a lawsuit. Subsequently there were negotiations with EPA, with the NRC and Agreement States as interested listeners. And at one point actually NRC thought we were not part of this so we are not going to play, but we recognize that if EPA was going to rescind, then there were going to have to be changes in NRC's regulations, NRC had to play.

And I actually went out with -- at the request of EPA staff and OGC and EPA sat in the Commission meeting room with the EPA people to explain to the commissioner's assistants why NRC

should pay attention to this.

This took about a year of long phone calls working through things and things came out such as, well, you know that a tailings pile could have an evaporation pond or a pond on the surface of the tailings pile, because if the groundwater corrective action is ongoing -- although you have covered the tailings pile -- or you may have, as I mentioned earlier, phased closure of a pile, or you may want to keep out -- you may want to keep a portion of a pile open for 11.e(2) from someplace else, which is -- all of this was developed through the extensive negotiations that involved Sierra Club, EPA and American Mining Congress. And the point here was to avoid having NRC and EPA both regulate inactive tailings facilities.

And what EPA wanted with respect to EPA's concern and that of the NGO's was that once they had shut the mill down, because economics were not good and they were not going to go any further, that they would just let the tailings

pile sit there and emanate radon.

So the idea was -- and what happened was before EPA rescinded Subpart T was that NRC modified its regulations. And I mentioned Criterion 6 where they have these milestones, interim cover, et cetera, et cetera, in order to forego the concern of the NGO and EPA staff that they would just let the pile sit there.

So, you know, this was all worked out in rather meticulous detail. And EPA did not rescind Subpart T until NRC amended its regulations in accordance with the agreement that we had as a part of a settlement of a lawsuit.

I might also mention that subsequently Subpart I of the Clean Air Act regulations was also rescinded. And it was EPA who said, you know, we have looked at the fuel cycle facilities, it's more than uranium recovery. And we see that the exposure is way down, you know, a couple of millirem a year, three or four or something, but below ten.

And so we said, you know, there is no

point in having two agencies do things if you don't think there is a need to. Well, what came out of that was the ten millirem constraint requirement, which really isn't a regulation, but if you go above ten millirem at one of these facilities and go to the public and you have to explain it.

The point is that what happened with Subpart T was you had to measure pursuant -- because the Clean Air Act Subpart T required measuring the tailings to ensure that you met 20 average over the whole pile.

The EPA design standard in 192 under the Atomic Energy Act just was a design standard that would meet the 20 picocuries.

But as part of the settlement and rescission, you had to measure it. You had to demonstrate it's measured. So that's just a little more information why we were able to avoid overlapping regulation by getting things at EPA, or EPA and the other groups felt were important, to sort of ease their concerns, shall we say,

such as the very timely cover of the tailings and then the ten millirem constraint.

So thank you.

MS. SUTIN: Thank you, Mr. Thompson.

Anybody else wishing to speak while we are back on the record?

Okay. Well, we will pause the hearing again. And if no one has come by 11:30, I think we will close the morning session and we will start up again at 1:00 o'clock.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: We will close the morning session for today and we will start back up again at 1:00 o'clock. This session is officially closed.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: Good afternoon.

My name is Elyana Sutin and I am the regional judicial officer here in EPA Region 8. Thank you all for coming this afternoon.

I will be presiding over the hearing

today. Joining me on the panel is Tom Peake and Dan Schultheisz from the Office of Radiation and Indoor Air in headquarters. The hearing is now in session.

We are here today to listen and receive your comments on EPA's proposed revisions to national emissions standards for radon emissions from operating mill tailings, also known as 40 CFR, Part 61, Subpart W.

The EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes generally available control technology or management practices, also known as GACT, for this area source category.

EPA announced this proposed rule on May 2nd, 2014. The comment period started on May 2nd, 2014 and was to end on July 31st, 2014. On July 21st, EPA extended the comment period until October 29th, 2014.

In a moment Tom will explain in more detail what was proposed in that notice. But

before I turn it over to Tom, let me explain a bit about how today's hearing will run.

We had a session this morning, as many of you know, and we have another session this afternoon from 1:00 until 5:00 p.m. We will have the same two sessions tomorrow.

Please be sure that you have checked in to the registration desk even if you are not planning to speak today. I will call the scheduled speakers to the podium. When it is your turn to speak, please state your name, spell your last name for the court reporter, and your affiliation before you begin your testimony. Your comments will be transcribed and included in the record of the comments of the proposed rule.

In order to ensure that everyone has the opportunity to speak, and to ensure fairness, please limit your testimony to ten minutes. We will signal to you when you have one minute left to speak. When one minute has passed, I will ask you to complete your testimony.

There is no pressure to speak for ten

minutes. If your comments are less than that, that is fine.

As we did this morning, we will allow people to speak again as long as that testimony is new and discreet information that was not provided in your earlier testimony. We want to avoid repetition and we also want to avoid rebuttal of other people's comments. So you are welcome to speak again as long it is new information.

After you finish your testimony members of the panel may ask clarifying questions. We are not here today to answer those questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing.

If you have written copies of your testimony, or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript.

If you have additional comments you would

like to make you can also submit them in writing. Comments must be received on or before October 29th at 5:00 p.m.

Let me assure you that EPA gives just as much consideration to comments we receive in writing as we do to comments that we receive at public hearings. Instructions for submitting comments are included on the fact sheet at the registration table which you can pick up outside the door.

Today's hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not registered to do so, please sign up at the tables outside of the room.

Now I will turn things it over to Tom, who will summarize the proposed rule.

Thank you.

MR. PEAKE: Thank you.

Hello, my name is Tom Peake, and I am the director of the Center for Waste Management and Regulations in the Office of Air and Radiation --

Radiation and Indoor Air. And with me is Dan Schultheisz.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the national emission standards for radon emission, NESHAPS, from operating mill tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technology, GACT, to limit radon emissions from tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new definitions to this rule, revise existing definitions and clarify that the rule applies to uranium recovery facilities that extract uranium through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailings impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities, and heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limits the amount of byproduct material that can be exposed. For conventional impoundments, proposed to limit tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings exposure using phased disposal and maintaining a 30 percent moisture content in the pile.

For evaporation ponds, require at least one meter of liquid be constantly maintained in

the pond.

We are proposing to add definitions for when a uranium recovery facility is in operation or standby.

And lastly, the proposed rule would require the owner/operator of a uranium recovery facility to maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. The comment period ends on October 29th, 2014. We are looking forward to hearing from you today.

Thank you.

MS. SUTIN: Okay. I would like our first speaker to come up and sit in the chair, please. And that is Douglas Chambers.

MR. CHAMBERS: Thank you very much. I appreciate the opportunity to be here today. I was originally scheduled to talk tomorrow morning so of course my notes are actually back in my hotel room, so I will do the best I can off of

the top of my head. So I apologize for any confusion. I would be very happy to answer questions. I will be here tomorrow morning in case something occurs overnight.

In any event, I am Doug Chambers, PhD in Physics, graduate courses in -- I actually taught graduate courses as well in atmospheric dispersion and biostatistics.

I have been in the business of environmental radioactivity for longer than I care to remember, but 40 odd years. I'm particularly interested in the front-end of the nuclear fuel cycle and uranium mining and milling. And in potential health effects associated with front-end with the fuel cycle, which the large degree are perceived to be those associated with exposure to Radon-222.

I have a few general comments to make, which I originally thought I was limited to five minutes so I may end at five minutes or I may carry on to close to ten.

So I'm going to primarily focus on radon,

radon variability, and a few specific comments to put in context. It is a bit embarrassing to show my age but I was involved in the original NESHAPS discussions with EPA and heavily involved in the 20 picocuries per meter squared per second and the decision of presumptively safe, which is the exact terminology if you go back and look at the rule making.

And I think it is relevant in support of that, a number of people or so could -- for example, did calculations of radon concentrations and dose. For example, for all of the phosphogypsum stacks in the United States and other circumstances. And based on their own calculations, and we had similar results, it was concluded that radon from uncovered phosphogypsum stacks and radon at 20 picocuries meters squared per second did not pose a material health risk to the people living in the environment. This is well documented in the extensive annexes to the BID.

It's very important to understand that

radon is everywhere. Radon is everywhere because the parent, Radium-226, is everywhere. And all soils and rocks contain Radium-226. Building materials in this building will contain Radium-226. And some portion of the Radon-222 that is produced by the radioactive decay of radium is released, first of all, to the pore space in the soils, rocks, and building material. And if it survives long enough before decaying to a solid radioactive decay product, can be released to the atmosphere, where it is dispersed in the atmosphere.

And so basically there is rocks and soil everywhere so there is radon everywhere. And radon has a half-life of approximately 3.82 days.

So if you imagine -- say for example simply put a sandy material and radon is released from radium containing matrix in the depth of the pile, it has to migrate from some depth in natural materials or soils or radium tailings to the surface. And if that migration takes longer than 3.82 days, it will decay to a solid material

and not actually escape from the surface of the material.

It is well established that EPA correctly points out in their rule making and there is a great deal of documentation, much of it originating with Tanner from the past, that indicates or demonstrates quite conclusively actually that the diffusion coefficient for Radon-222 in air is 10,000 times greater than it is in water.

And simply put, that means the length of time it takes for radon to diffuse through water is roughly proportionate to the square root of that. I think there may be a square root missing in your document. So the bottom line is water is very effective at attenuating radon gas.

And our experience has been and we can show by calculation and by measurement actually that if the pore space in solid material, whether it's soils or tailings materials, is filled with water, the radon release is not zero, but for practical purposes it's as close to zero as you

could imagine.

And therefore basically I would argue that the difference if you have say uranium tailings that are saturated and maintained in a saturated state, there is very little difference in the amount of radon that would be released from the surface of the tailings that are saturated and from tailings that are covered with 10 centimeters or 20 centimeters or a meter of water.

And it's not clear from the documentation that the EPA provided why it is necessary to maintain a one meter of water cover. One of the operators may comment, may be more knowledgeable than I am on the need in the western U.S. to conserve water in the role of evaporation ponds.

So basically EPA is absolutely correct in my view in basically saying what I said, that there is very little difference, you have 2 percent and 98 percent. Water is very effective in attenuating the release of radon.

And so the only question I have there is

it is not obvious why you actually need a meter of water cover. I can understand why you want to maintain some nominal water cover to maintain saturation because that would be effectively the same.

The other thing I want to mention is radon is everywhere. And the health effects with radon is associated not with short term exposures, but with chronic exposures. Typically we look at annual exposures. I might add that I am very familiar with the health effects. I wrote -- which is basically everything you want to know about levels and exposures like radon. And I'm a member of NCRP Committee 85 that looked at radon. And I'm ICRP Committee 2 that is coming up with those numbers and factors and other things for radon as well.

And so basically radon is everywhere. Radon concentration is everywhere. If you measure radon in the morning and measure at night, it could easily be different. If you measure it indoors, it's much higher than

outdoors. If you measure it in calm valley bottoms it's likely higher in the mornings until the wind comes up and disperses it.

The bottom line is it's everywhere. And EPA and others have published data for variation of ambient radon across the country that ranges from less than a tenth of a picocurie per liter to perhaps as much as two, or even more than two picocuries per liter out of doors.

And I would argue, and I think it's pretty defensible that at the levels of radon from uranium mill tailings, we see it in the United States or evaporation ponds, there is no current technology that would enable you to identify a signal from the incremental radon from tailings in the light of a variable background that is typically much higher.

So I think the comments you want to make, just to repeat, is that water is very effective at reducing radon flux, number one. Number two, radon is variable and everywhere.

And I have just one or two more quick

comments, if I may. I'm not sure what the time line is from this document.

MS. SUTIN: You have one-and-a-half minutes.

MR. CHAMBERS: Perfect, almost totally unrehearsed impromptu, I might add. So I do plan to submit short written comments with a few citations.

And one of the things I wanted to take the opportunity is -- if I can find it -- there is a reference here, I thought I had it marked, to risk from radon. I apologize, I'm thumbing through the document -- here we go.

Yeah, it is on page 25396 of the Federal Register, there is reference made to estimating the total cancer risk to populations surrounding all ten modeled uranium facilities, approximately 4 million people living within 80 kilometers. The total risk to all 4 is between .0015 and .0026 cancers per year. I'm not exactly sure what the average lifetime is but it is probably in the order of 75 years. To make it easy, make it 80 years and you come up with a .3 to .4

cancers, which are essentially lung cancers of the bronchial epithelial tissues in that 4 million people.

The reality is that if you look at 2014 National Cancer Statistics from the National Cancer Association of the United States, one in four of us will develop a cancer -- pardon, one in two of us will develop a cancer -- I'm almost done -- and one in four of us will unfortunately die from cancer.

For the case of lung cancer, approximately 6 percent in women and 7 percent in men will develop lung cancer, which has a high mortality rate. So that is 7 in a 100 from natural background.

Okay. So you multiply 7 times 4 million people, but what you're adding from the risk that we see in the Federal Register, which I agree with is tiny, it's about 5 decimal points smaller than the variability in natural background. It's not --

MS. SUTIN: I need you to wrap up, Mr.

Chambers.

MR. CHAMBERS: I'm done. I think basically water attenuates radon, radon levels are variable, and I agree with EPA that -- in terms of the reduced monitoring.

Thank you.

MS. SUTIN: Thank you.

Next if we can have Kimberly Morrison.

MS. MORRISON: Hi, my name is Kim Morrison, last name is spelled M-o-r-r-i-s-o-n. And I am a consulting geotechnical engineer representing Energy Fuels. And I am the environmental manager for the proposed Sheep Mountain Project in Wyoming.

The Sheep Mountain Project, which includes a proposed uranium heap leach facility, was heavily referenced by the EPA in the background information for the proposed rules.

However, there is a clear misunderstanding by the EPA on the concepts of heap leaching, the reduced level of radium in a uranium heap leach facility as compared to a

uranium tailings impoundment, and a fundamental misunderstanding of the difference between moisture saturation and moisture content.

When uranium ore is being leached on heap leach facility, it is actively recovering uranium and is neither “tailings” nor 11.e(2) byproduct material as defined by the Atomic Energy Act. When uranium recovery is complete, however, the spent ore then becomes 11.e(2) byproduct material.

But at that time the facility is no longer active nor operational. As such, a heap leach facility, by definition, is not applicable to the Subpart W rules that by title are applicable to mill tailings in operating facilities.

If the position that heap leach facilities are applicable to Subpart W is maintained, then the EPA needs to understand the various types of heap leach facilities proposed for uranium recovery. The revised rules focus merely on regulating in-place permanent

conventional heap leach facilities, but make no mention of other facilities, such as on-off heap leach facilities where material is leached on an engineered pad after which the leached ore is removed and placed in a permanent disposal facility.

The EPA has proposed that heap leach facilities maintain a minimum moisture content of 30 percent. Based on a review of the background information, it appears that the EPA are referring to the moisture content as a percentage of the weight.

The proposed 30 percent water content is neither practical nor achievable if the heap leach facility is operated as intended. To put the proposed 30 percent moisture content into perspective, this would correspond to 185 percent ore saturation for the proposed Sheep Mountain Project.

As such, this proposed rule would require that the ore be not only fully saturated but submerged at all times. We have reviewed the

background information that EPA used to support the 30 percent moisture content proposal and found a number of invalid assumptions in their approach.

For instance, moisture saturation as a percent of available void space and moisture content as a percent of weight are not interchangeable parameters, nor is the relationship between the two parameters a constant.

Low grade ore is typically processed by heap leach methods, and a low grade ore contained within a heap leach facility emits less radon than a conventional tailings impoundment of a similar size assuming similar physical conditions.

For example, the proposed ore grade -- excuse me, the ore grade at the proposed Sheep Mountain Project is approximately 0.1 percent uranium, while ore grades of about 0.2 to 0.7 percent uranium have been processed at the White Mesa Mill over the past three years.

As such, EPA's one size fits all approach to setting moisture content requirements and area requirements for heap leach facilities is overly conservative and this should be determined instead based on data and analysis.

In summary, using liquid levels to control radon emissions from a heap leach facility conflicts with the overall operational concept of a heap leach facility. It would significantly dilute the leaching solution, it would have an adverse effect on the process, it would significantly increase the driving head on the underlying liner system. It would result in much greater construction and operating costs for the facilities. And lastly, it would result in the wasteful consumption of water.

Thank you for your time.

MS. SUTIN: Hold on, Ms. Morrison. We have a question.

MR. PEAKE: Will you be submitting the information in detail that you were discussing so that we will have that in our records?

MS. MORRISON: Yes. As Frank Filas mentioned this morning, Energy Fuels is in the process of preparing a very lengthy comment document. We are about at thirty pages currently. And it provides information on all of the various aspects, including several page discussion talking about the saturation versus the moisture content of heap leach facilities and why the 30 percent by weight moisture content is not an acceptable approach.

MR. PEAKE: And will you be -- you had mentioned that there are alternative heap leach approaches that we did not analyze. Would you be providing that? Since there aren't any heap leach facilities in operation.

MS. MORRISON: In the United States there are currently no heap leach facilities that recover uranium. However, there are a number of heap leach facilities worldwide that are constructed of various manners. There is Vat leaching, there is on-off heap leach facilities, there is valley filled leach facilities.

With regard to uranium, the only one that is currently being proposed in the United States is the Sheep Mountain Project, which is a conventional heap leach facility.

However, Strathmore Resources looked at doing Vat leaching for the Gas Hills Project also in Wyoming. And with regard to other uranium heap leaches worldwide, I believe it's the Rossing facility in Africa that has an on-off heap leach facility constructed on top of an old tailings impoundment.

And so with the on-off heap leach facility, the spent ore is removed from the engineer pad, placed in a lined facility. So there are other facilities worldwide.

MR. PEAKE: Okay. Thank you. We will appreciate getting that information.

MS. MORRISON: Thank you.

MS. SUTIN: Next if we could have Steve Brown.

MR. BROWN: Thank you again. My name is Steve Brown, B-r-o-w-n, Consultant for SENES

Consultants of Englewood, Colorado. I'm certified by the American Board of Health Physics, a diplomate of the American Academy of Health Physics. I have been a practicing health physicist for almost forty years. A health physicist is a physical scientist who concerns oneself with the monitoring control of radioactive material and radiation so nuclear activities can be used for the benefit of mankind.

My remarks today are focused on a central theme of just comparing the then and the now, i.e., the then relative to why we needed controls for radon emissions from these types of facilities way back when versus the circumstances today at licensed sites under the Atomic Energy Act of the United States.

So first to start off with perspectives, origin of the need, under current Subpart W requirements and proposed revisions, EPA has assumed that to control public radiological risk limits must be placed at the source, at the

location of the tailing cells or the ponds. These limits are believed necessary to control the radon emission, which we call the source term, including numerical limits on radon emission flux as is in the current version of Subpart W, as well as limitations on the acreage of cells that can be used or the amount of acreage that can be open at any one time, variations of which appeared in both the current and the proposed revisions.

Historically, I'm talking thirty to thirty-five years ago now, such emission controls of the source were necessary. And direct outgrowth of the Uranium Mill Tailings Radiation Control Act of 1978, particularly given the circumstances of the UMTRCA Title 1 sites, which were literally abandoned sites when -- which the public had direct access to the sites and the tailings themselves. It was reported at that time, I was there way back when, that children are playing on them. And of course there was a lot of misuse of the materials at that time for

construction, for roads, for driveways and so forth.

So back in the context of these Title 1 sites of the past, there needed to be control of radon emission at the source because the public had direct access to the source.

However, moving thirty -- thirty-five years to the current circumstances, at sites and facilities licensed under the United States Atomic Energy Act or the Agreement State Regulations by NRC, the monitoring and control of public radiation exposure and dose and related radiological risk must occur at the closest location of public access to the licensed material, i.e., what we refer to as the boundary of the restricted/unrestricted area.

Quantitative limits are articulated in the current federal regulations, Title 10, Part 20 Standards for Protection Against Radiation, and its Appendix B and equivalent sections of Agreement State regulations.

Examples of specific requirements are

listed in my reference section following.

Premise, my premise, accordingly it is suggested that the application of Subpart W to uranium mill tailings and other uranium recovery facilities licensed under the United States Atomic Energy Act is dual and duplicative of federal regulations that to me, a physical scientist, does not appear to provide any additional radiological risk reduction to the public.

Now I will not speak to the authorities, the definitions, the intentions of regulatory or statutory circumstances, I leave that to my lawyer colleagues. And as I have said to my lawyer colleagues, I won't practice law if you don't practice health physics. And I will just leave it as that.

Argument as follows, the radiological doses that are risk to the public at the site boundary from licensed radioactive material contained within the site are functions of several important factors, the meteorology, the

distance, the exposure circumstances, as well as the emission rate at the source.

However, unlike the legacy of abandoned uranium tailing sites of the past, i.e., the UMTRCA Title 1 site for example, the public has no access to the exposure conditions of the source of the no restricted area boundary of the licensed site.

The dose risk only needs to be monitored and controlled at locations to which the public has access. The traditional parameters of concern in Subpart W in regards to public radiological risk, i.e., the radon emission rate, maximum per acreage, general acreage exposed at any time and so forth is not in a direct way related to public exposure conditions some distance away, and controlled and monitored at the licensed boundary locations.

Conclusion, existing federal regulations, both those of NRC and EPA, establish controls and limits to the maximum exposed member of the public, quote, end quote -- for example, 10 CFR

20.1301.

Accordingly, applications of Subpart W to uranium recovery related sites and facilities licensed under the United States Atomic Energy Act appears to me to be redundant and not necessary. And my references again include 10 CFR 20 standards for protection against radiation, 20.1301 dose limits for individual members of the public limited to 100 millirem per year to the maximum exposed member of the public above natural background.

The U.S. NRC 10 CFR 20, Appendix B, Table 2, Column 1, the concentrations of radioactive materials, including radon on a nuclides specific basis that can be released to unrestricted areas.

In the case of a licensed facility, that is where the public has a maximum opportunity to reside. These concentration limits represent the average annual concentrations at which if an individual were exposed continuously at that concentration would receive a total effective dose equivalent of 50 millirem per year.

Now, as a frame of reference, if I have got another minute or two, in regards to what do these numbers mean in terms of exposure limits, I'm quoting here an EPA quote used in Subpart B of Part 61 in regards to radon emissions from uranium mines, that's 10 millirem per year. Closure under 40 CFR 192, 5 millirem per year. A closure of abandoned CERCLA sites of 15 millirem per year.

Honestly people, I don't know how the tissues of my body know the difference between those where they come from, but that's another matter.

The point is, as a resident of Colorado I'm going to get 4 to 500 millirem per year because I live on this planet Earth in this state. For you folks that live in Washington, D.C., maybe your annual exposure is 200 to 300 millirem per year. So that difference, depending on where one chooses to live, is an order of magnitude greater than what we are suggesting we need to regulate to.

If I decide to leave my home in Colorado and go lay on a beach in North Carolina for a couple of weeks, I would save 15 to 20 millirem just because of where I choose to take my vacation. And I can tell you maybe risks at that level do not need to be controlled.

And I have quoted 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operations, USEPA, limiting exposure from any operation of the fuel cycle to 25 millirem dose equivalent to the whole line.

40 CFR 192, Health and Environmental Protection Standards for Uranium Mill Tailings, Subpart D, standards from matters of uranium byproduct material, both of which is a reference regards to closure as opposed to operations that -- that time frame. But nonetheless, again establishes the 20 picocuries per meter squared per second flux limit for the closure of tailings.

USNRC 10 CFR 40, Appendix A, Criterion 6 also similarly defines and limits exposure of

that -- exposure to and the radon emissions.

So in conclusion, I believe that there are adequate protections in existing law for the public in regards to these sites. And maybe all Subpart W needs to do for licensed sites is make reference to existing regulations and established law.

Thank you very much. And I will take any questions.

MS. SUTIN: Up next we have Sarah Fields.

MS. FIELDS: My name is Sarah Fields, S-a-r-a-h, F-i-e-l-d-s. And I am with Uranium Watch from Moab, Utah.

I think one of the problems that a lot of us have had who have reviewed this proposed regulation and the very lengthy Federal Register Notice is a disconnect between what is in the Federal Register Notice in the proposed rule and the reality at conventional mills, ISL, and even proposed heap leach operations.

I agree with the National Mining Association that definitions do count. When you

look at Subpart W, it has two important definitions, the definition of an existing impoundment and the definition of operation.

It says that operation of uranium mill impoundment ends the day the closure begins, but it doesn't contain any information about, well, what must take place for closure to begin.

I think under the definition of an existing -- an existing impoundment is one that was constructed before December 1989 and is licensed to receive waste in the tailings impoundment.

So let's see how this is played out at the White Mesa Mill, particularly Cell 2. Cell 2 is an existing impoundment. It is not mentioned in the Federal Register notice. So the Cells 2 and 3 were the original existing tailings impoundment. They are between 60 and 70 acres and they are lined. Up until July 23rd of this year, July 23rd, 2014, that tailings cell was licensed to receive tailings and waste, 11.e(2) byproduct material.

Actually, according to Energy Fuels, it had not received -- no material had been disposed of in the tailings impoundments -- I mean, no waste since 2008. So from 2008 to 2014, that impoundment was still licensed to receive waste. It has an interim cover. Every year the licensee measured the radon in that impoundment. They submitted the annual reports to first the EPA and then the Division of Air Quality, Utah Division of Air Quality, which took over regulation in 1995.

So even though you might say it was closed, it was still licensed to receive material and it still submitted those annual reports. And in fact in 2012, it -- the radon, the annual radon flux was more than 20 picocuries.

Therefore, they started monitoring on a monthly basis. They must start monitoring in 2013 because that's when they submit the annual reports, in March. They are due at the end of March.

So under Subpart W, they are required to

bring the radon flux back into compliance. And they determined the reason for the increase in the radon was because of an accelerated dewatering program. They are talking about the importance of water to attenuate the radon flux.

So there is no longer a pond on top. But as the water in the pores is diminished because of the accelerated dewatering program, the radon flux increased. Also there was windblown tailings from over in Cell 3.

So they cleaned up those windblown tailings and put a barrier between Cell 2 and Cell 3. And they put additional material on top of the interim cover. Thereby they brought the radon flux back into compliance.

Now, what happened on June -- July 23rd, July 23rd the State Utah Division of Radiation Control issued an order saying that they no longer had to submit monthly reports because they were ordering that 11.e(2) byproduct material and waste could no longer be disposed of in the tailings impoundment and that closure had begun.

So there was an official action. One of the problems however with this official action is that now under NRC regulation, which the Utah Division of Radiation Control implements, is that 6(a) says for a tailings impoundment under closure, you're supposed to have a radon closure plan and you're supposed to have reclamation milestones.

The whole assumption of the rescission of Subpart T and the new EPA regulations in 192 and the new NRC regulations at Criterion 6(a), there would be a radon closure plan and there would be reclamation milestones.

So let's take a look at Cell 2. At this time there is no longer -- there is no radon closure plan incorporated into the White Mesa Mill license and there are no reclamation milestones.

So I think that the EPA, if they are going to take -- allow tailings impoundments to come out from under Subpart W, that they have to say there has to be a radon closure plan and

there have to be reclamation milestones. And there has to be a license amendment which says the licensee is no longer permitted to dispose of any 11.e(2) byproduct material, waste, alternate -- whatever processing -- additional processing fluids or anything else in that tailings impoundment.

And so another aspect of this Subpart T, that rescission, is that the assumption is that as soon as reasonably feasible, a final radon barrier will be placed on that impoundment.

However, if you look at the reclamation plan from Energy Fuels, Energy Fuels has no intention of putting a final radon barrier on Cell 2 until all four of those tailings impoundments, 2, 3, 4A and 4B, are filled with tailings so that there will be only one radon barrier over all of those impoundments.

So Cell 2 will sit there for maybe the next three, four or five decades without a final radon barrier. But now they are not going to be regulated under Subpart W so there is this gap.

So the gap is in the regulation of radon from at a conventional mill tailings impoundment, is that once it goes into closure -- and that's the time when there is -- the tailings impoundment is drying out. The EPA has recognized that.

And you look back at the 1989 Federal Register Notice that promulgated Subpart W, that when it dries out the radon emissions increase significantly. So what happens, it is no longer under Subpart W, it is going through dewatering, but there is no requirement to monitor the radon. That means there is -- no one knows if throughout this dewatering process that the -- if the radon emissions are increasing.

Well, they kept monitoring at Cell 2 so they knew the radon emissions were increasing and they took corrective action.

So it's feasible throughout this dewatering period with an interim cover to maintain radon emissions that are less than 20 picocuries. But still, this tailings impoundment doesn't have a -- there are no milestones.

So the gap occurs between the end of Subpart W and a time when if you have a milestone, and you request an extension of the milestone, which has happened at many uranium mill tailings impoundments, you have to show -- to get an extension you have to show 20 picocuries.

MS. SUTIN: I need you to wrap up.

MS. FIELDS: The EPA has created this gap. And I don't think that it is really recognized in the EPA and I don't think the EPA has made -- is really taking efforts to fill that gap.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

Hold on, Ms. Fields.

MS. FIELDS: Sorry.

MR. PEAKE: In your comments, will you be proposing definitions?

You had said, you know, you agree the definitions are important. Are you going to in your comments be providing alternative definitions for us to consider?

MS. FIELDS: Yes. And I also feel that there shouldn't be any time in any phase of a conventional mill's life where there is a lack of regulation of the radon emissions, that there shouldn't be this gap.

And the problem is with Subpart T. Subpart T was basically -- I mean, the rescission of Subpart T, it was rescinded to take care of some issues with uranium mills that had already ceased operation. It wasn't really rescinded taking into consideration the issues at existing uranium conventional mills either in Colorado -- Cañon City or White Mesa.

MS. SUTIN: Thank you. We don't have any other registered speakers at this time so we will pause the hearing until someone else shows up to speak.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: It is 4:30 and we have had no further speakers today so we are officially closing this afternoon session of the hearing on

September 3rd, 2014. The hearing is officially closed.

(Whereupon, the hearing was concluded at 4:30 p.m.)

Uranium Watch

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October 29, 2014

via www.regulations.gov

Air and Radiation Docket
Environmental Protection Agency
Mailcode: 2822T
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

Re: Docket ID No. EPA–HQ– OAR–2008–0218. Comments on Proposed Rule: Revisions to National Emission Standards for Radon Emissions From Operating Mill Tailings (40 C.F.R. Part 61 Subpart W). 79 Fed. Reg. 25388, May 2, 2014.

Dear Sir or Madam:

Below please find comments on Environmental Protection Agency's (EPA's) Proposed Revisions to National Emission Standards for Radon Emissions From Operating Mill Tailings, 49 C.F.R. Part 61 Subpart W, Docket ID No. EPA–HQ– OAR–2008–0218. 79 Fed. Reg. 25388, May 2, 2014. These comments are submitted by Uranium Watch (UW). Comments are also submitted on behalf of Living Rivers, Moab, Utah; Grand Canyon Trust, Flagstaff, Arizona; Greenaction for Health and Environmental Justice, San Francisco, California; Information Network for Responsible Mining, Norwood, Colorado; Advocacy Coalition of Telluride, Telluride, Colorado; Clean Water Alliance, Rapid City, South Dakota; Western Nebraska Resources Council, Chadron, Nebraska; Western Colorado Congress, Grand Junction, Colorado; Sierra Club Nuclear Free Campaign, Columbia, South Carolina; Tallahassee Area Community, Cañon City, Colorado.

I. SUMMARY

1. As will be shown below, the Proposed Revisions to the National Emission Standards for Radon Emissions From Operating Mill Tailings (40 C.F.R. Part 61 Subpart W) is without a sound factual, technical, and legal basis.

2. The Proposed Rule does not comply with the requirements of the 1990 Clean Air Act (CAA), specifically Section 112(h).

3. There is no factual basis for the EPA's determination that the current "existing" tailings impoundments at conventional mills, as defined by 40 C.F.R. § 61.251(d), meets or will soon meet the proposed work-practice and design standard for "new" impoundments. Therefore, there is no factual and legal basis for the elimination of the radon emission standard for "existing" impoundments at 40 C.F.R. § 61.252(a).

4. There is no legal basis for establishing work-practice and design standards, in lieu of emissions standards, for "existing" impoundments, new impoundments, in-situ leach (ISL) operations, and heap-leach operations, given the failure of the Administrator to determine that emission standards are not feasible, as required by the CAA Section 112(h).

5. The assumption that a water cover on conventional mill tailings serves to limit radon emissions is no longer supported by facts and data. The high levels of radium and resulting significant radon emissions from the liquid effluents at four White Mesa Mill impoundments means that the EPA must establish a radon emission standard for liquid effluents and require methodologies to reduce those emissions.

6. The EPA failed to seek relevant data and information from mill licensees and place relevant data on the Rulemaking Docket. The EPA failed to include decades of Subpart W compliance reports, or even the most relevant recent reports, in the Rulemaking Docket.

7. The EPA failed in its responsibility to implement Executive Order 3175: Consultation and Coordination With Indian Tribal Governments, Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks, and Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations.

8. The Proposed Rule leaves a long-standing regulatory gap. The current and proposed 40 C.F.R. Part 6s Subpart W regulations and the EPA's rescission of Part 61 Subpart T means that at the very time when radon emissions increase due to the drying out of a tailings impoundment, the radon emissions are unregulated. This period of unregulated, unmonitored, unreported, and unmitigated radon emissions can amount to ten years or more before the placement of the final radon barrier.

9. Uranium recovery operations should be considered, by definition, major sources of hazardous air pollutants and subject to major source requirements. The EPA has avoided this designation since 1990. All uranium recovery operations licensed by the Nuclear Regulatory Commission (NRC) or an NRC Agreement State is subject to the 40 C.F.R. Part 61 Subpart W regulations. There is no emission level that divides those sources that are subject to the rule and those that are not. There is no emission level that separates those that must have EPA or Utah State authorization to construct and operate a source at a new or existing license operation and those that are not.

10. Due to the numerous factual, technical, and legal inadequacies in the Proposed Rule, the EPA must 1) correct those errors; 2) develop new proposed regulations that can be supported factually, technically, and legally; and 3) issue a new Proposed Rule for public comment.

II. LEGAL ISSUES

1. Clean Air Act Amendments of 1990.

1.1. The current Subpart W Rulemaking is being conducted under the provisions of the CAA Amendments of 1990. The existing 40 C.F.R. Part 61 Subpart W rule was promulgated in December 1989,[1] prior to the promulgation of the 1990 CAA Amendments. The 1990 CAA at Section 112(q)(1) states, with respect "Standards Previously Promulgated": "Each such standard shall be reviewed and, if appropriate, revised, to comply with the requirements of subsection (d) within 10 years after the date of enactment of the Clean Air Act Amendments of 1990." The standards in Subpart W for uranium mills were not exempted from this provision by subsection (q)(3).

1.2. Subsection (d) is a subsection of Section 112, entitled "Emission Standards." Therefore, any proposed emission standards promulgated under subsection (d) must comply with all applicable provisions of Section 112. This means that the proposed Subpart W emission standards, whether not they change or restate emission standards in the current Subpart W regulation, must comply with all applicable requirements in Section 112 of the 1990 CAA Amendments.

1.3. Section 112(d)(2), Standards and Methods, states that "emissions standards promulgated under this subsection and applicable to new or existing sources of hazardous air pollutants shall require the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section." Therefore, Section 112(d)(2) requires maximum achievable control technology (MACT) for both major and area sources. However, Section 112(d)(5) allows for the use of generally available control technology or management practices (GACT) to reduce hazardous air emissions from area sources.

1.4. Section 112(d)(2) lists some of the types of measures, processes, methods, systems or techniques that could be used to reduce hazardous air emissions. Section 112(d)(5) applies to the same list of potential emission reduction methodologies; it just says that an area source can use GACT in place of MACT. The list of possible control technologies or combination of technologies—whether used as the maximum or generally available technologies—includes design, equipment, work practice, or operational standards (Section 112(d)(2)(D)). Subsection (d)(2)(D) requires that the application of design and work practice standards must be "as provided in subsection (h)."

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[1] 54 Fed. Reg. 51654, 51654-51713; December 15, 1989.

1.5. Subsection (h), Work Practice Standards and Other Requirements, applies to standards promulgated pursuant to Section 112. Subsection (h) states that it is "for the purposed of this section." Therefore, subsection (h) applies to Section 112 and the establishment of "work practice standards" under subsection (d). Such "work practice standards," through the use of generally available technologies, have been proposed by the EPA.

1.6. Section 112(h) of the CAA states:

(h) WORK PRACTICE STANDARDS AND OTHER REQUIREMENTS.

(1) IN GENERAL.—For purposes of this section, if it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant or pollutants, the Administrator may, in lieu thereof, promulgate a design, equipment, work practice, or operational standard, or combination thereof, which in the Administrator's judgment is consistent with the provisions of subsection (d) or (f). In the event the Administrator promulgates a design or equipment standard under this subsection, the Administrator shall include as part of such standard such requirements as will assure the proper operation and maintenance of any such element of design or equipment.

(2) DEFINITION.—For the purpose of this subsection, the phrase ''not feasible to prescribe or enforce an emission standard'' means any situation in which the Administrator determines that—

(A) a hazardous air pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with any Federal, State or local law, or

(B) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.

1.7. As stated above, under the provisions of subsection (h), the EPA cannot establish a design, equipment, work practice, or operational standard, or combination thereof (whether through the application of maximum available technologies or generally available technologies) **in lieu of** an emission standard unless the Administrator makes certain findings. If the EPA proposes to establish a design, equipment, work practice, or operational standard, or combination thereof, the Administrator must find that it is not feasible to prescribe or enforce an emission standard, meaning that the the application of a measurement methodology is not technologically and economically practicable.

1.8. The EPA Air Toxics Website's "Overview by Section of CAA, Introduction to CAA and Section 112 (Air Toxics)," states with respect "Overview of Section 112 and

its Subsection" for subsection (h) Work Practice Standards and Other Requirements: "Allows the EPA, in cases where it is not feasible to prescribe or enforce an emission standard [under Section 112(d) or (f)], to promulgate a design, equipment, work practice, or operational standard." [2]

1.9. There is no evidence that the EPA Administrator has found that it is not feasible to prescribe or enforce radon emission standards for area sources subject to Subpart W, including conventional impoundments, liquid waste impoundments, and heap leach operations.

1.10. Compliance with the emission standard for existing impoundments involves radon flux measurements to demonstrate compliance using a methodology that has been incorporated into EPA Part 61 regulation.[3] That measurement methodology has been found to be both technically and economically feasible and has been used for decades to demonstrate compliance with the Subpart W radon emission standard for existing impoundments at uranium mills.

1.11. There are measurement technologies, including calculation of radon emissions from nonconventional fluid impoundments, based on measurements of radium content and meteorological conditions, that can be used to demonstrate compliance with a radon emission standard for liquid impoundments. There are other possible measurement technologies that can be applied to heap leach operations to demonstrate compliance with a radon emission standard. The EPA had not demonstrated that other possible methodologies for measuring or calculating radon emissions from nonconventional impoundments or heap-leach operations are not technically or economically feasible.

1.12. Therefore, the EPA has no legal basis for the promulgation of a design, equipment, work practice, or operational standard, or combination thereof, **in lieu of** a radon emission standard, pursuant to Section 112 of the CAA. Design, equipment, work practice, or operational standards are meant to supplement, not replace, a standard that places specific numerical limitations on the emission of a hazardous air pollutant. The EPA may supplement an emission standard with a design, equipment, work practice, or operational standard, but it cannot replace a numeric emission standard without the Administrator making the required findings. In this instance, the Administrator has not, and cannot make such findings.

III. GENERAL COMMENTS

1. The public and various stakeholders expected the EPA to improve environmental protection concerning the process of uranium milling and closure. The EPA has

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[2] http://www.epa.gov/ttn/atw/overview.html

[3] 40 C.F.R. Part 61, Appendix B, Method 115-Monitoring for Radon-222 Emissions, 2. Radon-222 Emissions from Uranium Mill Tailings Piles.

proposed a drastic step that will degrade environmental and community protection against radon emissions from uranium recovery operations.

2. As will be shown below, in developing the proposed rule the EPA relied on erroneous, incomplete, and misleading information.

3. The *Federal Register* Notice (FRN) contains numerous misleading and erroneous statements and assertions that are not supported by citations to supportive documents. *See* 79 Fed. Reg. 25388, May 2, 2014.

4. The EPA has not attempted to learn from the experience over the previous decades by analyzing available data and incorporating the results of the analyses into an organized body of knowledge about the radon emissions from liquid and solid tailings impoundments and the performance of these impoundments and designs and work practices over the past several decades.

5. The EPA failed to consider Subpart W and its implementation and enforcement as a whole regulatory program with various parts, including the regulations and how those regulations have been and will be implemented and enforced. The EPA egregiously failed to provide documentation regarding the enforcement so Subpart W since 1989 and discuss the numerous issues associated with that enforcement.

IV. PROPOSED REVISIONS TO 40 C.F.R. PART 61 SUBPART W

1. Proposed Rule, at II.A. Background Information for Proposed Area Source Standards, *What is the statutory authority for the proposed standards?* (page 25390, col. 1, ¶ 2) states (in part):

> Section 112(d) of the CAA requires EPA to establish emission standards for major and area source categories that are listed for regulation under CAA section 112(c). A major source is any stationary source that emits or has the potential to emit 10 tons per year (tpy) or more of any single hazardous air pollutant (HAP) or 25 tpy or more of any combination of HAP. An area source is a stationary source of HAP that is not a major source. . . . Calculations of radon emissions from operating uranium recovery facilities have shown that facilities regulated under Subpart W are area sources (EPA- HQ-OAR-2008-0218-0001, 0002).

1.1. The discussion of whether the Subpart W radon standard applies to an area or major source is highly misleading. Radon is never measured in tons per year. Very high and hazardous levels of radon emission would never reach the tons per year major source levels, because that source category applies to particulates, not radioactive gases. The EPA never intended the 10 or 25 tons per year emission level to apply to the emission of radon or other radionuclides. It is disingenuous of the EPA to suggest otherwise.

1.2. The Clean Air Act (CAA), Section 112 —Hazardous Air Pollutants, defines "major" and "area" sources:

> SEC. 112. HAZARDOUS AIR POLLUTANTS.
> (a) DEFINITIONS.—For purposes of this section, except subsection (r)—
> (1) MAJOR SOURCE.—The term ' 'major source' ' means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants. **The Administrator may establish a lesser quantity, or in the case of radionuclides different criteria, for a major source than that specified in the previous sentence, on the basis of the potency of the air pollutant, persistence, potential for bioaccumulation, other characteristics of the air pollutant, or other relevant factors.**
> (2) AREA SOURCE.—The term ''area source'' means any stationary source of hazardous air pollutants that is not a major source. [Emphasis added.]

The part of the definition of "major source," which the EPA inexplicably left out of the discussion in the May 2 FRN, clearly states that the Administrator could establish lesser criteria for major sources and, in the case of radionuclides a **different criteria**. The problem is that the Administrator never took it upon his or herself to establish criteria for determining whether a radionuclide source is a "major source."

1.3. Also, EPA regulation at 40 C.F.R. Part 70, State Operating Permit Programs, provides addition information:

> Emissions unit means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under section 112(b) of the Act. This term is not meant to alter or affect the definition of the term "unit" for purposes of title IV of the Act.
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> Major source means any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person (or persons under common control)) belonging to a single major industrial grouping and that are described in paragraph (1), (2), or (3) of this definition. For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same Major Group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987.

> **(1) A major source under section 112 of the Act, which is defined as:**
> (i) For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutant which has been listed pursuant to section 112(b) of the Act, 25 tpy or more of any combination of such hazardous air pollutants, or such lesser quantity as the Administrator may establish by rule. Notwithstanding the preceding sentence, emissions from any oil or gas exploration or production well (with its associated equipment) and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources; or
> **(ii) For radionuclides, "major source'' shall have the meaning specified by the Administrator by rule.** [Emphasis added.]

Again, the CAA and EPA Part 70 regulation anticipated that the EPA Administrator would issue a rulemaking that would specify the basis for determining whether a radionuclide source is a "major source." Subsequent to the passage of the 1990 amendments to the CAA, the EPA Administrator failed to establish specific criteria for "major" radionuclide sources, as was contemplated by the Clean Air Act, Section 112(a)(1), and 40 C.F.R.
§ 70.2. The EPA cannot, and should not justify the failure of the Administrator to establish specific criteria for "major" radionuclide sources.

1.4. The radionuclide National Emission Standards for Hazardous Air Pollutants (NESHAPS) themselves state whether a emission source must adhere to a emission standard and apply for a permit pursuant to 40 C.F.R. Part 61 Subpart A. Under Subpart W, all uranium recovery facilities that are licensed by the Nuclear Regulatory Commission (NRC) or an NRC Agreement State under the Atomic Energy Act are subject to Subpart W, no matter now much radon is emitted. Under Subpart B (National Emission Standards for Radon Emissions from Underground Uranium Mines), uranium mines that produce or are expected to produce more than 100,000 tons of uranium ore are subject to the Part 61 Subpart B standard. Therefore, the EPA established criteria for regulation of that emission source. The EPA singled out radon emissions from uranium mills for its own specific NESHAP radon emission standard, clearly demonstrating that that source category warranted a specific regulation and regulatory program to control radon emissions.

1.5. Under 40 C.F.R. § 70.3(b)(1), states that administer EPA CAA regulations may exempt area sources from the obligation to obtain a permit:

> § 70.3 Sec. 70.3 Applicability.
> ***
> (b) Source category exemptions.

> (1) All sources listed in paragraph (a) of this section that are not major sources, affected sources, or solid waste incineration units required to obtain a permit pursuant to section 129(e) of the Act, may be exempted by the State from the obligation to obtain a part 70 permit until such time as the Administrator completes a rulemaking to determine how the program should be structured for nonmajor sources and the appropriateness of any permanent exemptions in addition to those provided for in paragraph (b) (4) of this section.

However, a state that administers the Part 61 radionuclide NESHAPS may not exempt a uranium mill (or other radionuclide source subject to Part 61 regulations) from the necessity of obtaining a permit pursuant to Subpart A (General Requirements) and Subpart W. In other words, the State of Utah cannot treat a uranium mill as a area source subject to a permitting exemption. Instead, it must treat a uranium mill as a "major" source.

1.6. The Administrator of the EPA should make a determination that any source subject to the National Emission Standards for Radon Emissions From Operating Mill Tailings is, by definition, a major source.

2. Proposed Rule, at II.A. Background Information for Proposed Area Source Standards, What is the statutory authority for the proposed standards? (page 25390, col. 1, ¶ 2) states (in part): "For the purposes of Subpart W, the HAP at issue is radon-222 (hereafter referred to as "radon"). We presently have no data or information that shows any other HAPs being emitted from these impoundments."

2.1. The EPA is clearly aware that materials that emit radon-220 from the decay of thorium-232 have been disposed of in tailings impoundments subject to Subpart W standard. The NRC authorized the receipt, storage, processing, and disposal of wastes containing thorium-232 and its more highly radioactive progeny at the White Mesa Mill, San Juan County, Utah. The licensee even developed standard operating procedures (SOPs) for the handling of high-thorium content material. The thorium-232 and thorium-232 progeny were not removed during processing. Therefore, radon-220 from the decay of thorium-232, is probably emitted from tailings Cells 2 and 3 at the White Mesa Uranium Mill, San Juan County, Utah. The reason that the EPA has no data or information that shows that radon-220 is being emitted at the White Mesa Mill is because the method used by the Mill licensee to measure radon from Cells 2 and 3 in order to demonstrate compliance with Subpart W does not capture and measure radon-220 or radon-220 progeny.[4] Nor is there evidence that other radioactive measurements at or near the site are capable of measuring radon-220 and radon-220 progeny. So, it is no wonder the EPA has no data showing that radon-220 is being emitted from the White Mesa Mill.

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[4] Tellco Environmental, Grand Junction, Colorado. Personal communication.

3. Proposed Rule, at II.A. Background Information for Proposed Area Source Standards, *What is the statutory authority for the proposed standards?* (page 25390, col. 2, ¶ 1) states:

> Under CAA section 112(d)(5), the Administrator may elect to promulgate standards or requirements for area sources ''which provide for the use of generally available control technologies or management practices by such sources to reduce emissions of hazardous air pollutants.'' Under section 112(d)(5), the Administrator has the discretion to use generally available control technology or management practices (GACT) in lieu of maximum achievable control technology (MACT) under section 112(d)(2) and (d)(3), which is required for major sources. Pursuant to section 112(d)(5), we are proposing revisions to Subpart W to reflect GACT.

3.1. Any state that administers and enforces Subpart W has the authority to determine that such sources are "major sources." Since the State of Utah, which regulates the only operating uranium mill in the U.S., administers and enforces the radionuclide NESHAPS. it would be highly improper to only consider the GACT in lieu of MACT. Radon, radon progeny, and other radionuclides that are emitted from uranium mill sites should be subject to MACT.

3.2. As discussed above, it was the intention of the CAA and EPA regulation that the EPA Administrator specify criteria for determining "major" sources of radionuclide emissions. As also discussed above, the fact that all uranium recovery facilities are subject to regulation under Subpart W means that, by definition, they are "major" sources. Therefore, the EPA has no basis whatsoever using generally available control technology or management practices (GACT) in lieu of maximum achievable control technology (MACT)

4. Proposed Rule, at II.B. Background Information for Proposed Area Source Standards, *What criteria did EPA use in developing the proposed GACT standards for these area sources?* (page 25390, col. 2, ¶ 3) states:

> Consistent with the legislative history, we can consider costs and economic impacts in determining GACT, which is particularly important when developing regulations for source categories, like this one, that may include small businesses.

4.1 EPA should define "small business" in the context of this rule, which applies to the owners and operators of uranium mills and other uranium recovery facilities. The EPA should provide information on the size of the companies, assets, and incomes that will be affected by these rules.

4.2. It is doubtful that any facility in this source category is owned by a small business. The only operating uranium mill in the US is owned by a large foreign

company. Other owners and operators of uranium recovery facilities are often large, multi-national companies, with incomes and resources in the millions of dollars.

4.3. A small business that would be adversely by the proposed regulation is the company that manufactures the canisters that measure radon on tailings impoundments and determines the radon flux from those canisters. The EPA should provide more financial information about how small companies that provide support for compliance with the Subpart W standard will be impacted.

5. Proposed Rule, at II.B. Background Information for Proposed Area Source Standards, *What criteria did EPA use in developing the proposed GACT standards for these area sources?* (page 25390, col. 2, ¶ 4), states:

> Determining what constitutes GACT involves considering the control technologies and management practices that are generally available to the area sources in the source category. We also consider the standards applicable to major sources[2] in the same industrial sector to determine if the control technologies and management practices are transferable and generally available to area sources. In appropriate circumstances, we may also consider technologies and practices at area and major sources in similar categories to determine whether such technologies and practices could be considered generally available for the area source category at issue. Finally, as noted above, in determining GACT for a particular area source category, we consider the costs and economic impacts of available control technologies and management practices on that category.
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> [2] None of the sources in this source category are major sources.

5.1. The following portion of the above paragraph should be deleted: "We also consider the standards applicable to major sources in the same industrial sector to determine if the control technologies and management practices are transferable and generally available to area sources. In appropriate circumstances, we may also consider technologies and practices at area and major sources in similar categories to determine whether such technologies and practices could be considered generally available for the area source category at issue." This statement should be deleted because it is a false and misleading statement, typical of other false and misleading statements in the Proposed Rule.

The EPA could not have "considered the standards applicable to major sources in the same industrial sector to determine if the control technologies and management practices are transferable and generally available to area sources." This is because all of the facilities in the same industrial sector, that is, uranium recovery facilities and 11e.(2) byproduct material impoundments, and are considered to be area sources by the EPA, so there are no major sources in the same industrial sector to consider.

6. Proposed Rule, at II.C. Background Information for Proposed Area Source Standards, What source category is affected by the proposed standards? (page 25390, col. 3, ¶ 1), states (in part):

> As defined by EPA pursuant to the CAA, the source category for Subpart W is "facilities licensed [by the U.S. Nuclear Regulatory Commission (NRC)] to manage uranium byproduct material during and following the processing of uranium ores, commonly referred to as uranium mills and their associated tailings." 40 CFR 61.250. Subpart W defines "uranium byproduct material or tailings" as "the waste produced by the extraction or concentration of uranium from any ore processed primarily for its source material content." 40 CFR 61.251(g).

6.1. Based on the definition above, there is a significant question regarding how Subpart W applies to the wastes that have been placed in impoundments at licensed conventional uranium mills that do not come from the processing of uranium ores. These uranium recovery wastes come from the processing of wastes from other mineral processing facilities. Thousands of tons of materials that are not "ore,"[5] as contemplated by the Atomic Energy Act of 1946 (as supplemented and amended by the Atomic Energy Act of 1954 and the Uranium Mill Tailings Radiation Control Act of 1978, and the EPA and NRC regulations promulgated pursuant to UMTRCA) have been disposed of at a licensed uranium mill (White Mesa Mill). The EPA has never amended its regulations, nor has ever claimed that 40 C.F.R. Part 61 Subpart W or 40 C.F.R. Part 192 apply to the wastes produced by the extraction or concentration of uranium from materials other than "ore" that have been processed primarily for its source material content. Therefore, there is no legal basis for the application of Subpart W to the wastes from the processing of wastes from other mineral processing operations at licensed uranium mills. The EPA must address this issue in the Proposed Rule.

7. Proposed Rule, at II.C. Background Information for Proposed Area Source Standards, *What source category is affected by the proposed standards?* (page 25390, col. 3, ¶ 1) states (in part):

> Uranium recovery facilities process uranium ore to extract uranium. The HAP emissions from any type of uranium recovery facility that manages uranium byproduct material or tailings is subject to regulation under Subpart W. This currently includes three types of uranium recovery facilities: (1) conventional uranium mills; (2) in-situ leach recovery facilities; and (3) heap leach facilities.

7.1. The EPA must consider types of uranium recovery facilities, using new

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[5] White Mesa Mill Radioactive Materials License. http://www.deq.utah.gov/businesses/E/energyfuels/docs/2010/06Jun/4BER%20UT1900479%20061410.pdf

technologies, that process uranium ore to extract uranium. These facilities include borehole mining operations and ablation processing. Black Range Minerals and their joint venture with Ablation Technologies LLC, Mineral Ablation, have undertaken research and development activities associated with the ablation process, and Black Range Minerals is developing a borehole mining project. [6] The EPA must investigate and evaluate these technologies with respect Subpart W standards.

7.2. The EPA must also consider the applicability of Subpart W to research and development uranium recovery operations, particularly ablation.

7.3. The EPA must have a process for evaluating new uranium recovery technologies in a timely manner with respect Subpart W standards and compliance with those standards.

8. Proposed Rule, at II.D(1)(D). Background Information for Proposed Area Source Standards, *What are the production operations, emission sources, and available controls?,* (1) Conventional Mills (page 25391, col. 1, ¶ 8), states (in part):

> Uranium byproduct material/tailings are typically created in slurry form during the crushing, leaching and concentration processes and are then deposited in an impoundment or ''mill tailings pile,'' which must be carefully monitored and controlled. This is because the mill tailings contain heavy metal ore constituents, including radium. The radium decays to produce radon, which may then be released to the environment. Because radon is a radioactive gas which may be inhaled into the respiratory tract, EPA has determined that exposure to radon and its daughter products contributes to an increased risk of lung cancer.

8.1. The EPA states here that a "mill tailings pile" must be carefully monitored and controlled. However, the proposed rule removes any requirement for active monitoring and control of radon emissions from mill tailings piles. The EPA cannot claim, on one hand, that a tailing pile must be carefully monitored and controlled and, on the other hand, remove any requirement for monitoring and remove any possibility for "control" of those emissions when the emissions exceed a specific radon emission standard.

8.2. Here the EPA should have discussed the operations that produce liquids and other materials that are held in liquid effluent ponds and ponds on top of the solid tailings disposal impoundments, their radiological constituents, and the emissions from such effluents. The EPA should have discussed the sources of these liquids and the solids in those liquids. These effluent sources would include effluents and raffinates from ore

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[6] http://www.blackrangeminerals.com/content/wp-content/uploads/2014/10/24-Oct-2014-Further-Positive-Results-From-Ablation-Testwork.pdf
http://www.blackrangeminerals.com/content/ablation-joint-venture/

processing, tailings pore water, liner system leachates, liquids from tailings dewatering, pumpback from groundwater corrective actions, natural precipitation, and runoff. The EPA should also have discussed the solids dissolved and suspended in the liquids and the sources of those particulates and their radiological properties. Further, the EPA should have discussed and provided data regarding the generation of radon from the radium in these ponds, which the EPA proposes to call "nonconventional impoundments."

8.3. The Proposed Rule must consider and address the radon emissions from stockpiled uranium ore as a radon emission source at uranium recovery facilities. The EPA should have, but did not, identify and consider other sources of emissions of radon and other radionuclides at conventional, ISL, or heap leach operations (including contaminated soil, ore pads, windblown tailings, stockpiled radioactive wastes prior to processing, ore handling areas, stacks). The CAA directs the EPA to regulate radionuclides, including radon, not just radon emissions from 11e.(2) byproduct material. There is no legal or technical justification for the EPA disregarding other sources of radon and other radioactive emissions at uranium recovery operations. All radioactive contaminants that are inhaled or are taken up by soils, water, and enter the food chain have health risks. The health risks from uranium and other radioactive particulate emissions from uranium mills (e.g., uranium isotopes, radium-226, thorium-230, and polonium-126) must also be considered.

9. Proposed Rule, at II.E. Background Information for Proposed Area Source Standards, *What are the existing requirements under Subpart W?,* (page 25392, col. 2 to col. 3).

9.1. The EPA leaves out any discussion of the requirement in Subpart W at Section 61.252(b)(1): "The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time." The FRN should have discussed the implementation and enforcement, or lack of implementation and enforcement, of that provision. The EPA should discuss how the EPA and the State of Utah, Division of Air Quality (DAQ), ignored that provision since 1989 for the White Mesa Mill. Since 1989, there have been at least 3 operational impoundments at the White Mesa Mill. At the time the FRN was issued, there were 6 impoundments (Cells 1, 2, 3, 4A, 4B, and Roberts Pond) "in operation" at White Mesa.

9.2. The FRN states, "The owners or operators of existing impoundments must report to EPA the results of the compliance testing for any calendar year by no later than March 31 of the following year." The EPA should also mention that the owner and operator of the only operating mill (White Mesa Mill) and one of the mills on standby (Shootaring Canyon Mill) must report to the Utah Division of Air Quality (an EPA Delegated State), which administers and enforces the EPA radionuclide NESHAPs in Utah.

10. Proposed Rule, at II.E. Background Information for Proposed Area Source Standards, *What are the existing requirements under Subpart W?,* (page 25392, col. 3, ¶ 6, to page 25392, col. 1, ¶ 2) states:

> The work practice standards described above were promulgated after EPA considered a number of factors that influence the emissions of Rn-222 from tailings impoundments, including the climate and the size of the impoundment. For example, for a given concentration of Ra-226 in the tailings, and a given grain size of the tailings, the moisture content of the tailings will control the radon emission rate; the higher the moisture content the lower the emission rate. In the arid and semi- arid areas of the country where most impoundments are located or proposed, the annual evaporation rate is quite high. As a result, the exposed tailings absent controls like sprinkling) dry rapidly. In previous assessments, we explicitly took the fact of rapid drying into account by using a Rn-222 flux rate of 1 pCi/m2/s per pCi/g Ra-226 to estimate the Rn-222 source term from the dry areas of the impoundments. (Note: The estimated source terms from the ponded (areas completely covered by liquid) and saturated areas of the impoundments are considered to be zero, reflecting the complete attenuation of the Rn-222).
>
> Another factor we considered was the area of the impoundment, which has a direct linear relationship with the Rn- 222 source term, more so than the depth or volume of the impoundment. Again, assuming the same Ra-226 concentration and grain sizes in the tailings, a 100-acre dry impoundment will emit 10 times the radon of a 10-acre dry impoundment. This linear relationship between size and Rn-222 source term is one of the main reasons that Subpart W imposed size restrictions on all future impoundments (40 acres per impoundment if phased disposal is chosen and 10 acres total uncovered.

10.1. There are only 2 impoundments that more or less meet the size requirement for new impoundments, Cells 4A and 4B at the White Mesa Mill. Only Cell 4A, which has only been operational for a few years, has received solid tailings. Therefore, the EPA has no operational history for 40 acre impoundments. Additionally, the EPA give no justification for not requiring 20-acre or 10-acre impoundments, to reduce the amount of radon emissions.

10.2. The fact is, at the White Mesa Mill, additional impoundments, no matter what their size, mean additional radon emissions from the mill site. At the White Mesa Mill, the "existing" impoundments continue to emit radon and those emissions will increase as the impoundments dry out. The new impoundments emit radon from the liquids. Based on the EPA's determination that there are radon emissions of 7.0 pCi/m^2-sec for every 1,000 pCi/L of radium and recent data on the radium content of new Cells 4A and 4B, the radon emissions from Cell 4A are 110.6 pCi/m^2-sec and those from Cell

4B are 102.2 pCi/m^2-sec. This is over 5 times the current radon emission standard. *See* Section IV. 45.11, below.

11. Proposed Rule, at II.F.1. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Pre-1989 Conventional Mill Impoundments (page 25393, col. 3, ¶ 3), states (in part):

> The White Mesa Conventional Mill in Blanding, Utah, has one pre-1989 impoundment (known by the company as Cell 3) that is currently in operation and near capacity but is still authorized and continues to receive tailings. The company is now pumping any residual free solution out of the cell and contouring the sands. It will then be determined whether any more solids need to be added to the cell to fill it to the specified final elevation. It is expected to close in the near future (EPA-HQ-OAR-2008-0218- 0069). The mill also uses an impoundment constructed before 1989 as an evaporation pond (known as Cell 1). To the extent this evaporation pond contains byproduct material, its HAP emissions are also regulated by Subpart W.

11.1. The EPA should have acknowledged another pre-1989 impoundment that was an existing tailings impoundment at the time the Proposed Rule was issued on May 2, 2014. Cell 2 (66 acres) was an "existing" tailings impoundment, constructed before December 1989.

11.2. The White Mesa Mill licensee, currently Energy Fuels Resources (USA) Inc. (EFRI), continued to monitor the radon flux for Cell 2 and submit the results to the EPA and the Utah Division of Air Quality (DAQ)[7] on an annual basis. In 2012, the radon flux from Cell 2 exceeded the Subpart W standard of 20 pCi/m^2-sec of radon-222 for an existing uranium tailings impoundment. 40 C.F.R. § 61.252(a). The exceedance was reported to the DAQ and EPA in March 2013.[8] The April 17, 2013, DAQ White Mesa Mill Subpart W compliance review states that "due to the exceedance from Cell #2, monthly reports are required to be submitted," and that "the first report will be submitted April 2013." Until May 2014, Energy Fuels submitted monthly reports on the radon flux for Cell 2 and the measures taken to bring Cell 2 into compliance with the Subpart W standard, pursuant to Section 61.254(b). The Licensee, EPA, and DAQ's actions were the result of a determination that the provisions of Section 61.252(a) applied to Cell 2 as an "existing" tailings impoundment.

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[7] In 1995 the State of Utah assumed administrative and enforcement authority for the radionuclide NESHAPS for Utah.

[8] White Mesa Uranium Mill, National Emissions Standards for Radon Emission from Operating Mill Tailings Transmittal of 2012 Annual Radon Flux Monitoring Reports; Energy Fuels Resources (USA) Inc. to Bryce Bird, Director, Division of Air Quality; March 29, 2013.

11.3. Even though the Licensee was submitting annual and monthly Subpart W compliance reports for Cell 2 as late as the end of July 2014, the EPA failed to even mention Cell 2 in the Proposed Rule. The was an egregious oversight on the part of the EPA.

11.4. In the monthly compliance for April 2014, submitted in May 2014 (after the publication of the May 2 Proposed Rule), the Licensee requested permission to cease monthly monitoring because Cell 2 was in compliance with the radon flux standard. On July 23, 2014, the Utah Division of Radiation Control (DRC) issued an order stating that Cell 2 is not in operation and is in closure. The DRC directive stated that no additional radioactive materials of any sort or other waste may be added to the cell.[9] However, it is doubtful that Cell 2 can be considered to be in "closure." The White Mesa Mill License[10] does not include an approved Closure Plan for Cell 2. There are no enforceable reclamation milestones for the closure and reclamation of Cell 2 that have been incorporated into the License as license conditions, as required by 10 C.F.R. Part 40, Appendix A, Criterion 6A, and 40 C.F.R. § 192.32(a)(3).

11.5. The 2012 Annual Compliance Report submittal (page 1) states that the Cell 2 dewatering activities are mandated by the Mill's State of Utah Groundwater Discharge Permit. There is no reference to dewatering activities mandated by the Mill's Radioactive Materials License or a closure plan. There is no reference to enforceable reclamation milestone for the removal of free-standing liquids from Cell 2. The EPA rescinded 40 C.F.R. Part 61 Subpart T under the assumption that that enforceable reclamation milestones would be incorporated into uranium mill licenses as part of closure.[11]

11.6. The FRN neglects to mention another "existing" 11e.(2) byproduct material disposal impoundments at the White Mesa Mill. Cell 1, constructed in 1981, receives and stores processing liquids and solid material. Eventually, part of Cell 1 will be used to dispose of solid 11e.(2) byproduct material from the reclamation of the Mill. Another impoundment that receives processing liquids is Roberts Pond, yet there is no mention of that impoundment in the FRN, and it does not appear that it was approved pursuant to 40 C.F.R. §§ 61.07 and 61.08.

12. Proposed Rule, at II.F.1. Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Pre-1989 Conventional Mill Impoundments (page 25394, col. 1, ¶ 1), states (in part):

> The mill also uses an impoundment constructed before 1989 as an

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[9] http://www.deq.utah.gov/businesses/E/energyfuels/docs/2014/07Jul/EnergyFuels072814.pdf

[10] http://www.deq.utah.gov/businesses/E/energyfuels/docs/2010/06Jun/4BER%20UT1900479%20061410.pdf

[11] 59 FR 36302, July 15, 1994

> evaporation pond (known as Cell 1). To the extent this evaporation pond contains byproduct material, its HAP emissions are also regulated by Subpart W.

12.1. Cell 1 contains 11e.(2) byproduct material. But it is misleading to state that its HAP emissions are also regulated by Subpart W. There is no requirement to measure the radon emissions from Cell 1 because Cell 1 contains liquids. So, it may be regulated, but with no requirement to actually measure the radon emissions, it might as well not be regulated. The EPA should make that clear. The materials, solids and liquids, in Cell 1 are 11e.(2) byproduct material. Even the Cell 1 liner is 11e.(2) byproduct material.

12.2. Further, since 1990, the EPA, DAQ, and the White Mesa Mill license did not include Cell 1when determining compliance Section 61.252(b)(1), which states (in part): "The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time." If Cell 1 was really being regulated by Subpart W, it would have counted as the third operating impoundment when Subpart W became effective. In reality, at no time since 1990 has the EPA or DAQ actually regulated Cell 1 under Subpart W.

12.3. Recent data indicates that there are, have been, and will continue to be significant radon emissions from the liquid effluents in Cell 1. *See* Section IV. 45.11, below. Yet, the EPA has maintained that radon emissions from liquid evaporation ponds, now called nonconventional impoundments, were negligible.

12.4. Roberts Pond, which also receives liquid effluent and solids, was also constructed before December 1989. Neither the EPA, nor the DAQ, ever approved the construction of, or later relining of, Roberts Pond.

13. Proposed Rule, at II.F.1. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Pre-1989 Conventional Mill Impoundments (page 25394, col. 1, ¶ 3, and col. 2, ¶ 1), states (in part):

> The Shootaring Canyon project is a conventional mill located about 3 miles north of Ticaboo, Utah, in Garfield County. The approximately 1,900-acre site includes an ore pad, a small milling building, and a tailings impoundment system that is partially constructed. The mill operated for a very short period of time. Shootaring Canyon did pre-date the standard, but the mill was shut down prior to the promulgation of the standard. The impoundment is in a standby status and has an active license administered by the Utah Department of Environmental Quality, Division of Radiation Control. The future plans for this uranium recovery operation are unknown.
> ***
> The Shootaring Canyon mill operated for approximately 30 days.

> Tailings were deposited in a portion of the upper impoundment. A lower impoundment was conceptually designed but has not been built. Milling operations in 1982 produced 25,000 cubic yards of tailings, deposited in a 2,508 m ^{2} (0.62 acres) area.

13.1. Most of the tailings at the Shootaring Canyon Mill did not come from the processing of ore at the mill. The tailings came from the disposal of equipment and wastes from the cleanup of the Hyrdo-Jet Heap-Leach operation (NRC Docket No. 40-7869).

13.2. The EPA should include the fact that the Shootaring Canyon Mill site includes stockpiled ore, ore on the tailings impoundment berm, and areas of radioactively contaminated soils that must be removed and placed in the tailings impoundment[12] The estimated amount of ore and contaminated soil is 114,000 cubic yards. The ore stockpile and soil beneath the ore pile that will be removed is 65,500 cubic yards. An additional 6,700 cubic yards of ore is on top of one of the tailings impoundment berms. The average radium-226 concentration of 30 ore samples is 225.68 pCi/gm (rounded to 226 pCi/gm). The average tailings radium concentration is 78.8 pCi/gm.[13]

13.3. The EPA seriously underestimates the amount of contaminated soils, ore, and other tailings that are at the Shootaring Canyon Mill.

13.4. Regarding future plans for the Shootaring Mill, on October 17, 2014, the Utah Division of Radiation Control (DRC) authorized the Transfer of Control and Ownership from Uranium One Americas, Inc. to Anfield Resources Holding Corp.[14]

14. Proposed Rule, at II.F.1. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Pre-1989 Conventional Mill Impoundments (page 25394, col. 1, ¶ 3, and col. 2, ¶ 2), states:

> A fourth mill is Cotter Corporation in Cañon City, Colorado. The mill no longer exists, and the pre-1989 impoundments are in closure.

14.1. It is questionable whether the pre-1989 impoundments at the Cotter Mill are "in closure." To the best of Commenters' knowledge, the Cotter Mill does not have an approved Closure Plan. To the best of Commenters' knowledge, there are no enforceable

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[12] Tailings Reclamation and Decommissioning Plan for Shootaring Canyon Uranium Project, Garfield County, Utah. License Number SUA-1371 (NRC); UT 0900480 (DAQ). Hydro-Engineering LLC, Environmental Restoration Inc. Revised November 2003. Updated and submitted March 29, 2012. http://www.radiationcontrol.utah.gov/Uranium_Mills/uraniumone/docs/2012/March/DRC-2012-001447.pdf

[13] Id. Section 5.4.4, page 5-6.

[14] http://www.deq.utah.gov/businesses/U/uraniumone/docs/2014/10Oct/TransferofContorl101714.pdf

reclamation milestones for the closure and reclamation the tailings impoundments that have been incorporated into the Cotter Mill license as license conditions, as required by 40 C.F.R. Part 192 and 10 C.F.R. Part 40, Appendix A, Criterion 6A. Closure demands a closure plan and enforceable reclamation milestones for the removal of free-standing liquids (dewatering), placement of the interim cover, and placement of the final radon barrier.

15. Proposed Rule, at II.F.5. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Flux Requirement Versus Management Practices for Conventional Impoundments in Operation Before December 15, 1989 (page 25394, col. 3, § 4; page 25395, col. ¶ 1), states (in part):

> In performing our analysis we considered the information we received from all the existing conventional impoundments. We also looked at the compliance history of the existing conventional impoundments. After this review we considered two specific questions: (1) Are any of the conventional impoundments using any novel methods to reduce radon emissions? (2) Is there now any reason to believe that any of the existing conventional impoundments could not comply with the management practices for new conventional impoundments, in which case would we need to continue to make the distinction between conventional impoundments constructed before or after December 15, 1989? We arrived at the following conclusions: First, we are not aware of any conventional impoundment that uses any new or different technologies to reduce radon emissions.
>
> Conventional impoundment operators continue to use the standard method of reducing radon emissions by limiting the size of the impoundment and covering tailings with soil or keeping tailings wet. These are very effective methods for limiting the amount of radon released to the environment.

15.1. Here, the EPA has asked the wrong questions. This question that should be asked is whether the existing regulations are protective of the public health and safety, how those regulations have been implemented, and how the regulations can be improved to limit the amount of radon released from a conventional uranium mill tailings impoundment prior to the placement of the final radon barrier. By asking Question 2, the EPA is going down a path of manipulating the experience of the implementation and enforcement of Subpart W. The EPA is assuring that, in the future, radon emissions will not be monitored and therefore, no mitigative measures will be taken to bring tailings impoundments within the accepted 20 pCi/m^2-sec standard when that standard is exceeded.

15.2. Another question that should be asked is not whether existing conventional impoundments can comply with the management practices for new mill tailings

impoundments (40 C.F.R. § 61.252(b)), but whether the new mill tailings impoundments should also be subject to the radon flux standard for existing mill tailings piles (40 C.F.R. § 61.252(a)).

15.3. UW strongly believes that all tailings impoundments must be subject to the current radon flux standard for "existing" impoundments, or a more restrictive standard, no matter the size or when they were constructed. Unless there is monitoring of the radon flux, a mill operator, the public, and regulatory agencies will not know how much radon is actually being emitted from a tailings impoundment. With no standard and no monitoring, the mill operator will not be required to take effective measures to limit the radon emissions. It is only when there is a radon emission standard, requirement for yearly compliance monitoring and reporting, requirement for monthly reporting and mitigative measures if an impoundment is out of compliance, and possibility of an enforcement order, that the EPA can assure that effective methods are being used to limit the amount of radon released to the environment.

15.4. A tailings impoundment that limits the size of the impoundment to 40 acres, is not required under Subpart W to use any other method to limit the radon emissions. By having a 40-acre impoundment the mill owner has satisfied the EPA requirement for an effective method to reduce radon emissions. There is no EPA requirement to cover the tailings with soil or keep the tailings wet. If the radon emissions increase due to drying out of the pile, through natural evaporation or active dewatering, presence of wild-blown tailings, or placement of material in the impoundment with higher radon emissions than expected or emissions of radon-220, with no monitoring, the emissions would not be documented. Therefore, there is no prospect of using other "effective methods for limiting the amount of radon released to the environment."

15.5. The Clean Air Act (CAA) has guidance for the promulgation of work practice standards. Section 112(h) of the CAA states:

> (h) WORK PRACTICE STANDARDS AND OTHER REQUIREMENTS.
>
> (1) IN GENERAL.—**For purposes of this section, if it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant or pollutants, the Administrator may, in lieu thereof, promulgate a design, equipment, work practice, or operational standard, or combination thereof, which in the Administrator's judgment is consistent with the provisions of subsection (d) or (f).** In the event the Administrator promulgates a design or equipment standard under this subsection, the Administrator shall include as part of such standard such requirements as will assure the proper operation and maintenance of any such element of design or equipment.

> (2) DEFINITION.—**For the purpose of this subsection, the phrase "not feasible to prescribe or enforce an emission standard" means any situation in which the Administrator determines that—**
>
> (A) a hazardous air pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with any Federal, State or local law, or
>
> **(B) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.** [Emphasis added.]

Clearly, it is feasible to prescribe and enforce the radon emission standard in Section 61.252(a). Clearly, the application of the measurement methodology is practicable and there are no technological and economic limitations related to the use of the measurement methodology used to determine compliance with the standard. For 25 years the EPA has relied on an emission standard for the control of radon from uranium mill tailings. EPA has not demonstrated that this method is unreliable, unfeasible, or has significant technical or economic limitations. Therefore, there is no legal basis for eliminating this standard for existing mill tailings impoundments and replacing it with a work practice standard.

15.6. The EPA and, in Utah the DAQ, have consistently failed to enforce the work practice standard applicable to both existing and new tailings impoundments. The EPA and DAQ failed to enforce the 2-impoundment provision in Section 61.252(b)(1): "The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time."

16. Proposed Rule, at II.F.5. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Flux Requirement Versus Management Practices for Conventional Impoundments in Operation Before December 15, 1989 (page 25395, col. 1, ¶ 2), states (in part):

> Second, we believe that only one existing operating conventional impoundment designed and in operation before December 15, 1989, could not meet the work practice standards. This impoundment is Cell 3 at the White Mesa mill, which is expected to close in 2014 (Personal communication between EPA staff and Utah Department of Environmental Quality staff, May 16, 2013, EPA–HQ– 2008–0218–0081).

16.1. At the time of the issuance of the May 2 FRN, there was another existing tailings impoundment at the White Mesa Mil that did not meet the work practice standards. Up until July 23, 2014, Cell 2 was an existing impoundment subject to the provisions of Subpart W. *See* Section 11, above.

16.2. The EPA has not provided any documentation that demonstrates that the Shootaring Canyon and Sweetwater Mills meet the work practice and design standards in Section 61.252(b). For some reason, the EPA failed to send letters to the owners of the Shootaring Canyon and Sweetwater Mills requesting information about their tailings impoundments, pursuant to Section 114 of the CAA. At least, no letters and no responses have been posted on the EPA Subpart W Review website where the EPA has posted inquiries and responses from other mill owners.

16.3. Also, there is documentation that White Mesa Cells 4A and 4B are larger than 40 acres. Any EPA claim that White Mesa Cells 4A and 4B are 40 acres must be supported by documentation.

16.4. There is no documentation from the licensee that supports the assumption that Cell 3 will close in 2014. The DAQ Public Participation Summary for the Dawn Mining Alternate Feed Amendment Request provides information regarding the status of Cell 3:

> Cell 3: Cell 3 was approved by the NRC in September of 1982, and is one of the Mill's two operating cells. It is currently near capacity, but is still accepting byproduct material such as in situ leach waste for direct disposal, an activity authorized by the Mill's license. This material is currently going to Cell 3 rather than Cell 4A. Because byproduct material for direct disposal is delivered by truck rather than by slurry, there must be a minimum amount of tailings in a cell in order to protect the integrity of the cell's liner and other structural elements (e.g., the leak detection system). Cell 4A does not yet have enough tailings in it to allow trucks to drive on it safely, ensuring the liner is property protected. For that reason, and consistent with its License, Energy Fuels has indicated that it intends to continue to use Cell 3 for direct byproduct disposal until those materials can go into Cell 4A. All but approximately seventeen acres of Cell 3 are covered by a clean soil liner. [15]

According to Energy Fuels, the White Mesa Mill will be placed on standby at the end of 2014, pending improvements in market prices.[16] Currently, there is a water cover on the Cell 4A bulk tailings. This means that it may be years before Cell 4A will have enough solid tailings to be used for the disposal of ISL waste. In order to dispose of ISL waste in Cell 4A, the License must be amended, which takes an application, public notice, comment, and an opportunity for a hearing, DAQ review and approval. It may be

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[15] Public Participation Summary, Dawn Mining Alternate Feed Amendment Request, Energy Fuels Resources (USA) Inc. (Energy Fuels) (Utah Radioactive Material License UT1900479), White Mesa Uranium Mill; San Juan County, Utah; July 10, 2014. Page 3. http://www.deq.utah.gov/businesses/E/energyfuels/docs/2014/07Jul/EnergyFuelsDawnMiningPPSummary61014.pdf

[16] http://www.energyfuels.com/investors/press_releases/index.php?content_id=297

years before ISL materials can be disposed of in Cell 4A. Further, for Cell 3 to close, it requires a license amendment and the incorporation of a closure plan and reclamation milestones for Cell 3 into the License. Again, this license application, public participation, and approval process will take some time.

Therefore, for the foreseeable future, Cell 3 will be an operational mill tailings impoundment, subject to the monitoring and reporting requirements in Subpart W.

16.5. There is nothing on the record that would justify any cessation in the monitoring and reporting requirements in Subpart W for Cell 3. In fact, it will be this monitoring and reporting that will assure that, when the tailings impoundment dries out, the expected radon flux increase will be documented in annual Subpart W compliance reports, and any exceedance of the standard will be met with timely and effective mitigative measures. The DAQ and EPA have demonstrated that the unfettered release of radon from the existing Cell 2 as Cell 2 dried out was not acceptable: the radon must be measured, the radon flux reported, and appropriate measures be taken to bring the tailings cell back into compliance with the flux standard when the flux is exceeded. So, why would it be acceptable to do otherwise for Cell 3?

16.4. The EPA has not provided any documentation that would support the assertion that the existing Shootaring Canyon and Sweetwater Mill impoundments have synthetic liners and meet the design standards in Section 61.252(b).

17. Proposed Rule, at II.F.5. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Flux Requirement Versus Management Practices for Conventional Impoundments in Operation Before December 15, 1989 (page 25395, col. 1, ¶ 2), states (in part):

> We were very clear in our 1989 rulemaking that all conventional mill impoundments must meet the requirements of 40 CFR 192.32(a), which, in addition to requiring ground-water monitoring, also required the use of liner systems to ensure there would be no leakage from the impoundment into the ground water. We did this by removing the exemption for existing piles from the 40 CFR 192.32(a) requirements (54 FR 51680). **However, we did not require those existing impoundments to meet either the phased disposal or continuous disposal work practice standards, which limit the exposed area and/or number of conventional impoundments, thereby limiting the potential for radon emissions.** [Emphasis added.]

17.1. It is **not true** that in 1989 the EPA did not require existing impoundments to meet the requirement that limited the number of impoundments and thereby limit the potential for radon emissions. Section 61.252(b)(1) clearly states: "The owner or operator shall have no more than two impoundments, **including existing impoundments**, in operation at any one time." Emphasis added. Also, there is no mention that this impoundment limitation applies to so-called "conventional impoundments."

17.2. Just because the EPA and State of Utah failed to enforce the two-impoundment limitation, does not mean that such a limitation was not a requirement in the Subpart W rule promulgated in 1989.

18. Proposed Rule, at II.F.5. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Flux Requirement Versus Management Practices for Conventional Impoundments in Operation Before December 15, 1989 (page 25395, col. 2, ¶ 1) states (in part):

> We believe that the existing conventional impoundments at both the Shootaring Canyon and Sweetwater facilities can meet the work practice standards in the current Subpart W regulation. The conventional impoundments at both these facilities are less than 40 acres in area and are synthetically lined as per the requirements in 40 CFR 192.32(a).

18.1. Contrary to the EPA's claim that the Shootaring Canyon Mill tailing impoundment is synthetically lined, the tailings impoundment does not have a synthetic liner.[17] [18] The Shootaring Canyon Mill impoundment has a clay liner. The DAQ would not permit the use of that impoundment for the disposal of 11e.(2) byproduct material if the Mill restarts commences processing of uranium ore.

18.2. The Sweetwater Mill tailings impoundment is 60 acres, not 40 acres.[19]

19. Proposed Rule, at II.F.5. Background Information for Proposed Area Source Standards, *How did we gather information for this proposed rule?,* Flux Requirement Versus Management Practices for Conventional Impoundments in Operation Before December 15, 1989 (page 25395, col. 2, ¶ 1) states (in part):

> As a result, we find there would be no conventional impoundment designed or constructed before December 15, 1989 that could not meet a work practice standard. Since the conventional impoundments in existence prior to December 15, 1989 appear to meet the work practice standards, we are proposing to eliminate the distinction of whether the conventional impoundment was constructed before or after December 15, 1989. We are also proposing that all conventional impoundments (including those in existence prior to December 15, 1989) must meet the requirements of one of the two work practice standards, and that the flux

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[17] Tailings Reclamation and Decommissioning Plan for Shootaring Canyon Uranium Project, Garfield County, Utah. License Number SUA-1371 (NRC); UT 0900480 (DAQ). Hydro-Engineering LLC, Environmental Restoration Inc.

[18] John Hulquist, Division of Radiation Control, electronic communication, May 20, 2014.

[19] NRC Staff, electronic communication.

> standard of 20 pCi/m2/sec will no longer be required for the impoundments in existence prior to December 15, 1989.

19.1. The Shootaring Canyon Mill does not have a synthetic liner, therefore it does not meet the requirements of 40 C.F.R. § 192.32(a) and the work practice standard in Section 61.252(b). Also, the EPA has not substantiated the assertion that the Sweetwater Mill has a synthetic liner. Therefore, there is no basis for the EPA's conclusion that the radon flux standard is no longer required.

19.2. If a tailings impoundment meets the work practice standard in Section 61.252(b), it is not a forgone conclusion that the "flux standard of 20 pCi/m2/sec will no longer be required for the impoundments in existence prior to December 15, 1989." The work practice standard should not be used in place of an emission practice standard for any mill tailings impoundment no matter the size and year of construction. The EPA has not and cannot demonstrate that the radon flux standard and monitoring method are unreliable, unfeasible, or have significant technical or economic limitations, pursuant to Section 112(h) of the CAA. Therefore, the EPA cannot replace the emission standard with a work practice standard. Nor can the EPA rely solely on a work practice standard for new tailings impoundments.

19.3. If the EPA relies solely on a work practice standard for uranium mill tailings impoundments, the EPA will sanction the indefinite, unmonitored, unreported, unfettered, and unmitigated release of radon from tailings impoundments.

20. Proposed Rule, at II.H. Background Information for Proposed Area Source Standards, *Why did we conduct an updated risk assessment?* (page 25395, col. 2, to 25396, col. 3).

20.1. The risk assessment information for the White Mesa Mill only references radon emissions from 2008.

20.2. The risk assessment is not supported by actual studies of the health impacts to people living in the vicinity of uranium mills since 1989, or before that time.

20.3. The risk assessment does not consider the risks for other health effects besides cancer from exposure to radon. The EPA must also identify, characterize, and assess those risks.

21. Proposed Rule, at III.B.1. Summary of the Proposed Requirements, *What are the proposed requirements?*, Conventional Impoundments (page 25397, col. 2, ¶ 1), states (in part):

> As discussed earlier, we no longer believe that a distinction needs to be made for conventional impoundments based on the date when they were designed and/or constructed. We believe that the existing conventional impoundments at both the Shootaring Canyon and Sweetwater facilities

> can meet the work practice standards in the current Subpart W regulation. The conventional impoundments at both these facilities are less than 40 acres in area and are synthetically lined as per the requirements in 40 CFR 192.32(a)(1). The existing cell 3 at the White Mesa mill will undergo closure in 2014 and will be replaced with the impoundments currently under construction that meet the phased disposal work practice standard. Therefore, there is no reason not to subject these older impoundments to the work practice standards required for impoundments designed or constructed after December 15, 1989. By incorporating these impoundments under the work practices provision of Subpart W, it is no longer necessary to require radon flux monitoring, and we are proposing to eliminate that requirement.

21.1. As discussed above, the Shootaring Canyon Mill tailings impoundment does not have a synthetic liner. The Sweetwater Mill impoundment is far greater than 40 acres. Further, the EPA has provided no documentation that substantiates the assumption that both the Shootaring Canyon Mill and Sweetwater Mill impoundments can meet the work practice standards of the current Subpart W regulation and, apparently, failed to request the pertinent information about those impoundments from the licensees. White Mesa Mill Cell 3 is an existing tailings impoundments and documentation supports the assumption that Cell 3 will remain in operation for the indefinite future. Further, there is every reason to continue to monitor the radon emissions from existing tailings impoundments until the end of the closure period, so that the EPA will not sanction the indefinite, unmonitored, unreported, unfettered, and unregulated emission of radon from existing tailings impoundments.

21.2. The EPA claims that the White Mesa Mill Cell 3 "will be replaced with the impoundments currently under construction that meet the phased disposal work practice standard." Actually Cell 4A and 4B have already been constructed and are receiving 11e. (2) byproduct material. Tailings slurry and effluents are being placed in Cell 4A, and Cell 4B is being use to contain liquids, including liquids from the dewatering of Cell 2. Cell 3, like Cell 2, is not really being replaced. The number of solid tailings impoundments emitting radon are increasing, and the radon emissions are increasing at the Mill. So, there are at least 5 operating impoundments currently at the Mill (Cell 1, Cell 3, Cell 4A, Cell 4B, and Roberts Pond), a clear violation of the so-called work practice standard that only permits 2 operational impoundments at any one time.

21.3. The regulatory program for existing uranium tailings impoundments at the White Mesa Mill, as it have been implemented since 1989 to the present, must continue. Monitoring and reporting of the radon emissions from Cells 2 and 3 and actions to reduce those radon emissions if the standard is exceeded, as happened at Cell 2 in 2012, must not be eliminated by EPA fiat. Maintaining the requirements in Sections 61.252(a), 61.253, 61.254, and 61.255 is the only way that the EPA can fulfill its statutory responsibility to reduce and control radon emissions.

22. Proposed Rule, at III.B.1. Summary of the Proposed Requirements, *What are the proposed requirements?*, Conventional Impoundments (page 25397, col. 2, ¶ 2), states (in part):

> While we are proposing to eliminate the radon monitoring requirement for these three impoundments under Subpart W, this action does not relieve the owner or operator of the uranium recovery facility of the monitoring and maintenance requirements of their operating license issued by the NRC or its Agreement States. These requirements are found at 10 CFR Part 40, Appendix A, Criterion 8 and 8A. Additionally, NRC, through its Regulatory Guide 4.14, may also recommend incorporation of radionuclide air monitoring at operating facility boundaries.

22.1. 10 C.F.R. Part 40, Appendix A, Criterion 8 and 8A, do not require the monitoring of radon emissions from tailings impoundments, so NRC regulations do not replace the radon emission standards in Subpart W.

22.2. The EPA should have referenced 10 C.F.R. § 20.1301, which requires compliance with an dose standard to the nearest occupant. Recently, the NRC provided an opportunity to comment on NRC revised draft guidance: "Evaluations of Uranium Recovery Facility Surveys of Radon and Radon Progeny in Air and Demonstrations of Compliance with 10 CFR 20.1301."[20] The NRC will now require annual demonstration of compliance. One of the methods for demonstrating compliance and demonstrating the assumptions in a calculated dose assessment is the actual measurement of the radon source emissions. However, since the EPA now believes that the actual measurement of radon emissions from tailings impoundments is not appropriate at any uranium mill, it is unlikely that any uranium mill licensee will be able to justify radon emission assumptions with actual data from tailings impoundments and liquid effluents to support those assumptions over time. It is very short sighted of the EPA not to require licensees to determine the radon emissions from a major source of those emissions.

22.3. Other regulatory requirements that the EPA is conveniently ignoring are the provisions of 40 C.F.R. Part 192.32(a)(3) and 10 C.F.R. Part 40, Appendix A, Criterion 6A. These regulations require a closure plan (radon) and the enforceable reclamation milestones. If, after these milestones have been incorporated into the license as license amendments, the licensee wishes to extend the milestone(s), the licensee must demonstrate compliance with the 20 pCi/m^2-sec radon flux standard. After that, the licensee must demonstrate compliance on an annual basis. Maybe the EPA is not mentioning such requirements because the EPA, NRC, and States of Utah and Colorado are not seeing to it that reclamation milestone requirement is implemented and enforced

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[20] Interim Staff Guidance FSME–ISG–01, ''Evaluations of Uranium Recovery Facility Surveys of Radon and Radon Progeny in Air and Demonstrations of Compliance with 10 CFR 20.1301.'' Revised Draft Report for Comment. March 2014. 79 Fed. Reg. 17194; March 27, 2014. Docket ID NRC-2011-0266.

for the White Mesa and Cañon City Mills. With no milestones, there is no need to extend the milestones if enforceable milestones are not met and, thus, no need to ever again be required to comply with the 20 pCi/m^2-sec standard on an annual basis until the final radon barrier is in place. This lack of milestones provides an open window for indefinite, unmonitored, unreported, unfettered, and unregulated emission of radon from tailings impoundments.

23. Proposed Rule, at III.B.1. Summary of the Proposed Requirements, *What are the proposed requirements?*, Conventional Impoundments (page 25397, col. 2, ¶ 4), states (in part):

> From a cost standpoint, by not requiring radon monitoring we expect that for all three sites the total annual average cost savings would be $29,200, with a range from about $21,000 to $37,000.

23.1. If the licensees of the Shootaring Canyon and Sweetwater Mill would like to save on the annual costs of monitoring their radon emissions, the licensee can commence the long-delayed decommissioning and reclamation. The EPA states that "standby" is a period of time that "usually takes place when the price of uranium is such that it may not be cost effective for the uranium recovery facility to continue operations, and yet the facility has not surrendered its operating license, and may re-establish operations once the price of uranium rises to a point where it is cost effective to do so." The 2 mills on standby last operated in the early 1980's. Since that time there have been times when the price of uranium increased sufficiently to support the operation of the White Mesa Mill and even the licensing of a new mill in Colorado. The most recent uranium price upswing started about 2006, and the White Mesa Mill started mining and processing uranium ore again. That uranium boom, which lasted less than an decade, is now over. During those uranium price upswings, neither the Shootaring Canyon nor the Sweetwater Mill re-established operations. How many more up and down uranium price cycles will have to occur before the regulators realize that these mills are unlikely to operate again and must commence decommissioning and reclamation?

23.2. Also, when a licensee does not wish to continue operations is does not "surrender its operating license." This is a mischaracterization of what happens when a mill ceases operation completely. At that time decommissioning and reclamation, which can last for decades, commences. The license is eventually terminated by the NRC or NRC Agreement State when certain conditions are met and the reclaimed tailings impoundment turned over to the U.S. Department of Energy (or other authorized state or federal authority) for perpetual care and maintenance.

23.3. The costs of monitoring radon emissions at the White Mesa Mill is minimal, considering the money that is being made on the sale of uranium and the assets of the company. The cost of not monitoring radon emissions, for example, if the emissions from Cell 2 had not been monitored, is the indefinite, unmonitored, unreported, unfettered, and unregulated emission of radon from the tailings impoundment.

24. Proposed Rule, at III.B.1. Summary of the Proposed Requirements, *What are the proposed requirements?*, Conventional Impoundments (page 25397, col. 3, ¶ 1), states:

> We determined that the requirements at 40 CFR 192.32(a)(1), which reference the RCRA requirements for design and operation of surface impoundments at 40 CFR 264.221, are the only requirements necessary for EPA to incorporate for Subpart W, as they are effective methods of containing tailings and protecting ground water while also limiting radon emissions. This liner requirement, described earlier in this preamble, remains in use for the permitting of hazardous waste land disposal units under RCRA. The requirements at 40 CFR 192.32(a)(1) contain safeguards to allow for the placement of tailings and yet provide an early warning system in the event of a leak in the liner system. We are therefore proposing to retain the two work practice standards and the requirements of 40 CFR 192.32(a)(1) as GACT for conventional impoundments because these methods for limiting radon emissions while also protecting ground water have proven effective for these types of impoundments.

24.1. The EPA, in relying on 40 C.F.R. § 192.32(a)(1) and 40 C.F.R. § 264.221 for containing tailings and protecting ground water while also limiting radon emissions, fails to recognize the fact that, as tailings impoundments are dewatered to protect groundwater, radon emissions can be expected to increase. The active dewatering of Cell 2 at the White Mesa Mill in 2011 and 2012 resulted in an increase in the radon flux to above the Subpart W regulatory standard. Under the Mill's Ground Water Discharge Permit (UGW-370004), the licensee was required to accelerate dewatering of solutions in the Cell 2 slimes drain.[21] As the pore moisture in the tailings impoundment decreased, the radon emissions increased. The radon emissions subsequently exceeded the radon flux standard for existing mill tailings impoundments. As the EPA would now have it, that monitoring that determined that an exceedance had occurred and the mitigative measure taken to bring the impoundment back into compliance should not even have occurred. Rather, the EPA has determined that Cell 2 and Cell 3 no longer need to be monitored and the radon emission are better left in the realm of the unknown. Since the radon emissions will not be ascertained, there will be no reason to conduct such frivolous (and costly) activities as determining the cause of radon emission exceedances or taking corrective actions, cleaning up windblown tailings, or placing additional clean materials on top of the impoundment. This also applies to new tailings impoundments. According to the EPA, it's just better not to know what the radon emissions really are.

24.2. EPA regulations at 40 C.F.R. § 192.32(a)(1) and 40 C.F.R. § 264.221 do not require any additional measures to control radon emissions from an impoundment once it is constructed and throughout the life of the impoundment, including the dewatering period. These provisions do not require clean material on top of an impoundment to attenuate the radon emissions. These provisions do not take into consideration the

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[21] http://www.uraniumwatch.org/whitemesamill/EFR-DAQ_SupartWAnnualRpt.130329.pdf

placement of materials containing thorium-232 and progeny or material containing higher than expected levels of radium-226 (possibly from the disposal of wastes other than tailings from the processing of natural ore).

24.3. EPA regulations at 40 C.F.R. § 192.32(a)(1) and 40 C.F.R. § 264.221 do not protect uranium tailings impoundments, whether they contain solid tailings or liquid effluents, from impacts caused by extreme weather events; for example, hurricanes or tornadoes. The EPA has provided no engineering data and information that supports any claim that 40 C.F.R. § 192.32(a)(1) and 40 C.F.R. § 264.221 assure that solid and liquid tailings will not be dispersed outside the confines of a liquid effluent impoundment (of indeterminate size, since the EPA will not regulate the size of such effluent ponds) or a solid tailings impoundment.

24.4. An "early warning" leak detection system at the bottom of a tailings impoundment is irrelevant for the control of radon emissions from the top of an impoundment.

24.5. EPA's claim that 40 C.F.R. § 192.32(a)(1) as GACT is sufficient for conventional impoundments because these methods for limiting radon emissions, while also protecting ground water, have proven effective for these types of impoundments. The EPA has no data on new tailings impoundment at a licensed uranium mill that supports this assertion. The only new tailings impoundment subject to the current Section 61.252(b)(1) provisions are Cells 4A and 4B, at the White Mesa Mill. Cell 4A has only been receiving tailings slurry for a short period of time, and Cell 4B is only receiving processing liquids. It will be decades before a determination can be made regarding the extent to which the design and work practice standards in Section 61.252(b) actually limit radon emissions while also protecting ground water.

24.6. The EPA, licensees, and the public will not know exactly how effective 40 C.F.R. § 192.32(a)(1) and 40 C.F.R. § 62.252(b) are in limiting radon emissions, because there will be no requirement to actually measure those radon emissions under Subpart W. Plus, there is no definition of "effective," such as a radon flux limit, to use to determine whether the design and work practice standards are actually "effective." And, with no monitoring, if the provisions do not prove "effective," there is no way to know that and no requirement to mitigate any lack of effectiveness. Is this what the CAA contemplated?

25. Proposed Rule, at III.B.2. Summary of the Proposed Requirements, *What are the proposed requirements?*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids (page 25397, col. 3, ¶ 2), states:

> Today we are proposing a GACT standard specifically for non-conventional impoundments where uranium byproduct materials are contained in ponds and covered by liquids. Common names for these structures may include, but are not limited to, impoundments and evaporation or holding ponds. These affected sources may be found at any

of the three types of uranium recovery facilities.

25.1. The whole discussion of "Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids" is very confusing and should be rewritten. Title says that Nonconventional Impoundments are those where tailings are contained in ponds and covered by liquids. However, tailings in "convention ponds" are also covered or partially covered by liquids during much of the operating life of the impoundments. The EPA does not differentiate between impoundments at conventional uranium mills that contain bulk tailings and are covered by liquids and the "nonconventional" impoundments that are specifically used to hold, and sometimes treat or evaporate, liquids. The EPA fails to discuss the fact that conventional impoundments designed for the long-term disposal of solid tailings are often used to hold liquid effluents prior to being used for the disposal of solid tailings; for example Cell 4B at the White Mesa Mill.

25.2. The terminology "nonconventional impoundments" is confusing. It implies that these impoundments are only at uranium recovery facilities other than conventional uranium mills and that conventional impoundments are found at conventional uranium mills. The EPA should use another term to avoid confusion.

25.3. The main difference between a "nonconventional impoundment" and a newly defined "conventional impoundment" is that the latter is used for permanent disposal of uranium mill tailings, whether or not the impoundment contains liquids, liquids and solids, semi-solids, or solids at any one time. An impoundment that will be used for permanent disposal of 11e.(2) byproduct material can sometimes contain mainly liquids or solid tailings covered by a liquid. The definition of these 2 types of impoundments should reflect their long-term purpose, not what they contain at any one time.

25.4. If the EPA intends to regulate impoundments that are not designed for the permanent disposal of 11e.(2) byproduct material, the EPA must be a lot clearer about what exactly is being regulated and the justification for such regulation. Accurate terminology and accurate descriptions are important.

26. Proposed Rule, at III.B.2. Summary of the Proposed Requirements, *What are the proposed requirements?*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids (page 25397, col. 3, ¶ 3), states (in part):

> These units meet the existing applicability criteria in 40 CFR 61.250 to classify them for regulation under Subpart W. The holding or evaporation ponds located at conventional mills, ISL facilities and potentially heap leach facilities contain uranium byproduct material, either in solid form or dissolved in solution, and therefore their emissions are regulated under Subpart W.

26.1. Here, the EPA states that the emissions from nonconventional impoundments, which hold liquid effluents, are regulated under Subpart W. Not so! There is no radon emission standard for these liquid effluent impoundments and no requirement to determine the radon flux. Based on recent data, the radon flux from the nonconventional Cell 1 at the White Mesa Mill, the radon flux is 228.9 pCi/m^2-sec. This is based on EPA's determination that at the White Mesa Mill, the radon flux is 7.0 pCi/m^2-sec for every 1,000 pCi/L of radium[22] and data on the radium content of Cell 1 in 2013.[23] *See* Section IV. 45.11, below. Since the radium content fluctuates over time, the radon flux will also fluctuate. The EPA has for decades claimed that the radon flux from liquid holding ponds is negligible and did not need to be measured or calculated. It is blatantly false to state that the emissions from these liquid impoundments have ever been regulated under Subpart W.

26.2. Since 1989, the EPA failed to include liquid impoundments when calculating the number of operational tailings impoundments, which are limited to 2. Further Roberts Pond at the White Mesa Mill, which also holds liquid effluents, was never approved pursuant to the requirements of 40 C.F.R. §§ 61.07 and 61.08.

27. Proposed Rule, at III.B.2. Summary of the Proposed Requirements, *What are the proposed requirements?*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids (page 25398, col. 1, ¶ 2), states (in part):

> Evaporation or holding ponds, while sometimes smaller in area than conventional impoundments, perform a basic task. They hold uranium byproduct material until it can be disposed. Our survey of existing ponds shows that they contain liquids, and, as such, this general practice has been sufficient to limit the amount of radon emitted from the ponds, in many cases, to almost zero. Because of the low potential for radon emissions from these impoundments, we do not believe it is necessary to monitor them for radon emissions. We have found that as long as approximately one meter of liquid is maintained in the pond, the effective radon emissions from the pond are so low that it is difficult to determine whether there is any contribution above background radon values. *EPA has stated in the Final Rule for Radon-222 Emissions from Licensed Uranium Mill Tailings: Background Information Document* (August, 1986):

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[22] Risk Assessment Revision for40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings: Task 5 – Radon Emission from Evaporation Ponds; S. Cohen and Associates, November 9, 2010.

[23] White Mesa Mill 2013 Annual Tailings Wastewater Monitoring Report; Groundwater Quality Discharge Permit, UGW370004, Energy Fuels Resources (USA) Inc., November 1, 2013. http://www.radiationcontrol.utah.gov/Uranium_Mills/denison/docs/2013/dec/2013AnnualTailingsReportFinal.pdf

27.1. The liquid holding pond (Cell 1) at the only operating conventional mill is about 55 acres. Liquids are often held in such ponds so that the liquids can be recirculated in the uranium recovery operation.

27.2. The EPA's assertion that "Because of the low potential for radon emissions from these impoundments, we do not believe it is necessary to monitor them for radon emissions," is not supported by the facts. Based on the EPA's calculations and data from the White Mesa Mill regarding the radium content of the liquids in Cells 1, 3, 4A, and 4B, the radon emissions from those cells range from 102.2 pCi/m^2-sec to 573.3 pCi/m^2-sec. *See* Section IV. 45.11, below.

27.3. The EPA can no longer mislead the public regarding the significant levels of radon that are being emitted from liquids effluents at the White Mesa Mill. The radon emissions from these liquids must monitored and controlled. The EPA must require compliance with the current radon emission standard for liquids.

27.4. The quote from the August 1986 Background Information Document is confusing, because it applies to conventional impoundments, not what the EPA now defines as "nonconventional impoundments."

28. Proposed Rule, at III.B.2. Summary of the Proposed Requirements, *What are the proposed requirements?*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids (page 25398, col. 1, ¶ 3), states:

> Therefore, we are proposing as GACT that these impoundments meet the design and construction requirements of 40 CFR 192.32(a)(1), with no size/area restriction, and that during the active life of the pond at least one meter of liquid be maintained in the pond.

28.1 There is now documentation that the radon emissions from liquid impoundments at conventional mills is 5 times or more than the current radon standard for existing tailings impoundments. *See* Section IV. 45.11, below. The more impoundments, the larger the size of those impoundments, the more radon will be emitted. The number and size of these impoundments, particularly at conventional mills, must be limited in size and number.

28.2. A single meter of radium-laden effluents will not limit the radon emissions at liquid impoundments. The radium will continue to be a source of radon emissions.

28.3. One reason for limiting the size and number of liquid impoundments is the propensity for liquid impoundments at in-situ leach operations to leak or spill their contents. The larger the impoundment, the more liquids are available to leak from an impoundment and the greater the possibility that during construction there will be flaws in the impoundment. Additionally, in regions where liquid impoundments may be

compromised, or even destroyed, due to hurricanes or tornadoes, a smaller impoundment would be easier to control and repair or replace.

28.4. The EPA does not define "active life of a pond." The EPA failed to discuss the radon emissions when there is no longer one meter of liquid or when there are only solids after the liquids have evaporated. The EPA must consider the whole life cycle of a nonconventional impoundment (now referred to as "ponds) and the radon emissions up to the time the nonconventional impoundment is removed and disposed of in a conventional impoundment as part of decommissioning.

28.5. The EPA must also consider whether there is greater turbulence at larger impoundments and, thus, greater dispersal of radon and radon progeny from liquid impoundments.

28.6. The EPA may not adopt a work practice standard (whether GACT or MACT) in lieu of an emission standard unless that Administration determines that an emission standard is not feasible. The Administrator has not made such a finding. Therefore, the EPA must adopt an emission standard for nonconventional impoundments. *See* Section II, above.

29. Proposed Rule, at III.B.2. Summary of the Proposed Requirements, *What are the proposed requirements?*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids (page 25398, col. 1, ¶ 4, to col. 2, ¶ 1), states (in part):

> We are also proposing that no monitoring be required for this type of impoundment. We have received information and collected data that show there is no acceptable radon flux test method for a pond holding a large amount of liquid. (Method 115 does not work because a solid surface is needed to place the large area activated carbon canisters used in the Method). Further, even if there was an acceptable method, we recognize that radon emissions from the pond would be expected to be very low because the liquid acts as an effective barrier to radon emissions; given that radon-222 has a very short half-life (3.8 days), there simply is not enough time for most of the radon produced by the solids or from solution to migrate to the water surface and cross the water/air interface before decaying (EPA–HQ–OAR–2008–0218– 0087). It therefore appears that monitoring at these ponds is not necessary for demonstrating compliance with the proposed standards. We do, however, ask for comment and supporting information on three issues: (1) Whether these impoundments need to be monitored with regard to their radon emissions, and why; (2) whether these impoundments need to be monitored to ensure at least one meter of liquid is maintained in the pond at all times, and (3) if these impoundments do need monitoring, what methods could a facility use (for example, what types of radon collection devices, or methods to measure

liquid levels) at evaporation or holding ponds.

29.1. The EPA is ignoring data that shows that there are high levels of radon emissions from the liquid impoundments, both the liquids in the Cell 1 evaporation pond (now to be defined as a nonconventional impoundment) and the liquids on top of and in the conventional impoundments Cells 3, 4A, and 4B. *See* Section IV. 45.11, below. The EPA has already determined that the radon flux from liquid impoundments can be determined by calculations based on the meteorological conditions and radium content of the liquids.[24] The EPA's assumption that the radon emissions from liquid impoundments are minimal and do not need to be determined by measurement or calculation has no basis in fact.

29.2. The radon emissions from liquid impoundments need to be determined based on the radium content of the liquids and local meteorological conditions. The radium content fluctuates over time, the effluents are added, fluids evaporate, sediments accumulate, and the underlying tailings or sediments increase and the radiological content changes. Therefore, measurement of radium and calculation of the radon flux must occur at least quarterly at conventional mills and there must be methods for removing the radium. The radon flux standard for "existing" impoundments must be made applicable to existing and new conventional and nonconventional impoundments that hold liquid effluents.

29.3. If the liquids in a nonconventional impoundment evaporate to expose solid sediments, regular radon flux measurements must be taken.

29.4. The EPA must amend Method 15 to include an honest and accurate methodology to calculate the radon emissions from liquid impoundments, base on meteorological data, radium content, and any other relevant parameter. These calculations must take place at least quarterly. The licensee must not be permitted to average the radon flux from liquid impoundments with the radon flux measurements on solid tailings.

29.5. Licensees, particularly conventional mill licensees, must be required to use a technical methodology for removing radium from the liquid effluents in order the reduce the radium content and resulting radon emissions to meet the radon emission standard. One generally available technical method is the treatment of effluents with barium chloride to remove radium. The EPA must also explore other technologies that are available, whether defined as GACT or MACT. The EPA can no longer allow high high levels of radon to be emitted at the White Mesa Mill.

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[24] Risk Assessment Revision for 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings: Task 5 – Radon Emission from Evaporation Ponds; S. Cohen and Associates, November 9, 2010.

29.6. When measuring the radium content, the licensee must measure the radium-224 content (thorium-232 decay chain) as well as radium-226. Thousands of tons of materials containing thorium-232 and progeny were disposed of at the White Mesa Mill. Therefore, radium-224 will be present in the Mill's liquid effluents.

29.7. There may be other effective methods for measuring radon emissions from liquid effluents. These could be used to verify radon emission calculations.

30. Proposed Rule, at III.B.3. Summary of the Proposed Requirements, *What are the proposed requirements?*, Heap Leach Piles (page 25398, col. 2 to col. 3):

30.1. The discussion of heap leach piles does not contain information about the process of developing a heap leach pile and the amount of ore that would be placed in such a pile, and the time it would take to create a heap leach pile. There is no information about the life cycle of these operations and how radon emissions will be controlled.

30.2. The EPA references a presentation by Titan Uranium presentation to the to the NRC of May 24, 2011 (NRC Accession No. ML111740073; NRC Docket No. 40-9094) (Titan 2011). There are some claims and assumptions in that presentation that must be addressed by the EPA. The Titan presentation contains a list of "Our Understandings" (slide 53): 1) There are no size limits on the size of **active** heaps (emphasis in original); 2) heap pad designs are approved solely by the NRC; 3) process pond designs are approved solely by NRC; and 4) heap material only become tailings (11e.(2) byproduct material) once active uranium recovery is complete. Titan also states (slide 54) that "Part 61 applies only to spent heap material (tailings)." All of these assumptions appear to be contrary to the EPA's assumptions in the discussion of Subpart W provisions applicable to heap leach operations. Whether or not these assumptions reflect the current thinking of the current owner of the Sheep Mountain Project (Energy Fuels), the EPA must respond to the assumptions in the 2010 Titan presentation.

30.3. The EPA BID has a minimal discussion of heap leaching and a proposed heap leach operation in Wyoming. The discussion references the Titan Uranium 2011 presentation to the NRC, which includes a conceptual design and outline of a heap leach operation. However, Energy Fuels' April 30, 2013, conceptual and operational design for the same facility is very different that that of Titan (NRC Accession No. ML13144A693). Also, Energy Fuels has not submitted an application and has not communicated with the NRC about the project since May 2013.

30.4. Neither the FRN nor the BID provide a complete and accurate description of a potential heap leach operation and the potential radon emissions during the whole heap leach operational process, including ore stockpiling, ore crushing, ore loading and placement prior to leaching, length of time ore will be exposed prior to leaching, leaching schedule, exposure of ore during leaching process, emissions after leaching when leach piles dry out, and possible methods of reducing radon emissions during the life of a heap leach pile. The EPA must regulate the radon emissions from all aspects of the operation,

not just the heap leach piles. EPA must regulate the emission of radon during the period of time the heap leach piles are drying out, when the radon emissions increase. Although heap leaching is usually used on low-grade ore, the method removed about 70% of the uranium, so the wastes may have higher levels of radon emissions than those of typical uranium ore tailings. The EPA must also consider the uranium dust that results from crushing, ore transportation, and loading to create the heap leach piles.

30.5. Commenters support a radon emission monitoring from all radon and other radionuclide sources at a heap leach operation.

30.6. The EPA must also consider the radon emissions when a licensee creates a heap leach pile, but fails to conduct a leaching operation, or interrupts that operation.

30.7. The proposal to require the licensee to maintain 30% moisture content in a heap leach pile might not be technically feasible and may interfere with the leaching process. The 30% moisture is based on the definition of "dewatering" of conventional tailings impoundments, where most of the uranium has been removed from the tailings.

31. Proposed Rule, at III.C. Summary of the Proposed Requirements, *What are the monitoring requirements?* (page 25399, col. 1, § 1):

> Since we have now determined that existing older conventional impoundments can meet one of the two work practice standards, we are proposing to eliminate the radon flux monitoring requirement.

31.1. As discussed above, the EPA has not demonstrated with facts and documentation that existing older conventional impoundments "can meet one of the two work practice standards." Licensing records for the Shootaring Canyon Mill document the fact that the mill does not have a "synthetically" lined impoundment. Rather it has a clay impoundment. Further, Cells 3 at the White Mesa Mill meets the definition of an existing impoundment (constructed prior to December 1989 and licensed to receive 11e. (2) byproduct material for disposal) and will continue to be regulated by the DAQ as an existing impoundment subject to the Section 61.252(a) radon flux standard. Therefore, there is no factual or regulatory support for the elimination of the Section 61.252(a) radon flux monitoring requirement.

31.2. Additionally, the EPA has not shown that the use of a work practice and design standard meets the requirements of the CAA at Section 112(h), therefore there is no legal justification for eliminating the radon flux monitoring requirement.

31.3. Elimination of the radon flux monitoring requirement is not supported by the need for continual monitoring of existing tailings impoundments to control the radon emissions as the tailings piles dry out prior to placement of the final radon barrier.

31.4. Even if "existing" impoundments met one of the two design and work practice standards in Section 61.252(b), that is still no justification for eliminating the

requirement for radon monitoring, reporting, and control at White Mesa Mill Cell 3 at the very time when Cell 3 will likely be dewatered. This dewatering has, and will continue to, cause an increase in the radon emissions. That increase must be monitored, documented, studied, reported, and mitigated. It is the EPA responsibility to regulate radon emissions, not deregulate these emissions, as currently proposed.

32. Proposed Rule, at III.C. Summary of the Proposed Requirements, *What are the monitoring requirements?* (page 25399, col. 1, § 2), states (in part):

> In reviewing Subpart W we looked into whether we should extend radon monitoring to all affected sources constructed and operated after 1989 so that the monitoring requirement would apply to all conventional impoundments, nonconventional impoundments and heap leach piles containing uranium byproduct materials. We also reviewed how this requirement would apply to facilities where Method 115 is not applicable, such as at impoundments totally covered by liquids.

32.1. First of all, the EPA has not demonstrated that there is a factual and legal basis for the use of a design and work practice standard in place of an emissions standard for "existing" impoundments complies with the statutory requirements of Section 112(d) and 112(h) of the CAA.

32.2. Second, the EPA has not demonstrated that there is factual and legal basis for EPA's determination that "existing" conventional mill impoundments can meet one of the two work practice standards in Section 61.252(b).

32.3. There is no basis for the assumption that conventional tailings impoundments that currently meet the definition of "existing" impoundments meet one of the two design and work practice standards in Section 61.252(b). The White Mesa Mill Cell 3 is more than 40 acres, and the EPA has no knowledge regarding when Cell 3 will no longer be licensed to receive 11e.(2) byproduct material; therefore, for the purposes of this Rulemaking, Cell 3[25] is an "existing" impoundment subject to Section 61.252(a) standard and the monitoring and reporting requirements in Sections 61.253 and 61.254. There is no documentation on the record of this Rulemaking that supports the notion that tailings impoundments at the Shootaring Canyon and Sweetwater Mills have synthetic liners. However, there is documentation that the Shootaring Canyon Mill has a clay liner, not a synthetic liner.[26] There is no documentation that the Sweetwater Mill impoundment is 40 acres.

33. Proposed Rule, at III.C. Summary of the Proposed Requirements, *What are the monitoring requirements?* (page 25399, col. 1, § 2), states (in part):

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[25] White Mesa Cell 2 also meets the definition of "existing" impoundment in Section 61.252(a).

[26] http://www.deq.utah.gov/businesses/U/uraniumone/docs/2012/03Mar/DRC-2012-001447.pdf

> We concluded that the original work practice standards (now proposed as GACT) continue to be an effective practice for the limiting of radon emissions from conventional impoundments and from heap leach piles.

33.1. "Effective" is a relative term, which the EPA has not defined. The EPA does not state what expectations the EPA has for the limiting of radon emissions. Without any standard and without any measurements there is no basis for assuming that any design or work practice standards are "effective. "

33.2. There is no basis for the EPA's conclusion that the work practice standards "continue to be an effective practice for the limiting of radon emissions from conventional impoundments . . . ." There are only 2 conventional tailings impoundment in operation that were constructed according to the design and work practice standard in Section 61.252(b)(1), impoundments 4A and 4B at the White Mesa Mill. Cell 4A was reconstructed in 2007/2008. Cell 4A has operated for only a few years and currently has about a 100% water cover, because the impoundment has not accumulated bulk tailings above the water surface. Cell 4B is only receiving liquid effluents, including liquids from the dewatering of Cell 2. Since there are no radon monitoring and reporting requirements, there is no data to support the assertion that the radon emissions have been effectively limited or will continue be limited. There is data, however, on the emission of radon from the liquid cover. Data shows that the radon emissions from Cells 4A and 4B are over 100 pCi/m^2-sec. *See* Section IV. 45.11, below.

33.3. There is no basis for the EPA's conclusion that the work practice standards "continue to be an effective practice for the limiting of radon emissions from . . . heap leach piles." There are no licensed heap leach piles and no evidence of any radon emissions being effectively limited from heap leach piles. The EPA assertion is absurd.

34. Proposed Rule, at III.C. Summary of the Proposed Requirements, *What are the monitoring requirements?* (page 25399, col. 1, § 2), states (in part):

> We also concluded that by maintaining an effective water cover on nonconventional impoundments the radon emissions from those impoundments are so low as to be difficult to differentiate from background radon levels at uranium recovery facilities.

34.1. There is no citation for the assertion that maintaining an effective water cover on nonconventional impoundment would cause radon emissions to be close to background.

34.2. The Rulemaking Risk Assessment for Radon Emission from Evaporation

Ponds[27] does not support this assertion. The Risk Assessment for Radon Emission from Evaporation Ponds does not fully consider the radon emissions from nonconventional impoundments at conventional uranium mills. This may be due to the fact that the White Mesa Mill licensee did not respond to the EPA's May 2009 request for information regarding the evaporation ponds and other radioactive emissions at the Mill.[28] There is no description of the White Mesa Mill liquid impoundments and no data on actual emissions on the Rulemaking Docket. The Risk Assessment estimates 7.0 pCi/m^2-sec radon emissions per 1,000 pCi/L of radium in a White Mesa Mill liquid impoundment. However, the Risk Assessment does not tie that to actual radium concentrations in Cell 1, Roberts Pond, or Cell 4A (which receives liquids, but was designed and constructed as a conventional impoundment). Nor does the Risk Assessment tie their formula to the actual radium concentrations from the pond on top of Cell 3 or the liquids in Cell 4A. The EPA could have obtained information about the radium content of those liquid impoundments in order to determine how far above background, or above the radon flux standard, the radon emissions have been for the White Mesa liquid impoundments. If the radium content is above 3,000 pCi/L, as has been reported for Cell 1,[29] the radon emissions would be greater than 20.0 pCi/m^2-sec. Comparing radon emissions from ISL liquid pond total radon emissions is not the same as comparing to background.[30]

35. Proposed Rule, at III.C. Summary of the Proposed Requirements, *What are the monitoring requirements?* (page 25399, col. 1, § 2), states (in part):

> Therefore, we are proposing today that it is not necessary to require radon monitoring for any affected sources regulated under Subpart W. We seek comment on our conclusion that radon monitoring is not necessary for any of these sources as well as on any available cost-effective options for monitoring radon at non- conventional impoundments totally covered by liquids.

35.1. The EPA has no factual or legal basis for it desire to forego radon monitoring requirements and a radon emission standard for any affected sources regulated under Subpart W. As discussed above at Section II, the provisions of Section 112(d) and 112(h) require a determination by the Administrator that it is not feasible

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[27] Risk Assessment Revision for 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings; Task 5 – Radon Emission from Evaporation Ponds, by S. Cohen & Associates, November 9, 2010.

[28] http://www.epa.gov/radiation/docs/neshaps/subpart-w/uranium-denison-test.pdf

[29] White Mesa Mill 2013 Annual Tailings Wastewater Monitoring Report; Groundwater Quality Discharge Permit, UGW370004, Energy Fuels Resources (USA) Inc., November 1, 2013. http://www.radiationcontrol.utah.gov/Uranium_Mills/denison/docs/2013/dec/2013AnnualTailingsReportFinal.pdf

[30] Risk Assessment Revision for 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings; Task 5 – Radon Emission from Evaporation Ponds. Table 11, page 20.

prescribe or enforce an emission standard for control of radon emissions from uranium recovery facilities.

35.2. The EPA's justification for removing any requirement for radon monitoring from "existing" impoundments is that any remaining "existing" impoundments will be closed at some undetermined time in the future or already meet the Section 1.252(b)(1) work practice and design standard. However, the Shootaring Canyon Mill impoundment does not have a synthetic liner, and there is no documentation that the Sweetwater Mill's impoundment is 40 acres or less.

35.3. Basically, what the EPA is saying is that knowledge and awareness of the level of radon emissions from tailings impoundments and liquid storage impoundments is a bad thing. Apparently, the EPA feels that it is so much better if the licensee, EPA, DAQ, NRC, workers, and the community are not aware of the level of radon emissions from conventional and nonconventional impoundments. If there is a radon emission standard and requirement to reduce the emissions if the standard is exceeded that can only lead to the difficulties. The licensee will have to spend money and the public will be concerned, so the best plan is for everyone to remain ignorant of the radon emission levels and any increase in those level, particularly when a tailings impoundment is drying out. As the EPA sees it, de-regulation is better than having pesky radon emission standards that have to be enforced. It's the EPA's equivalent of "Don't Ask, Don't Tell."

35.4. It is necessary to monitor radon for affected sources in order to assure that radon emissions are kept as low as reasonably achievable.

35.5. The EPA has not explained why—at the very time that the radon emissions for tailings cells at the White Mesa that are drying out and exceeded the emission standard and can be brought back into compliance because of monitoring, reporting, and timely corrective action—the most appropriate thing the EPA can do to reduce radon emissions during dewatering is to eliminate the requirement for radon monitoring as dewatering continues. Clearly, there the GACT work practice standard that would be an "effective practice" for limiting the radon emissions from dewatered. It is the monitoring, reporting, and timely corrective actions that have proved to be the "effective practice" for limiting the radon emissions from tailings impoundments that are drying out.

36. Proposed Rule, at III.D. Summary of the Proposed Requirements, *What are the notification, recordkeeping and reporting requirements?* (page 25399, col. 1, ¶ 4 to col. 2, ¶ 1), states (in part):

> Today we are also proposing that all affected sources will be required to maintain certain records pertaining to the design, construction and operation of the impoundments, both including conventional impoundments, and nonconventional impoundments, and heap leach piles. We are proposing that these records be retained at the facility and contain

> information demonstrating that the impoundments and/or heap leach pile meet the requirements in section 192.32(a)(1), including but not limited to, all tests performed that prove the liner is compatible with the material(s) being placed on the liner. For nonconventional impoundments we are proposing that this requirement would also include records showing compliance with the continuous one meter of liquid in the impoundment; [29] for heap leach piles, we are proposing that this requirement would include records showing that the 30% moisture content of the pile is continuously maintained. . . . Records showing compliance with the one meter liquid cover requirement for nonconventional impoundments and records showing compliance with the 30% moisture level required in heap leach piles can be created and stored during the daily inspections of the tailings and waste retention systems required by the NRC (and Agreement States) under the inspection requirements of 10 CFR 40, Appendix A, Criterion 8A.

36.1. The EPA appears to disregard the fact that the affected sources are also regulated by the NRC or an NRC Agreement State under the Atomic Energy Act. The NRC and Agreement States have found that one element of an effective regulatory program is public participation and the timely availability of pertinent licensing and permitting documents. Transparency is required if the public is to have any confidence in government regulatory programs.

36.2. The EPA is, in fact expanding its Subpart W regulatory program. An EPA regulatory program demands public knowledge and public participation. Public participation demands the timely availability of pertinent documents. So, by proposing that pertinent compliance records be retained at the sites and not be submitted to the EPA, the EPA is making sure that documents related to Subpart W compliance will not be available to the public. This policy of withholding information from the public is not a policy of openness and transparency. It shows a lack of confidence in the uranium recovery licensees and the EPA and State regulatory staff.

36.3. In a day and age when most documents are created and retained electronically or can be readily scanned and made available electronically, there is no justification for the EPA not requiring the submittal of records that document compliance with Subpart W requirements. Further, some of the documents EPA does not care to take and make available to the public—via a website that posts the Subpart W regulatory documents or via a Freedom of Information Act (FOIA) request—will also need to be submitted to the NRC or Agreement State as part of their source material license. There is no excuse for the EPA not to require the submittal of all relevant Subpart W compliance records.

36.4. In sum, any records demonstrating compliance with Subpart W must be submitted to the EPA or EPA authorized state in a timely manner. The revised Subpart W must include a schedule for the timely submittal of this documentation.

36.5. Documents showing that the impoundments and/or heap leach pile meet the requirements in Section 192.32(a)(1) are required as part of the pre-construction application submitted under 40 C.F.R. § 61.07. However, there was a situation where those documents were not submitted and there was no application submitted under 40 C.F.R. § 61.07 and no approval under 40 C.F.R. § 61.08. This was the reconstruction and relining of Cell 4A at the White Mesa Mill. The EPA had approved the construction of that impoundment in the 1980s, prior to the promulgation of the current Subpart W requirements. The impoundment was constructed in 1989 and licensed to receive tailings in 1990.[31] Little material was placed in the impoundment, and it eventually deteriorated and need to be cleaned out and replaced. The Utah DRC approved the design and construction of a replacement impoundment and liner system. However, the licensee at the time (Denison Mines) did not submit a application to the Utah Division of Air Quality, which administers and enforces Subpart W and other radionuclide NESHAPS in Utah, pursuant to 40 C.F.R. § 61.07. Rather, the licensee relied on the pre-December 1989 EPA approval of the construction of Cell 4A. As it was, Cell 4A is approximately 40 acres (though a few acres more) and was constructed pursuant to Section 192.32(a)(1).[32] However, the DAQ and EPA had no active role in assuring that the reconstructed Cell 4A met those Section 192.32(a)(1) requirements.

Therefore, Subpart W must include provisions related to the reconstruction or replacement of a solid tailings or liquid impoundment. A licensee must be required to submit a new Section 61.07 application and receive a Section 61.08 approval before reconstructing or replacing a conventional or nonconventional impoundment. There shouldn't be cracks in the Subpart W regulatory program.

36.6. Additionally, there should be a limit on the time between the authorization of the construction of an impoundment and when it is actually constructed. A licensee should not be able receive approval of construction, then construct the impoundment years, if not decades, later. Authorization should have an expiration date, requiring a new application after 5 years if the impoundment has not been constructed and used.

37. Proposed Rule, at IV. A. Rationale for This Proposed Rule, *How did we determine GACT?* (page 25400, col. 1, ¶ 4), states:

> As provided in CAA section 112(d)(5), we are proposing standards representing GACT for this area source category. In developing the proposed GACT standards, we evaluated the control technologies and management practices that are available to reduce HAP emissions from the affected sources and identified those that are generally available and utilized by operating uranium recovery facilities.

37.1. The EPA has not, but should, provide a regulatory and technical justification

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[31] http://www.epa.gov/radiation/docs/neshaps/subpart-w/denisionresponsetosection114letter.pdf

[32] http://www.radiationcontrol.utah.gov/Uranium_Mills/IUC/cell4a/IUC.htm

for relying on the GACT described in Section 112(d)(5) in place of MACT, as described in Section 112(d)(2). The EPA must explain their use of "discretion." What, exactly, was the basis for that determination? Just stating that it was based on information received from industry and other stake holders is not an explanation. The EPA cannot make a discretionary determination without explaining, with particularity and specificity, the reasoning behind that determination.

37.2. The EPA should make a full comparison of all the potential GACT and MACT that might be used to control radon emissions from uranium recovery operations.

37.3. The EPA should have identified the "control technologies and management practices that are available to reduce HAP emissions from the affected sources and identified those that are generally available and utilized by operating uranium recovery facilities" that the EPA reviewed and evaluated. These would include technologies used or previously used at conventional mills, ISLs, and heap leach operations. For example, in the past heap leaching was done in vats.

37.4. The EPA did not give full consideration of the technologies that are generally available and utilized by operating uranium recovery facilities. Most specifically, the EPA does not include a description of and evaluate the technologies and management practices associated with compliance with 40 C.F.R. § 61.252(a). This is an egregious omission.

38. Proposed Rule, at IV. A. Rationale for This Proposed Rule, *How did we determine GACT?* (page 25400, col. 2, ¶ 2, below Table 1), states (in part):

> We identified two general management practices that reduce radon emissions from affected sources. These general management practices are currently being used at all existing uranium recovery facilities. First, limiting the area of exposed tailings in conventional impoundments limits the amount of radon that can be emitted. The work practice standards currently included in Subpart W require owners and operators of affected sources to implement this management practice by either limiting the number and area of existing, operating impoundments or covering dewatered tailings to allow for no more than 10 acres of exposed tailings.

38.1. Of significance is the fact that the work practice standards currently included in Subpart W do not include a requirement to limit the area of exposed tailings by any other method, other than limiting the general size of the impoundment. This standard does not require the limitation of the exposed tailing by the maintenance of a water cover or saturated tailings or the placement of soil on the impoundment when it is technically feasible. The current work practice standard in Section 61.252(b) has only been applied to one impoundment and only recently (White Mesa Mill Cell 4A). Therefore, the EPA has no information whatsoever regarding the effectiveness of this methodology at a currently operating uranium mill. What the EPA is ignoring are the

general management practices that have been applied to the "existing" affected sources over the past 25 years. The EPA has not explained the reason for disregarding these general management practices. Such disregard of the management practices that have been used at "existing" conventional impoundments since Subpart W was promulgated in 1989 is hard to comprehend.

38.2. The EPA must provide data on the radon emissions from tailings that are dry on top (but uncovered), saturated tailings, and liquids that are being used to attenuate radon on top of solid tailings. The EPA has always maintained that a water cover reduces the radon emissions from solid tailings impoundments. More data is needed to substantiate that assumption.

38.3. The EPA is disregarding the GACT that are currently being used to reduce radon emissions: 1) water on top of conventional impoundments,[33] 2) keeping tailings wet, 3) placement of soil as tailings dry out, and 4) monitoring the radon, reporting the radon flux, and taking corrective actions to bring the radon flux back into compliance with the standard. These are the primary technologies and work practices being used at conventional mills to reduce radon emissions, yet the EPA is completely disregarding these methods.

39. Proposed Rule, at IV. A. Rationale for This Proposed Rule, *How did we determine GACT?* (page 25400, col. 2, ¶ 3 to col. ¶ 1, below Table 1), states (in part):

> Second, covering uranium byproduct materials with liquids is a general management practice that is an effective method for limiting radon emissions. This general management practice is often used at nonconventional impoundments, which, as stated earlier, are also known as evaporation or holding ponds.

39.1. This discussion is confusing. First, there is no requirement in the proposed rule for the use of liquids on top of conventional impoundments to attenuate the radon. The EPA does not acknowledge the fact that the liquids in nonconventional evaporation pond or holding ponds are the uranium byproduct material. The nonconventional impoundments are there to hold and sometimes evaporate liquids, not hold solids covered by liquids. Some sediments and solids may be at the bottom of these ponds, but the solids come from the liquid wastes. So, a management practice for liquids in nonconventional ponds is not covering the solids with liquids. The management practice is placing liquids in these ponds for evaporation, recycling, treatment and discharge, or other containment purposes (e.g., prior to deep well disposal or land application), because the liquids that are the byproduct material that must be contained in the ponds. Without

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[33] There is now data the brings into question the effectiveness of maintaining a liquid cover over solid tailings. The radon emissions from the liquid cover on Cell 3 at White Mesa are far above the emission standard, and the emissions are not controlled.

these liquid wastes, there is no need for the ponds. It is primarily the radium in the liquids that produce the radon. The liquids are not there to reduce the radon emissions.

39.2. The EPA must provide a clearer description of these evaporation and holding ponds, their purpose, how they are created, how sediments accumulate, and other relevant information.

39.3. Since it is now apparent that nonconventional effluents and the liquid in conventional impoundments can be major sources of radon emissions, the EPA must fully consider the methods (GACT and MACT) that will be required to reduce those emissions and the need for a radon standard and demonstration of compliance for these types of impoundments.

40. Proposed Rule, at IV. A. Rationale for This Proposed Rule, *How did we determine GACT?* (page 25400, col. 3, ¶ 1, below Table 1), states (in part):

> While this management practice of covering uranium byproduct materials in impoundments with liquids is not currently required under Subpart W, facilities using this practice have generally shown its effectiveness in reducing emissions in both conventional impoundments (that make use of phased disposal) and nonconventional impoundments (i.e. holding or evaporation ponds). We are therefore proposing to require the use of liquids in nonconventional impoundments as a way to limit radon emissions.

40.1. This paragraph is confusing. The purpose of nonconventional impoundments is to hold liquids that are contaminated with radium and other radionuclides. How can you use liquids as a way to limit radon emissions in an impoundments that serve to contain and evaporate liquid effluents? Is it that additional, non-contaminated water would serve to dilute and radium and limit the emissions?

40.2. Recent White Mesa Mill data regarding the radon emissions from liquids in nonconventional impoundments and those placed in and on conventional impoundments demonstrates that the radon emissions from these liquids is greater than 100 pCi/m^2/sec. *See* Section IV. 45.11, below. *See*, also, 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings. Calculation Brief: Radon Emissions from Evaporative Ponds White Mesa Uranium Mill, July 7, 2014.[34] Therefore, the EPA must demonstrate that, in fact, the presence of liquid processing effluents on top of or in conventional tailings impoundments limit radon emissions.

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[34] Non Privileged Records (July-Sept 2014, Part 1), pages 405-416.
http://www.epa.gov/radiation/docs/neshaps/npr/2014-july-sept-part1.pdf
Non Privileged Records (July-Sept 2014, Part 2) pages 1-3 and 200-246.
http://www.epa.gov/radiation/docs/neshaps/npr/2014-july-sept-part2.pdf

40.3. The EPA must also consider whether the radium-laden processing effluents actually increase the radon emissions in conventional and nonconventional impoundments at conventional mills.

40.4. The EPA must analyze the radon emissions from liquid-covered impoundments that are produced during the transfer of radium-laden effluents to and between impoundments and during enhanced evaporation sprays.

41. Proposed Rule, at IV. B.2. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Conventional Impoundments (page 25402, col. 1, ¶ 1) states (in part):

> We are proposing as the GACT standard that *all* conventional impoundments—both existing impoundments and new impoundments—comply with one of the two work practice standards, phased disposal or continuous disposal, because these methods for limiting radon emissions by limiting the area of exposed tailings continue to be effective methods for reducing radon emissions from these impoundments (reference EPA 520–1–86–009, August 1986). We are proposing that existing impoundments also comply with one of the two work practice standards because, as discussed earlier, we no longer believe that a distinction needs to be made for conventional impoundments based on the date when they were designed and/or constructed.

41.1. As was discussed above, there are conventional impoundments that meet the definition of "existing" impoundments in Section 61.251(d) and are subject to the emission standard in Section 61.252(a), but do not meet the work practice standard in Section 61.252(b). Cells 2 and 3 at the White Mesa Mill are licensed to accept additional tailings and were in existence as of December 15, 1989. Cells 2 and 3 do not meet the work practice standards in Section 61.252(b) because they are greater than 40 acres. There is no evidence on the Subpart W Rulemaking Docket that supports EPA's assertion that the tailings impoundments at the Shootaring Canyon Mill in Utah and the Sweetwater Mill in Wyoming have synthetic liners and meet the requirements of 40 C.F.R, § 192.32(a)(1). There is evidence that the tailings impoundment at the Shootaring Canyon Mill has a clay, not a synthetic, liner.[35] Therefore, at least 3 current existing conventional impoundments cannot meet the work practice standard at Section 61.252(b).

41.2. The EPA proposal to solely rely on a design and work practice standard for both existing and new conventional tailings impoundments is contrary to the CAA Section 112 provisions that apply to this Emission Standard rulemaking. Specifically, Section 112(h) provisions do not authorize the adoption of a design or work practice standard in place of an emission standard unless a determination has been made by the

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[35] http://www.radiationcontrol.utah.gov/Uranium_Mills/uraniumone/docs/2012/March/DRC-2012-001447.pdf

Administrator that it is not feasible to prescribe or enforce an emission standard for control of a hazardous air pollutant. Given the 25-year history of the enforcement of the radon emission standard for existing uranium tailings impoundments, it is doubtful that the Administrator could honestly make such a finding.

41.3. The EPA asserts that the Section 61.252(b) minimal work practice standards are the only ones necessary for both existing and new impoundments "because these methods for limiting radon emissions by limiting the area of exposed tailings continue to be effective methods for reducing radon emissions from these impoundments." However, as discussed above, there is only one, new conventional impoundment that is licensed to receive tailings. That ~ 40-acre impoundment was recently constructed to meet the Section 61.252(b)(1) design and work practice standard. So, there is really no data regarding the effectiveness of this design standard to reduce the area of exposed tailings, as compared to the effectiveness of the use of water or soil on existing impoundments (which are not required under the proposed Rule) for limiting the area of exposed tailings. There is no data that shows that the Section 61.252(b) design and work practice standard will be as effective or more effective for reducing radon than the use of Section 61.252(a) emission standard and the generally accepted methodologies for complying with that standard.

41.4. The EPA is completely ignoring the emission standard and the work practices that have been used for over 25 years to effectively reduce radon emissions to meet that standard. Without a radon flux standard to comply with, there will be no incentive to use the most effective methods of keeping the radon emissions within the regulatory standard. It is the radon emission standard and the practices that are used to comply with that standard that are the most effective methods of reducing radon emissions. A work practice standard that only requires a certain size impoundment, but no requirement to take any active measures during the life of the impoundment to reduce the radon emissions and no requirement to even measure the radon emissions does not assure that the emissions will be kept a low as reasonably achievable.

41.5. The EPA must provide a full evaluation of the differences in the short and long term radon emissions associated with phased disposal and continuous disposal. The EPA must justify not requiring continuous disposal method for all new impoundments. This comparison is especially relevant given the fact that any ponded water on top of a phased disposal impoundment may emit high levels of radon. Any comparison must look at the radon emissions from various phases of impoundments that use the continuous and phased disposal methods.

41.6. The provisions in Section 112(d)(3) for New and Existing Sources state: "The maximum degree of reduction in emissions that is deemed achievable for new sources in a category or subcategory shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator." The emission control practice for current existing impoundments (that is, a radon flux emission standard, monitoring, reporting, placement of a soil barrier when

parts of the impoundment are dry, and corrective actions when the standard is exceeded) generally achieve a radon emission level of below 20 pCi/m^2-sec. The EPA has not demonstrated that the reduction of emissions solely by the use of the 40-acre tailings impoundment design standard for new impoundments will achieve the same or higher level of radon emission control as used at existing impoundments. Therefore, the EPA has not demonstrated, with facts and data, that maximum degree of reduction in emissions that is deemed achievable for new sources (that is, new impoundments) will not be less stringent than the current emission controls currently in use at existing tailings impoundments (that is, the combination of a radon flux emission standard, monitoring, placement of a soil barrier when parts of the impoundment are dry, and corrective actions when the standard is exceeded.

41.7. Clearly, the EPA must require the use of the most effective methodologies for reducing the emission of radon from conventional uranium tailings impoundments. This means that the CAA and the application of the most effective methodologies to reduce radon emissions require that the radon-flux standard in Section 61.252(a) be applied to all conventional tailings impoundments, no matter when they were constructed.

42. Proposed Rule, at IV. B.2. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Conventional Impoundments (page 25402, col. 1, ¶ 2) states:

> We are also not aware of any conventional impoundments either in existence or planned that use any other technologies or management practices to reduce radon emissions. Operators continue to use the general management practices discussed above for reducing radon emissions from their conventional impoundments, i.e., limiting the size and/or number of the impoundments, and covering the tailings with soil or keeping the tailings wet. These management practices form the basis of the work practice standards for conventional impoundments and continue to be very effective methods for limiting the amount of radon released to the environment.

42.1. This paragraph is misleading. The EPA claims that the "covering the tailings with soil or keeping the tailings wet" are general management practices used to reduce radon emissions. However, the proposed Subpart W Rule does not include any requirement to implement those practices. The EPA implies that they are; but, they are not. Therefore, these methodologies are not part of the general management practices that the EPA will require for conventional impoundments in the revised Subpart W.

42.2. The EPA claims that they are not aware of any conventional impoundments either in existence or planned that use any other technologies or management practices to reduce radon emissions. The EPA is perfectly aware that of the most prevalent methodology used to reduce radon emissions at conventional impoundments is the

combined use of a radon emission standard, monitoring, annual reporting, monthly reporting and investigation if the emissions exceed the standard, corrective actions along with the practice of maintaining a moisture content in the tailings, and placement of soil when areas of the impoundment have dried out. This package of management practices is based on the radon flux limitation. Without a radon flux standard, there is no definition of "effective" when it comes to technologies and management practices. Without the radon flux standard and the requirement to demonstrate compliance, there is no necessity under Subpart W to maintain a moisture content or a soil cover to limit the exposed tailings. Without the radon flux standard and monitoring there is no way to determine whether the soil cover is effectively limiting the radon emissions to the desired level. Without monitoring, there would be no awareness of the actual amount of the radon emissions and no awareness of any increase in those emissions. Without a requirement to take timely corrective actions to lower radon emissions if the standard is exceeded, there would be no necessity for determining the cause of the radon emission increase, nor the necessity of taking any mitigative measures. Without a radon emission standard there is no incentive to propose or try new technologies.

So, it is the radon emission standard and provisions that implement that standard in Subpart W that have been used as means of assuring that the radon emissions will be kept as low as reasonably achievable.

42.3. Other measures to reduce radon emissions are the cleanup of windblown tailings, adding additional fill on areas that have higher emissions, as determined by radon emission monitoring. There are probably ways to deposit tailings in the impoundment that do not create small areas with higher radon emissions. The only way to determine whether there may be areas of higher radium concentration, windblown tailings, or other issues related to radon emissions is through annual monitoring across the tailings area.

42.4. The EPA should identify the maximum available technologies that could be used to reduce radon emissions at uranium mills. Additionally, the EPA must compare the expected radon emissions from impoundments using the phased disposal methods as opposed to continuous disposal methods. Considering the fact that conventional mills do not operate continuously, but experience both short and long-term periods of non-operation, the EPA must consider requiring smaller impoundments that use continuous disposal methods. Data and information on the costs and effectiveness of these methods over the life of a conventional mill should be considered. In addition to reducing the potential for radon emissions via continuous disposal, dry tailings do not hold liquids that can leak into the groundwater. Leakage of tailings fluids into groundwater has been, and will continue to be, an ongoing issue at conventional uranium mills.

42.5. No matter how the industry or the EPA defines "operating" or "closure," the fact is that radon monitoring at "existing impoundments" needs to continue during and after the placement of an interim cover on the impoundment and when an impoundment is drying out, whether reduction of water on top of or within a tailings pile occurs

naturally or via active dewatering. The EPA acknowledged that if the impoundment is allowed to dry out, "emissions can increase significantly."[36] As stated in the 1989 Final Rule: "EPA recognizes that the risks from mill tailings piles can increase dramatically if they are allowed to dry and remain uncovered."[37] Tailings dry out during periods of low precipitation and reduced ore processing. For every impoundment there comes a time when the impoundment must be dried out to remove standing liquids and pile moisture to facilitate settlement of the impoundment (necessary for placement of the final radon barrier) and to reduce the potential for leakage of tailings effluents and groundwater contamination. This dewatering process can take decades.

42.6. In 1989 the EPA addressed the problem of the increase in radon emissions during the "closure" period, by establishing a 20 pCi/m^2-sec limit on emissions and a schedule for compliance.[38] However, 40 C.F.R. Part 61 Subpart T was rescinded for commercial uranium mills, based on the assumption that the NRC and Agreement State programs would assure timely placement of an interim cover and final radon barrier.[39] The EPA assumed that there would be approved closure (reclamation) plans and reclamation milestones for the reclamation of tailings impoundments. However, there is no approved closure plan and no reclamation milestones for the Cotter Mill (Cañon City, Colorado) or for Cell 2 at the White Mesa Mill, as required by 10 C.F.R. Part 40 Appendix A, Criterion 6A, and 40 C.F.R. § 192.32.

42.7. The recent experience at the White Mesa Mill for Cell 2 demonstrates the need for and effectiveness of continued monitoring of an "existing" impoundment prior to the placement of the final radon barrier and during the dewatering period. In 2012 the radon emissions from Cell 2 increased due to dewatering and windblown tailings. Due to compliance with the Subpart W requirements for "existing" impoundments, the licensee became aware of the radon emission increases, discovered the cause, and took corrective actions. Corrective actions included cleanup of windblown tailings and placement of additional soil cover. Therefore, continued monitoring at "existing" and at any new impoundments is part of a program to assure that effective measures are taken to reduce emissions. Another reason for the monitoring program is that data on the relationship between dewatering and the increase in radon emissions has been collected.

The only way to attenuate the radon emissions throughout this period is 1) knowledge of what the radon emissions are through monitoring, 2) a radon emission limit, 3) investigation of the causes of the emissions, 4) identification of the actions that would effectively reduce the emissions over the long term, 5) and corrective actions. These provide another reason to continue monitoring for radon emissions.

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[36] 56 Fed. Reg. 51654, 51679, col. 2, ¶ 3; December 15, 1989.

[37] 56 Fed. Reg. 51654, 51680, col. 2, ¶ 2.

[38] 56 Fed. Reg. 51654, 51702. 40 C.F.R. Part 61 Subpart T, § 61.222(a).

[39] http://www.epa.gov/radiation/docs/neshaps/subparttrecission.pdf

42.8. Given the high level of radon emissions from the liquid effluents on top of the White Mesa Mill Cell 3 (*See* Section IV. 45.11, below), the EPA must reconsider its assumption that maintaining a pond of radium laden fluids on top of tailings impoundments is an effective means of limiting the radon emissions. The EPA must throughly examine, with supporting data, whether or not these liquid ponds should be permitted and whether or not all tailings should be dewatered before placement in a tailings impoundment. The EPA must determine the difference between emissions from tailings that are "wet" and tailings covered by radium laden processing fluids. The EPA must consider the radon emissions during the drying out period for wet tailings that are disposed of in phases, as compared to the emissions from dry tailings that are dewatered prior to "continuous" disposal.

43. Proposed Rule, at IV. B.2. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Conventional Impoundments (page 25402, col. 1, ¶ 3) states:

> These work practice standards are a cost-effective method for reducing radon emissions from conventional impoundments. In addition, the liner requirements for conventional impoundments are also required by the NRC in their licensing requirements at 10 CFR part 40. Therefore, we are proposing that GACT for conventional impoundments will be the same work practice standards as were previously included in Subpart W.

43.1. The liner requirement is supposed to serve two (2) purposes: 1) prevent the contamination of ground and surface water from the leakage of tailings fluids from the tailings impoundment and 2) hold water in the impoundment so that liquids on top of the within the pile that serve to attenuate the radon do not leak from the pile. However, with no specific radon flux limit and no requirement for active measures to attenuate the radon emissions with liquids in and on the impoundment, the liner system serves a minimal radon reduction function under Subpart W.

43.2. As discussed above, the proposed GACT does not include the work practice standards that the EPA claims have been cost effective methods for reducing radon emissions at conventional impoundments. GACT does not include monitoring, a radon flux limit, active measures (such as the use of fluids or soil) to attenuate the radon, or any other active measure beyond the limitation of the size of the impoundment and use of a liner system. (Assuming here that no mill used the continuous tailings disposal method.)

44. Proposed Rule, at IV. B.3. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids, (page 25402, col. 3, ¶ 3) states (in part):

> The holding or evaporation ponds located at conventional mills, ISL facilities and potentially heap leach facilities contain uranium byproduct materials, either in solid form or dissolved in solution, and therefore their

HAP emissions are regulated under Subpart W.

44.1. Commenters agree with the EPA that holding or evaporation ponds at conventional mills, ISL facilities, and any heap leach facilities fall under the authority of the EPA under Section 112 of the CAA and the radionulide NESHAPS in Subpart W. Section 112(b) of the CAA gives the EPA the authority to regulate radionuclides, including radon.

44.2 Commenters do not agree with the EPA that it should limit its authority over radon to emissions to uranium mill tailings, liquid effluent ponds, heap leach piles. Radon is emitted, and sometimes in significant amounts from other areas and sources at these uranium recovery facilities. Large amounts of radon are emitted from wellfields and other parts of ISL operations. The radon emissions from the Smith Ranch-Highland operation in Wyoming is quite high, yet the EPA takes no responsibility under the CAA for the regulation of those emissions. The EPA must assert its authority under the CAA to all sources of radon emissions at uranium recovery operations.

44.3. The EPA and/or the DAQ consistently failed to enforce the work practice standard applicable to both existing and new tailings impoundments since 1989. The EPA and DAQ failed to enforce the 2-impoundment provision in Section 61.252(b)(1): "The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time." The EPA never applied this requirement to both tailings piles and liquid impoundments at conventional mills. The EPA avoids a discussion of this fact in the Proposed Rule.

45. Proposed Rule, at IV. B.3. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids, (page 25402, col. 2, ¶ 4 to col. 3, ¶ 1) states (in part):

> We are proposing that these nonconventional impoundments (the evaporation or holding ponds) must maintain a liquid level in the impoundment of no less than one meter at all times during the operation of the impoundment. Maintaining this liquid level will ensure that radon-222 emissions from the uranium byproduct material in the pond are minimized. We are also proposing that there is no maximum area requirement for the size of these ponds since the chance of radon emissions is small. Our basis for this determination is that radon emissions from the pond will be expected to be very low since the liquid in the ponds acts as an effective barrier to radon emissions; given that radon-222 has a very short half-life (3.8 days), there simply is not enough time for approximately 98% of the radon produced by the solids or from the solution to migrate to the water surface and cross the water/air interface before decaying.

45.1. The EPA states above that a nonconventional impoundment is where tailings are contained in ponds covered by liquids. Then in the quote above, it states that nonconventional impoundments are evaporation ponds or holding ponds. It is confusing because the EPA claims that nonconventional impoundment is where tailings are contained in ponds covered by liquids. That is just not the case. As stated in the proposed definition of nonconventional impoundment, nonconventional impoundments contain uranium byproduct material suspended in and/or covered by liquids. The ponds exist to hold liquids effluents, not solid wastes. The solids are suspended in the liquids and may eventually settle to the bottom. It is also the case that conventional impoundments are used as liquid holding ponds before they transition to use for the deposition of solid wastes.

45.2. There are times when a liquid impoundment will hold less than 1-meter of liquids. For example, when White Mesa Cell 4B, which is currently receiving liquids needs to transition to an impoundment that only receives tailings slurry. Some impoundments are used to hold liquids prior to deep well disposal, off-site discharge after treatment, or land application. In these instances or when it is necessary to dry out the impoundment for repair or during periods of limited or standby operations, the operator may have a reason decrease the liquid level below the 1-meter level. Some ponds do not have enough depth to have 1-meter of liquid and a free space above the liquid level. The EPA regulation must take all design and operating contingencies into consideration.

45.3. The EPA must consider more than just the radon emissions from a nonconventional impoundment in determining whether a size limit is not required. The EPA must also consider the primary function of a nonconventional impoundment: containment of the liquids within the impoundment.

There is a long history of leakage and spills from liquid impoundments. The EPA should provide data and information regarding leakage from liquid impoundments. That data should include information on nonconventional impoundments that have leaked. Information that may be included: the name of facility, impoundment number or other identifier, date of leakage was detected, length of time of leakage, time before discovery of the leak, rate of leakage, size of the impoundment, amount of liquid released, nature of liner and leak detection system, reason for leaks, cleanup, liner replacement, and other pertinent information. The EPA should provide information that compares stresses and strains on liner systems that could cause leakage for different sizes of impoundments; for example, underlying ground and materials, wind, waves, temperature differences, sunlight, liquid pressure, and other influences. All things being equal, the stability and long-term performance of a liner system and liquid impoundment may be influenced by the size. The EPA and the public must have the information necessary to determine how the size of an impoundment may impact not just the radon emissions, but the long-term stability and performance of the liquid impoundment.

45.4. A larger impoundment will hold more liquids so there are more fluids to leak, particularly when there is a significant failure of the system. Therefore, failures of

liquid impoundments of large areas and liquid volume would have more significant impacts than those of a smaller size.

45.5. The EPA does not differentiate between a nonconventional liquid impoundment that is designed only hold liquids and a conventional one that will hold liquids, but will eventually be used to hold more solid tailings for disposal and perpetual storage. An example is Cell 4B at the White Mesa Mill. Such impoundments must be limited in size.

45.6. The EPA has not adequately addressed the possibility of large liquid impoundments in a region, such as Virginia, where impoundments are constructed to hold processing fluids from tailings impoundments for treatment to remove radium, particulates, and possibly uranium and hazardous constituents, pursuant to 40 C.F.R. § 440.34(b)(2).[40] The EPA has not evaluated the long-term stability and performance of various sizes of impoundments in a region that is subject to flooding, hurricanes, and tornadoes. One would expect that the impact of extreme weather events on impoundments of a large size would be greater that impacts on smaller impoundments. The EPA has provided no information about these types of impoundments and the differences in long-term stability and performance for different size impoundments that are subject to extreme weather events.

45.7. The EPA must limit the size of nonconventional liquid impoundments.

45.8. The information provided by the Risk Assessment for Radon Emissions from Evaporation Ponds [41] does not support the notion that the radon emissions from liquid impoundments will be "very low" and "the chance of radon emissions is small." Also, the EPA has not defined "low" or "very low." The Risk Assessment concluded:

> Using actual radium pond concentrations and wind speed data, Equation 13 was used to calculate the radon pond flux from several existing ISL sites. It was determined that the radon flux ranged from 0.07 to 13.8 pCi/m2-sec (see Table 10). From this, it can be seen that the radon flux above some evaporation ponds can be significant (e.g., may exceed 20 pCi/m2-sec).

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[40] 40 C.F.R. § 440.34.(b)(2): "In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equivalent to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section."

[41] Risk Assessment Revision for40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings: Task 5 – Radon Emission from Evaporation Ponds; S. Cohen and Associates, November 9, 2010; page 26.

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> Again, using actual ISL site data, the total annual radon release from the evaporation ponds was calculated and compared to the reported total radon release from the site. As Table 11 shows, the evaporation pond contribution to the site's total radon release is small (i.e., <1%).

One the one hand, the Risk Assessment states that the radon flux from some evaporation ponds can be significant, on the other hand, the Risk Assessment states that the evaporation ponds total contribution to radon emissions is small. First, the Risk Assessment is only considering emissions at ISL operations, not at conventional mills. That is not made clear in these conclusions. Second, the EPA should not be evaluating radon emissions in comparison to total site radon emissions. A radon emission standard is applicable to a particular source (for example, evaporation pond or tailings pile), not a source in comparison to other possible sources or total sources at a particular uranium recovery operation. So, the radon emissions from a particular evaporation pond—as compared to total emissions from an ISL operation—is irrelevant. Additionally, the EPA has been mandated to regulate radon and reduce radon emissions at uranium recovery operations, which includes all radon emission sources, not just evaporation ponds. The EPA has identified very high levels of radon emissions from other sources at an ISL operations. Therefore, the EPA must also regulate the radon emissions from those other site sources.

45.9. The Evaporation Pond Risk Assessment at Table 2: Radon Flux for Various Radium Concentrations[42] shows the radon flux from three conventional mills and the eight ISL facilities for radium concentrations of 1, 100, and 1,000 pCi/L. The Risk Assessment concludes, "The fluxes at the largest concentration, while below the criteria, are not negligible." However, the largest concentration is not the actual concentration, it is the concentration per 1000 pCi/L. So, a pond with a concentration of 36,700 pCi/L would have a radon flux far in excess of the current 20 pCi/m^2-sec criteria. The Risk Assessment should have, but did not, compare the actual radon flux for the various evaporation ponds at conventional mills.

45.10. Table 2 fails to include, for comparison, the actual radium concentrations for the evaporation ponds at ISL and conventional mills. There is no data in the Subpart W Rulemaking Docket regarding the radium concentration in liquid impoundments at the Sweetwater and White Mesa Mills. So information regarding the actual radon flux from

[42] Id. Page 17.

those mills is completely disregarded by the EPA. Therefore, the EPA has no basis for the assumption that those emissions will be "very low" (what ever that means).

45.11. There is recent data regarding the radium concentration at the impoundments at the White Mesa Mill.[43] The White Mesa Mill 2013 Annual Tailings Wastewater Monitoring Report[44] provides data on the Gross Radium Alpha (pCi/L) for the liquids in 4 impoundments.

Table. 1. White Mesa Mill Radium Concentration and Radon Flux for 2013.

Cell	Gross Radium Alpha	Radon Emissions
Cell 1	32,700 pCi/L	228.9 pCi/m^2-sec
Cell 3	81,900 pCi/L	573.3 pCi/m^2-sec
Cell 4A	15,800 pCi/L	110.6 pCi/m^2-sec
Cell 4B	14,600 pCi/L	102.2 pCi/m^2-sec

Cell 1 is a liquid evaporation pond, Cell 4B is being used for the storage of tailings liquids, Cell 4A is almost entirely covered by liquids, and Cell 3 has a liquid pond on top of the more solid tailings. The information for Table 1 is based on the assumption provided by the EPA that a White Mesa liquid impoundment has a radon flux of 7.0 pCi/m^2-sec for every 1,000 pCi/L of radium. Unfortunately, the EPA never required the White Mesa licensee to report on the radium content of the liquids in the tailings cells and calculate the radon flux based on those measurements. This data and the data provided by the Ute Mt. Ute Tribe[45] demonstrates that the radon emissions from the liquid effluents in conventional and nonconventional impoundments at the White Mesa Mill are significant and must be controlled. The data also challenges the long-held assumption that a pond of processing fluids on top of a conventional impoundment serves to limit radon emissions to an insignificant levels.

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[43] http://www.radiationcontrol.utah.gov/Uranium_Mills/denison/tailingswastewater_rpt.htm

[44] White Mesa Mill 2013 Annual Tailings Wastewater Monitoring Report; Groundwater Quality Discharge Permit, UGW370004, Energy Fuels Resources (USA) Inc., November 1, 2013. http://www.radiationcontrol.utah.gov/Uranium_Mills/denison/docs/2013/dec/2013AnnualTailingsReportFinal.pdf

[45] Non Privileged Records (July-Sept 2014, Part 1), pages 405-416. http://www.epa.gov/radiation/docs/neshaps/npr/2014-july-sept-part1.pdf
Non Privileged Records (July-Sept 2014, Part 2) pages 1-3 and 200-246. http://www.epa.gov/radiation/docs/neshaps/npr/2014-july-sept-part2.pdf

45.12. The data for White Mesa Mill liquid impoundments does not support the EPA's claim that radon emissions from evaporation ponds "will be expected to be very low" and "the chance of radon emissions is small." In fact, at the White Mesa Mill, these radon emissions are very high. Cell 1, designed to contain and evaporate liquid effluents, is 55 acres. Cell 4B is approximately 40 acres, because it was designed to hold solid tailings. Therefore, no liquid impoundment should be over 40 acres at a conventional mill. The EPA should consider further limits on impoundments specifically designed to hold liquids at conventional mills, given the high radon fluxes from those impoundments.

45.13. The discussion of the attenuation of radon emanation by water (i.e., the amount by which a water cover will decrease the amount of radon emitted from the impoundment) implies that there is "water" on top of a liquid tailings impoundment. That is not the case. Any plain water in a nonconventional fluid impoundment is there due to precipitation or addition by the mill operator. That water does not form a "cover" to existing effluents, it serves to dilute the existing liquids and create a deeper cover over any sediments at the bottom of the pond.

46. Proposed Rule, at IV. B.3. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids, (page 25402, col. 3, ¶ 4 to page 25403, col. 1, ¶ 1) states:

> The benefit incurred by this [1-meter of liquid] requirement is that significantly less radon will be released to the atmosphere. The amount varies from facility to facility based on the size of the nonconventional impoundment, but across existing facilities radon can be expected to be reduced by approximately 24,600 curies, a decline of approximately 93%.

46.1. There is no factual basis for the assumption that maintaining 1-meter of liquid on existing or proposed nonconventional liquid impoundments will result in a decline of approximately 93% of radon emissions.

46.2. The 1986 Nelson and Rogers study that the EPA uses to support this assertion is a study of liquid covers on top of conventional tailings piles. The Nelson and Rogers study is not a study of the radon emissions from nonconventional liquid impoundments. The purpose and function of nonconventional impoundments is to contain liquid 11e.(2) byproduct material. It is not the function of nonconventional impoundments to hold solid wastes and cover them with water or other liquids. A liquid nonconventional impoundment may contain sediments that sink to the bottom of the liquid impoundment or are precipitated out through the addition of barium chloride.

46.3. Nelson and Rogers' conclusion that at least 1-meter of water would serve to greatly attenuate radon emissions from a tailings impoundment applies to conventional tailings piles. The EPA's proposed 1-meter liquid cover requirement only applies to nonconventional impoundments that hold mostly radium-bearing liquids with some

sediments below the liquids. Therefore, the assumptions associated with 1-meter of water on top of a conventional tailings pile do not apply to nonconventional liquid effluent impoundments.

46.4. There is no information in the Evaporation Pond Risk Assessment regarding the depth of existing nonconventional impoundments and how maintaining a 1-meter liquid level would serve decrease the level of radon emissions for those impoundments if less than 1-meter of liquid was maintained; say, 1 or 2 feet.

46.5. Evaporation Pond Risk Assessment estimation of the radon emissions from nonconventional impoundments is based on wind disturbance and the radium concentration of the fluids. It is not based on the depth of the water. The primary factor for the radon emissions is the radium content of the liquid effluents, not the depth of those fluids. The nonconventional impoundments at the White Mesa Mill already emit high levels of radon.

47. Proposed Rule, at IV. B.3. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids, (page 25403, col. 1, ¶ 4 to page 25403, col. 1, ¶ 2 to ¶ 3) states (in part):

> If the evaporated water is not replaced by naturally occurring precipitation, then it would need to be replaced with make-up water supplied by the nonconventional impoundment's operator. The most obvious source of water is what is known as ''process water'' from the extraction of uranium from the subsurface.

47.1. The Proposed Rule only refers to make-up water at a ISL operation and ignores the sources of make-up water at a conventional mill. The liquids at the White Mesa Mill are primarily processing solutions, or raffinates, that come from the processing of the ore in the mill. They do not come from the extraction of uranium from the subsurface. The Mill also disposes of storm-water run off and mill laboratory wastes in Cell 1. The Mill solutions can come directly from the processing circuit or from slimes drains or other dewatering system.

47.2. Although the EPA's primary concern is radon from the decay of radium, processing solutions at conventional uranium mills also include chloride, fluoride, magnesium, ammonia, potassium, sodium, sulfate, arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, uranium, vanadium, and zinc. VOCs (acetone, chloroform, chloromethane, methylethyl ketone), and other radiological and non-radiological constituents. These solutions are also very acidic.

47.3. The Proposed Rule does not make clear whether a licensee must maintain 1-meter of liquid on a conventional tailings impoundment that is being used for evaporation of mill solutions. One White Mesa Mill conventional impoundment receives

Mill tailings and is being used for evaporation of processing solutions (Cell 4A), the other just for the evaporation of Mill solutions (Cell 4B). Only Cell 1 and Roberts Pond are dedicated to the containment of Mill solutions and would be considered to be nonconventional impoundments.

47.4. Based on recent White Mesa Mill data on the radium content and radon emissions from the liquid effluent ponds or impoundments(See Section IV. 45.11, above), there is no basis for the assumption that maintaining 1-meter of fluid will significantly reduce radon emissions. In fact, it is the radium laden fluids themselves that are the source of the significant radon emissions. There is not enough clean water available at the Mill to continually dilute the fluid impoundments. Other methods, such as dewatering the tailings before placement in the conventional impoundments, and use of barium chloride to remove radium from impoundments that are being used to hold or evaporate fluids (whether a conventional or nonconventional impoundment) must be considered by the EPA.

48. Proposed Rule, at IV. B.3. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Nonconventional Impoundments Where Tailings Are Contained in Ponds and Covered by Liquids, (page 25403, col. 2, ¶ 2) states (in part):

> We conclude that this proposed requirement is a cost-effective way to significantly reduce radon emissions from nonconventional impoundments, and is therefore appropriate to propose as a GACT standard for nonconventional impoundments.

48.1. As discussed above at 1.1, under Sections 112(d) and (h) of the CAA the EPA cannot establish a design, equipment, work practice, or operational standard, or combination thereof (whether through the application of maximum available technologies or generally available technologies) **in lieu of** an emission standard unless the Administrator finds that it is not feasible to prescribe or enforce an emission standard, meaning that the the application of a measurement methodology is not technologically and economically practicable.

The Proposed Rule does not include such a finding by the Administrator for the radon emissions from nonconventional liquid and tailings solution impoundments at conventional mills and ISL facilities. Commenters do not believe that the Administrator could make such a finding with respect nonconventional liquid impoundments. Also, the Administrator could not make such a finding with respect conventional impoundments that are being used to evaporate mill solutions.

48.2. The Evaporation Pond Risk Assessment provides a methodology for determining the radon emissions from liquid impoundments based on wind turbulence data and the fluid's radium concentration. The Risk Assessment discusses the development of this model and methodology and how to use the model to calculating the radon flux from liquid impoundment. The EPA and the NRC has traditionally used

modeling and calculations as a method for determining compliance with a radionuclide emission or dose standard. Additionally, radon monitoring devices have been floated on liquid impoundments to determine the radon flux, and measurements have been made near the impoundments to determine radon emissions.

48.3. In sum, the EPA cannot rely on a 1-meter liquid standard to control and reduce radon emissions from nonconventional uranium recovery liquid impoundments, because such a stand-alone standard dose not meet the statutory requirements of the CAA. The EPA must establish an emission standard and develop feasible methodologies for demonstrating compliance with that standard. As discussed above, the 1-meter of liquid requirement would likely do little to reduce the high levels of radon emissions at the nonconventional impoundments at the White Mesa Mill. At some facilities, it would require large amounts of uncontaminated water that is not readily available or may be costly.

48.4 There are other generally available technologies that the EPA is not considering. The Evaporation Pond Risk Assessment concluded that the use of barium chloride would reduce the radon emissions.[46] There has been a significant reduction of radon emissions from liquid impoundments at the Smith Ranch-Highlands facility through the treatment of the fluids and placement of berms. However, the EPA is not requiring the use of these effective measures to reduce radon effluents, nor providing an incentive through a radon flux emission standard. The EPA must also include the use of berms to reduce wind turbulence and the use of barium chloride as generally available technologies that can be used to meet a radon flux standard. Without such a standard, licensees will have little incentive to reduce their radon emissions. The White Mesa Mill licensee must be required to use barium chloride to remove the radium and reduce the emissions from their liquid impoundments.

48.5. Considering the very high levels of radon emissions from the liquid impoundments and the pond on the tailings pile at the White Mesa Mill, conventional mills must be required to limit the number of both their conventional and nonconventional impoundments. At a maximum, there must be no more than 3 operating (conventional plus nonconventional) impoundments at any one time. Further, a mill owner should not be permitted to construct and operate a new impoundment until all impoundments that are no longer receiving tailings have a closure plan, reclamation milestones, and demonstrate annual compliance with the 20 pCi/m^2-sec criteria.

48.6. The EPA must also limit the size of new nonconventional liquid impoundments.

48.7. Since 1989 the EPA has not required a licensee to demonstrate compliance with the radon standard for existing nonconventional impoundments. Nor is there a requirement to determine the radon emissions from the liquid ponds on top of the

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[46] Risk Assessment, page v, ¶ 4.

conventional impoundments. Method 115 states that no measurements are required for water covered areas, as radon flux is assumed to be zero.[47] Based on current information regarding the radium content of the liquid ponds on the conventional impoundments, there is no basis for that assumption. So, for decades the radon emissions from conventional mill impoundment have been significantly and egregiously under estimated.

The EPA must amend Method 115 to require a determination, through measurement or calculation, of the radon emissions from liquid ponds, whether nonconventional liquid impoundments, conventional impoundments being used for evaporation of mill solutions, or ponds on top of conventional tailings piles.

48.8. While we are on the subject of compliance with Subpart W with respect evaporation ponds, it would be appropriate to discuss how the EPA and DAQ have enforced the Section 61.252(b)(1) standard that states: "The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time." Although the EPA now agrees that the limitation of operating impoundments included all operating impoundments that received 11e.(2) byproduct material (liquids and solids), the EPA and DAQ never enforced the 2-impoundment rule. Therefore, since 1989 that White Mesa Mill has always had at least 3 operating impoundments.

Leaving aside the question of whether Cell 2 is an "existing" tailings impoundment that should be counted when determining the number of operating impoundments, the White Mesa Mill currently has 5 operating 11e.(2) byproduct material impoundments, Cells 1, 3, 4A, 4B, and Roberts Pond. This is a clear violation of 40 C.F.R. § 61.252(b)(1). Yet, when this issue was brought to the EPA, the EPA determined that, yes, the White Mesa Mill was out of compliance with the 2-impoundment rule, but it didn't matter, since the emissions from the liquid impoundments (now called nonconventional impoundments) do not represent a health hazard. The EPA believed, without providing any documentation to support their assertion, that the radon emissions from Cell 1 and Cell 4B were minimal. However, putting together recent data on the radium content of Cells 1 and 4B[48] and the EPA contractor's statement that there are 7.0 pCi/m^2-sec for every 1,000 pCi/L of radium in a liquid impoundment[49], the radon emissions from Cells 1 and 4B are far higher than those from the solid portions of Cells 2 and 3. The radon flux from Cell 4A, completely covered by liquids, is also higher than those of the solid portion of Cell 3 and of Cell 2. Cell 1 has a radon flux over 10 times

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[47] 40 C.F.R. Part 61, Appendix B, Method 115, Subsection 2.13(a).

[48] White Mesa Mill 2013 Annual Tailings Wastewater Monitoring Report; Groundwater Quality Discharge Permit, UGW370004, Energy Fuels Resources (USA) Inc., November 1, 2013. http://www.radiationcontrol.utah.gov/Uranium_Mills/denison/docs/2013/dec/2013AnnualTailingsReportFinal.pdf

[49] Risk Assessment Revision for 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings: Task 5 – Radon Emission from Evaporation Ponds; S. Cohen and Associates, November 9, 2010; page 26.

the radon flux standard for Cells 2 and 3. Cells 4A and 4B has approximately 5 times that standard.

The EPA's solution to this failure to enforce Section 61.252(b)(1) at the White Mesa Mill is to just change the rule. Now, under the Proposed Rule, those liquid impoundments are defined as nonconventional impoundments, and licensee can have as many as they want and of any size. The EPA is not even honest enough to discuss this egregious regulatory failure in the proposed Rule. There is nary a mention of the White Mesa Mills current Section 61.252(b)(1) compliance status.

The EPA must enforce the current Section 61.252(b)(1) regulatory requirement as it applies to the number of operating impoundments at the White Mesa Mill. The EPA can no longer claim that the emissions from liquid impoundments are minimal and do not present a health risk.

49. Proposed Rule, at IV. B.4. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Heap Leach Piles, (page 25403, col. 2, ¶ 3 to col. 3, ¶ 1) states (in part):

> As a result, we are proposing GACT standards for heap leach piles. We are proposing that these piles conform to the phased disposal work practice standard specified for conventional impoundments in 40 CFR 61.252(a)(1)(i)(which limits the number of active heap leach piles to two, and limits the size of each one to no more than 40 acres) and that the moisture content of the uranium byproduct material in the heap leach pile be greater than or equal to 30% moisture content.

49.1. As discussed above at 1.1, Section 112(h) of the CAA does not authorize the establishment of, or the promulgation of, a design, equipment, work practice, or operational standard, or combination thereof, **in lieu of** an emission standard, unless the Administrator makes a determination that it is not feasible to prescribe or enforce an emission standard for a specific type of emission source. The Administrator has not made such a finding for heap leach operations. Therefore, the EPA cannot rely solely on the proposed GACT standards to satisfy the statutory requirements applicable to the promulgation of a radon emissions standard for heap leach uranium recovery operations.

49.2. The EPA must promulgate a radon emission standard for uranium heap leach operations, or the Administrator must make a finding that it is not feasible to prescribe or enforce an emission standard. In order to do this, the EPA must evaluate all possible methods for determining the radon emissions from heap leap operations.

49.3. There have not been any heap leach operations for decades, so no generally applicable control technologies have been developed for these types of operations. Therefore, the EPA must identify and consider various types of control technologies to limit the emission of radon from heap leach operations.

50. Proposed Rule, at IV. B.4. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Heap Leach Piles, (page 25403, col. 3, ¶ 2) states (in part):

> Limiting the size of the operating heap leach pile to 40 acres or less (and the number of operating heap leach piles at any one time to two) has the same effect as it does on conventional impoundments; that is, it limits the area of exposed uranium byproduct material and therefore limits the radon emissions from the heap leach pile. While we believe that the 40 acre limitation is appropriate for heap leach piles, we are requesting comment on what should be the maximum size (area) of a heap leach pile.

50.1. The EPA must provide additional information regarding the life cycle of a heap leach operation and the radon emissions from such operations from all radon emission sources. The Subpart W BID does not provide sufficient information to support the proposed work practice and design standard. For example, there is no evaluation of other radon emission sources at the milling operation, which would include loading, grinding, and other ore handling operations. The EPA does not provide information regarding the potential radon emissions from the time ore is placed on the heap leach pad or impoundment to the time when the final radon barrier is placed on the impoundment.

50.2. The EPA has not provided a legal basis for only considering and limiting the radon emissions from the heap leach pile, rather than controlling the radon emissions from all on sources at a heap leach operation. The CAA directs the EPA to control radon emissions. Therefore, the EPA must regulate all radon sources at a heap leach operation.

50.3. The EPA has not provided any data comparing the potential radon emissions from a 40-acre impoundment to smaller impoundments. Also, the EPA has not provided any information on the number of impoundments that would be emitting radon during the life of an operation and the expected emissions based on different parameters, such as uranium content of the ore. This information would include an evaluation of the radon emissions from impoundments during the placement of ore prior to the use of a leachate. There will be radon emissions during this time. The EPA must also evaluate the radon emissions from a heap leach operation up to the placement of the final radon barrier.

50.4. The EPA must have a radon emission standard that applies to all phases of a heap leach impoundment operation—from the placement of ore on the pile to the placement of a final radon barrier. Further, there must be specific regulation applicable to periods of standby. A licensee should not be permitted to place ore in a heap leach pile and not complete the operational cycle, including placement of the final radon barrier. The radon emissions from a pile that is drying out must also be subject to the radon emission standard.

51. Proposed Rule, at IV. B.4. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Heap Leach Piles, (page 25403, col. 3, ¶ 3) states (in part):

> However, we request further information on all the chemical mechanisms in place during the leaching operation, and whether the 30% moisture content is sufficient for minimizing radon emissions from the heap leach pile. We also request comment on the amount of time the 30% moisture requirement should be maintained by a facility.

51.1. Section 112(h) of the CAA requires a radon emission standard, not just a work practice or design standard. Experience at a leaching operation will demonstrate whether maintaining 30% moisture content is sufficient to meet the standard. If there is no emission standard, there is no way to determine whether a 30% moisture content is sufficient for minimizing radon emissions.

52. Proposed Rule, at IV. B.4. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Heap Leach Piles, (page 25404, col. 1, ¶ 1) states (in part):

> We are proposing that the operational life of the heap leach pile be from the time that lixiviant is first placed on the heap leach pile until the time of the final rinse. We believe this incorporates a majority of the time when the heap leach pile is uncovered (no radon barrier has been constructed over the top of the heap) and when the ability for radon to be emitted is the greatest.

52.1. A heap leach pile must be regulated under Subpart W from the time ore is placed on the pile or within the heap leach impoundment through the period when the pile will dry out, prior to placement of the final radon barrier. The CAA demands that the EPA regulate radionuclides, including radon. The EPA has not been directed to regulate radon emissions from uranium industry operations for part of the time, and disregard these emissions when it serves the interests of the uranium industry. Radon will be emitted as soon as the unprocessed ore is brought onto the site, whether for direct placement in the heap leach impoundment or for physical processing, such as grinding, prior to placement on the heap leach impoundment. The radon emissions from the heap leach operation include radon emissions from any conveyor belt, during physical processing of the ore, during the placement of the ore in the impoundment, during chemical processing, during periods when the ore is resting, during the post processing period, during any period when the impoundment dries out to facilitate the final reclamation, during and before placement of an interim cover, and prior to placement of the final radon barrier. There must be a radon emission limits from all radon sources and during all stages of operation. The EPA is not authorized under the CAA to pick and choose certain radon sources and certain times and operational phases where the radon

emissions must be limited and pick and choose the radon sources and operation phases that the EPA will just ignore.

52.2. The EPA has not provided any data and information from heap leach operations that demonstrate that the radon emissions from the heap leach pile will be greatest from "the time that lixiviant is first placed on the heap leach pile until the time of the final rinse." The EPA has provided no information regarding the radon emissions during the period of time that ore is being transported, physically processed, and placed on the heap leach pile. There is no information about how long it will take to place the ore on the pad. Since the ore will be broken up via sorting and grinding, will be fairly dry, and will have the full uranium content, the radon emissions during that period should be higher than during the time the lixiviant is being used to remove uranium.

52.3. As with conventional uranium tailings impoundments, the radon emissions will increase when the impoundment starts to dry out. The EPA has provided no information regarding the length of the period, the radon emission limit, and the available technologies that might be used to control and reduce radon emissions during the time when heap leach piles are drying out.

53. Proposed Rule, at IV. B.4. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Heap Leach Piles, (page 25404, col. 3, ¶ 1) states (in part):

> Our estimates for costs of monitoring the heap include 100 sensors located within the heap, with a meter on each sensor. We chose 100 sampling stations because heaps are generally the same size as conventional impoundments, and Method 115 prescribed 100 measurements for the tailings area of a conventional impoundment.

53.1. The EPA fails to include a description of possible methods that could be used to measure the radon emissions from the pile in order to demonstrate compliance with a radon emission limit. Such an emission limit is required under Section 112(h) of the CAA, unless the Administrator finds that demonstrating compliance with a specific limit is not feasible. The EPA has not made such a finding. That is why the EPA must discuss all possible methods of demonstrating compliance with a radon emission limit for heap leach piles and other aspects of the operation.

53.2. The EPA claims that "heaps are generally the same size as conventional impoundments" and, therefore, only need 100 sampling locations under Method 115. The reasoning is faulty. Under the current proposed rule, during the operation of a 40-acre "new" conventional impoundment and during the operation of an "existing" impoundment that may be larger than 40 acres, there is no requirement to measure the radon emissions, so a comparison of the sizes is irrelevant. Additionally, if there was an emission standard, most of the impoundment would be covered with water or later have a soil cover, so that the area for 100 sampling locations would be far smaller than 40-acres.

For "existing" impoundments under existing Section 61.252(a) radon emission limit, much of the impoundment is either covered with liquids or with a soil cover. Therefore, over the years the area that was measured using 100 locations was smaller than 40-acres. The EPA has data from the annual Subpart W compliance reports that would provide a picture of the size of the areas where the licensee used 100 sampling locations. However, the EPA failed to provide this important data. Instead, the EPA is making unsubstantiated claims and assumptions.

54. Proposed Rule, at IV. B.4. Rationale for This Proposed Rule, *Proposed GACT Standards for Operating Mill Tailings*, Heap Leach Piles, (page 25404, col. 2, ¶ 2) states:

> We are also aware that there could be a competing argument against regulating the heap leach pile under Subpart W while the lixiviant is being placed on the heap leach pile. While not directly correlative, the process of heap leach could be defined as active ''milling.'' The procedure being carried out on the heap is the extraction of uranium. In this view, the operation is focused on the production of uranium rather than on managing uranium byproduct materials. Therefore, under this view, the heap meets the definition of tailings under 40 CFR 61.251(g) only after the final rinse of the heap solutions occurs and the heap is preparing to close. In this scenario the heap leach pile would close under the requirements at 40 CFR part 192.32 and Subpart W would never apply. We are requesting comments on the relative merits of this interpretation.

54.1. There is no basis for any argument against regulating heap leach piles under Subpart W prior to and during the placement of lixiviant on a heap leach pile. The EPA has been charged with the responsibility to regulate the emission of radionuclides, including radon. The CAA does not state that the EPA is only responsible for limiting the emission of radon from "tailings," or other 11(e)(2) byproduct materials at operating uranium recovery operations and ignoring radon emissions from other uranium recovery radon sources and ignoring radon emissions during certain phases of the operation.

54.2. The EPA must regulate radon emissions from uranium recovery facilities, including heap-leach operations, during all phases of the operation. This includes during the physical processing of the ore; placement of the ore on the heap leach pad, or impoundment; during the leaching process; during the periods when the pile is resting; during periods of standby; during the period when the pile is drying out (when it may or may not have an interim soil cover); and prior to the placement of the final radon barrier. There is no legal, regulatory, or technical justification for failing to regulate the radon emissions during all phases of a heap leach operation when radon is being emitted.

55. Proposed Rule, at V.A. Other Issues Generated by Our Review of Subpart W, *Clarification of the Term "Standby"* (page 25405, col. 2, ¶ 3), states (in part):

> This period of time usually takes place when the price of uranium is such

> that it may not be cost effective for the uranium recovery facility to continue operations, and yet the facility has not surrendered its operating license, and may re-establish operations once the price of uranium rises to a point where it is cost effective to do so. Since the impoundment has not entered the closure period, it could continue to accept tailings at any time; therefore, Subpart W requirements continue to apply to the impoundment. Today we are proposing to add a definition to 40 CFR 61.251 to define "standby" as:
>
> > *Standby* means the period of time that an impoundment may not be accepting uranium byproduct materials but has not yet entered the closure period.

55.1. The EPA must take a harder look at what standby means in terms of the length of time that a facility can remain on standby. For example, the Shootaring Canyon Mill has not operated for over 30 years. During that time, the price of uranium has risen and other operations have commenced or returned to active uranium recovery operations. Therefore, there should be a limit on the length of time a facility can remain on standby, for example, 10 years.

55.2. Another issue related to standby is whether the tailings impoundment can actually be used for the disposal of new tailings in the future. Currently, the Shootaring Canyon Mill is on "standby," but it is not licensed to "operate." The tailings impoundment at Shootaring Canyon cannot be used to dispose of new tailings should the mill ever resume active ore processing. This is because the impoundment does not have a synthetic liner, and the Utah DRC will not allow the impoundment to be used for new tailings. The only reason the Shootaring impoundment has not been reclaimed is that thousands of tons of contaminated soil, unprocessed ore, and buildings and equipment must be placed in the impoundment as part of the mill reclamation.[50] The EPA must consider the actual reality of these standby arrangements when defining "standby."

55.3. It is misleading to characterize "standby" as a period of non-operation, when the facility has not surrendered its operating license. Uranium mill operators don't just "surrender" a mill's operating license. First, the mill operator must reclaim the site to the satisfaction of the NRC or NRC Agreement State and the Department of Energy. Eventually, the NRC or NRC Agreement State terminates the license, and the site is transferred to the Department of Energy under a general license. This process can take decades. Therefore, the EPA must more clearly explain the concept of "standby."

56. Proposed Rule, at V.B. Other Issues Generated by Our Review of Subpart W, *Amending the Definition of "Operation" for a Conventional Impoundment* (page 25405, col. 3, ¶ 2), states (in part):

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[50] http://www.deq.utah.gov/businesses/U/uraniumone/docs/2012/03Mar/DRC-2012-001447.pdf

> To prevent future confusion, we are proposing today to amend the definition of ''operation'' in the Subpart W definitions at 40 CFR 61.251 as follows:
>
> > *Operation* means that an impoundment is being used for the continued placement of uranium byproduct material or tailings or is in standby status for such placement. An impoundment is in operation from the day that uranium byproduct materials or tailings are first placed in the impoundment until the day that final closure begins.

56.1. The EPA must either expand the definition of "operation," or eliminate the definition entirely. Missing from the May Proposed Rule FRN and the background documents is a full discussion of the various phases of uranium recovery operations (conventional, ISL, and heap leach), the radon emissions from all site sources during those phases, and how those radon emissions will or will not be regulated under Subpart W or any other EPA regulation.

56.2. The definition of "operation" does not include the period of time when ore is physically processed, placed on a heap leach pad, and when the lixiviant is being sprayed on the ore. The EPA must either include these operational phases in the definition, of "operation," or develop a different concept for the regulation of radon emissions under Subpart W. There is no legal justification for not regulating the radon emissions from all phases of heap leach operation, starting with the physical processing of the ore prior to placement on the heap leach pad.

56.3. The EPA has never explained, with particularity and specificity, what "the day that final closure begins" actually means. The definition, as proposed, remains conveniently vague. It is clear that over time, the EPA, Utah DAQ, NRC, and the uranium industry have had different opinions about this. Also, as Subpart W has been implemented and enforced since 1989, there is no agreement with respect the applicability of Subpart W. One concern has been that some tailings impoundment may have entered a "closure" period, but 1) the license still permits the disposal of 11e.(2) byproduct material in the impoundment, 2) there is no approved closure plan, and 3) there are no reclamation milestones, as required under 40 C.F.R. § 192.32 and 10 C.F.R. Part 40, Appendix A, Criterion 6A. Examples include "existing" tailings impoundments at the Cotter Mill (Colorado) and the White Mesa Mill. Clearly, the EPA definition of "operation" leaves much room for interpretation. The EPA should have fully discussed these regulatory issues. The regulation must identify that actions that must take place for an impoundment to enter the closure period. This must include full and timely compliance with the regulatory requirements in 40 C.F.R. § 192.32 and 10 C.F.R. Part 40, Appendix A, Criterion 6A, BEFORE closure commences.

56.4. In the proposed definition of "operation," the EPA completely ignores the need for continued demonstration of compliance with a radon emission standard and

continued monitoring of both existing and new impoundments during the times when the impoundment is drying out and prior to the placement of the final radon barrier, whether or not the impoundment in considered "operational." Although the annual and monthly radon emission compliance reports for Cell 2 at the White Mesa Mill were available to the EPA and are important to the Subpart W rulemaking, the EPA failed to place these documents on the Subpart W rulemaking docket. Those documents show that continued monitoring and compliance with the 20 pCi/m^2-sec standard are necessary, so that the licensee will know when radon emissions increase during dewatering and be able to take appropriate corrective actions to reduce these emissions, using generally available technologies, such as removable of windblown tailings and placement of additional clean fill.

56.5. The EPA definition of "operation" does not consider the fact that sometimes uranium mills that are considered "closed," have a closure plan, and have reclamation milestones may construct new impoundments or disposal impoundments at the site to receive liquid wastes or other contaminated soils or wastes from other locations (such as uranium mine waste). The EPA does not discuss these situations, or attempt to include these new impoundments under Subpart W regulations. The EPA must include all newly constructed impoundments under Subpart W regulation, even it they are at sites that are considered "closed."

56.6. In sum, the EPA proposed definition of "operation" will create large gaps in the regulatory oversight of radon emissions from uranium recovery operations. There must be no gaps in regulatory limits on, and control of, radon emissions from uranium recovery facilities. The EPA must not use the definition of "operation" to authorize unregulated emissions of radon from these facilities, as is currently contemplated. The Subpart W radon emission limit or limits must apply during all phases of a uranium recovery operation, up to the time of the placement of the final radon barrier.

57. Proposed Rule, at V.C. Other Issues Generated by Our Review of Subpart W, *Weather Events* (page 25406, col. 1, ¶ 2), states:

> Since impoundments at uranium recovery facilities have been and will continue to be required to comply with the requirements of 40 CFR 192.32(a)(1), they are already required to be designed to prevent failure during extreme weather events. As we stated in Section IV B.2., we believe the requirements of 40 CFR 192.32(a)(1) contain enough safeguards to allow for the placement of tailings and yet provide an early warning system in the event of a leak in the liner system. Therefore, we are proposing to include these requirements in the Subpart W requirements without modification.

57.1. Here, the EPA claims that compliance with 40 C.F.R. § 192.32(a)(1) will prevent failure during extreme weather events and that compliance with Section 192.32(a)(1) will provide a warning system in the event of a leak in the liner system. The

EPA does not provide an engineering assessment in support of these claims, so there is no basis for these claims.

57.2. The conclusion that "the requirements of 40 CFR 192.32(a)(1) contain enough safeguards to allow for the placement of tailings and yet provide an early warning system in the event of a leak in the liner system" has nothing to do with the challenges to the structural integrity of conventional or nonconventional impoundments in an area subject to the intense forces of extreme weather events, that is, hurricanes and tornadoes. The concern here would not be a "leak in a liner system;" the concern would be the dispersal of liquid and solid wastes from the top and sides of an impoundment caused by the extreme forces of wind and/or water during a hurricane or tornado. The requirements of Section 192.32(a)(1) do not address these challenges.

57.3. Section 264, referenced by Section 192.32(a)(1), requires an impoundment design and liner system that will prevent migration of waste out of the impoundment to adjacent surface soils and ground or surface water; prevent overtopping, over filling, wind and wave action. The primary purpose is the prevent migration of material from the impoundment. However, there is no mention of migration due to extreme high-level winds from hurricanes and tornadoes in Section 264. There is no mention of migration due to intense levels of precipitation in short periods of time from hurricanes and other storm events. The Proposed Rule provides no information regarding the actual engineering designs that would protect the exposed area of a solid or liquid impoundment from any extreme weather event. The EPA provides no information regarding the possible engineering designs and liner systems that would provide assurances that no wind and/or precipitation event—no matter how extreme—would be able to disperse liquids or solids from these impoundments. The dispersal of such contaminants, would contaminate not just "adjacent" surface soils and surface and groundwater, but soils, buildings, homes, persons, natural and domesticated flora and fauna, ground water, surface water, and other aspects of the environment over a wide area.

57.4. The EPA has not provided any information regarding whether any containment system that uses generally available technologies will be able to protect a solids or liquids impoundment from the forces of a tornado or a hurricane, which are able to destroy large swaths of habitations and disperse materials over a large area, and provide assurance that all solids or liquids will remain within the containment system. The EPA has not explained how the exposed liners that are above the level of the contained liquids or solids, will be protected from a tornado or hurricane force winds. Additionally, the EPA has provided no information regarding the costs of any generally available technologies, or other technologies, that could be used to provide reasonable assurances that a containment system will not be compromised by an extreme weather event.

57.5. Having a regulation that states that a containment system must be designed to withstand extreme weathers events, does not mean that it is feasible to do so, particularly when using generally available technologies. At this time Commenters are

not aware of any generally available technologies that would prevent the dispersion of liquids and solids that contain radium and radon or the destruction of the exposed liner system or other parts of the containment structure in an extreme weather event such as a tornado or hurricane.

58. Proposed Rule, at VI.A. Summary of Environmental, Cost and Economic Impacts, *What are the air quality impacts?* (page 25406, col. 3, ¶ 2), states:

> We project that the proposed requirements will maintain or improve air quality surrounding the regulated facilities. The GACT standards being proposed today are based on control technologies and management practices that have been used at uranium recovery facilities for the past twenty or more years. These standards will minimize the amount of radon that is released to the air by keeping the impoundments wet or covered with soil and/or by limiting the area of exposed tailings. The requirements in this proposed rule should eliminate or reduce radon emissions at all three types of affected sources.

58.1. There is no basis for the above statements. The only GACT standards that the EPA proposes is the limit on the size of new impoundments to 40 acres (or continuous disposal, which no uranium mill uses or has proposed using) and compliance with 40 C.F.R. 192.32(a)(1) impoundment construction requirements. There are only 2 impoundments that have been constructed according to these GACT standards, Cells 4A and 4B at the White Mesa Mill. These impoundment were constructed within the last 10 years, not within the past twenty or more years. Currently, both of these impoundments are contain primarily liquids. Since the licensee, under the Proposed Rule, will not be required to actually determine and report the radon emissions from these impoundments, the EPA will not have any data to support the EPA's assertion that the operation of Cells 4A and 4B will maintain or improve air quality.

58.2. The fact is, the operation of Cells 4A and 4B is contributing to an increase in the radon emissions and air quality degradation. Cell 4A is receiving tailings slurry and liquid wastes, and Cell 4B is receiving liquid wastes. According to 2013 data provided to the Utah DRC,[51] the Gross Radium Alpha from Cell 4A and Cell 4B are 15,800 pCi/L and 14,600 pCi/L, respectively. Based on the EPA Risk Assessment estimation of 7.0 pCi/m^2-sec for every 1,000 pCi/L of radium in White Mesa solutions impoundments, Cells 4A and 4B emit 110.6 pCi/m^2-sec and 102.2 pCi/m^2-sec, respectively. This is more than 5 time the current radon flux limit for existing impoundments.

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[51] White Mesa Mill 2013 Annual Tailings Wastewater Monitoring Report; Groundwater Quality Discharge Permit, UGW370004, Energy Fuels Resources (USA) Inc., November 1, 2013. http://www.radiationcontrol.utah.gov/Uranium_Mills/denison/docs/2013/dec/2013AnnualTailingsReportFinal.pdf

58.3. The EPA's claim that "these standards will minimize the amount of radon that is released to the air by keeping the impoundments wet or covered with soil and/or by limiting the area of exposed tailings" has no basis in fact. There is absolutely no regulatory requirement in the Proposed Rule that states or implies that the impoundments must be kept wet or covered with soil. Currently, the exposed tailings at existing impoundments are limited by the presence of liquids or a soil cover over much of the impoundments. Keeping the tailings wet or covered with clean soil helps the licensee meet the radon emission standard. These generally accepted means of controlling radon emissions will not be required under the Proposed Rule, nor will a licensee be required to take any active measures to reduce radon emissions once the tailings impoundment is constructed and the impoundment is in operation. Since there will be no need to keep radon emissions below a specific limit under Subpart W, there is no need to manage the impoundment to keep emissions at the lowest levels.

58.4. There is no basis for the statement that "the requirements in this proposed rule should eliminate or reduce radon emissions at all three types of affected sources." The EPA fails to explain and provide data and information regarding exactly how radon emissions from conventional mills, ISL operations, and heap leach operations will be eliminated or reduced under the proposed Subpart W. The Proposed Rule will have little actual impact on the radon that is emitted from these facilities. The Proposed Rule does not require any monitoring of those emissions to see if emissions are, in fact, eliminated or reduced (reduced from what is not discussed). The Proposed Rule does not require any mitigative measures if radon emissions are not eliminated or reduced.

59. Proposed Rule, at VI.B. Summary of Environmental, Cost and Economic Impacts, *B. What are the cost and economic impacts?* (page 25406, col. 3, to):

59.1. The discussion of the costs and economic impacts of the use of the proposed GACT requirements are misleading and incomplete, because Section 112(h) of the CAA does not authorize the promulgation of a design, equipment, work practice, or operational standard, or combination thereof, unless the Administrator determines that it is not feasible to prescribe or enforce such a limit on the emissions of a hazardous air pollutant. The Administrator has not made such a finding with respect a standard that limits the radon emissions from uranium recovery facilities that are regulated under the Atomic Energy Act and NRC regulations at 10 C.F.R. Part 40. Therefore, any discussion of costs and economic impacts that assume that there will be no specific limits on the emissions of radon from conventional mills, ISL operations, heap leach operations, or any other type of uranium recovery operation is false and misleading.

59.2. Much of the data and information associated with the estimates of costs and economic benefits is based on incomplete and outdated information provided by the EPA in the 2014 EPA BID in support of the Proposed Rule.

59.3. This section (page 25407, col. 1, ¶ 2) discusses the current costs of monitoring for radon at the three "existing" uranium mills and gives an estimate of the

savings to the mill owners if the EPA removes the requirement for radon monitoring and reporting for these impoundments at the White Mesa, Shootaring Canyon, and Sweetwater Mills. The discussion includes an estimate of the cost savings if the radon flux monitoring requirement is removed. The EPA's estimated cost savings is $19,460 for White Mesa. That is based on 2009 estimates and is not based on actual costs. Commenters believe that the EPA underestimates the savings if there is no radon flux monitoring and reporting. First, the White Mesa estimate appears to be based on the monitoring of only one impoundment. As of 2014, the radon flux from Cell 2 and Cell 3 were being monitored. There are other factors that have increased the costs of White Mesa Mill radon monitoring over the past few years: 1) between April 2013 and May 2014, the mill owner has been required to submit monthly compliance reports for Cell 2, because the Cell 2 radon flux for 2012 exceeded the standard; 2) in 2013 the radon flux for Cell 3 taken during the second quarter exceeded the standard, so the mill owner decided to make 2 more quarterly radon flux measurements for one region of the impoundment and average the 3 quarters (even though Method 115 requires 4 quarters for a yearly average); 3) costs to determine why the radon flux for Cell 2 had increased; 4) cost to place additional soil cover on Cell 2 and clean up tailings that had come from Cell 3 and build a barrier; and 5) additional costs associated with the increase in radon emissions when a tailings impoundment is dewatered. Surely, the EPA should give a full accounting of all the wonderful cost savings associated with EPA's removal of the requirement to monitor radon emissions at the "existing" impoundments, EPA's assertion that radon monitoring for new impoundments is not necessary, and EPA's finding that there is no need to control radon emissions from liquid effluents or any other radon emitting sources at conventional mills.

59.4. The EPA should provide a cost savings associated with their disregard of the requirements of Section 112(h) of the CAA and any finding that the Administrator might make that promulgating or maintaining a radon emission standard for conventional mills, ISL operations, or heap leach operations is not feasible. Such a calculation must include the savings on the costs of monitoring any conventional uranium tailings impoundment (existing or new), whether monitoring is done on a weekly, monthly, quarterly, or annual basis; cost of administration and reporting the radon emissions; costs of placing soil on top of a conventional impoundment to reduce the emissions; costs of other corrective actions to reduce emissions to comply with the standard; costs of calculating or measuring emissions from nonconventional or other fluid impoundments; costs of using barium chloride or other method to reduce radon emissions from liquid impoundments; costs of measuring or calculating the radon flux from heap leach piles during all phases of operation; cost for taking corrective actions to reduce radon emissions from heap leach piles; savings by having other regulatory gaps so that radon emissions are not monitored and reported, nor corrective actions taken to assure compliance (for example, when an impoundment is considered non-operational and being dewatered). The EPA must not be shy in giving the public and the uranium industry a full assessment of the many thousands of dollars that uranium mill owners will save because the EPA's disregard of the provisions of the CAA. The EPA must not be shy about the great savings to the uranium industry by not having radon emissions standards, not

knowing what the radon emissions are, and not requiring any corrective actions to assure compliance with such standards.

59.5. In the discussion of the emissions from fluid impoundments, the EPA claims (page 25407, col. 2, ¶ 3) that "as long as approximately one meter of water is maintained in the nonconventional impoundments the effective radon emissions from the ponds are so low that it is difficult to determine if there is any contribution above background radon values." However, recent data regarding the radium content of the White Mesa Mill nonconventional Cell 1 liquid impoundment, conventional Cell 4A (which contains liquid wastes on top of tailings slurry), and conventional Cell 4B (which contains liquid wastes) demonstrate that, even though there may be 1-meter of liquid in these impoundments, the radon values far exceed the background radon values.

59.6. The Proposed Rule states that conventional mill owners will use liquids or soil covers to reduce radon emissions, however the Proposed Rule give no assessment of the economics of the use of those generally available technologies to reduce radon emissions.

59.7. The Proposed Rule fails to examine other costs associated with the essentially unregulated release of radon from uranium recovery operations. These would include economic and health based costs to nearby communities.

60. Proposed Rule, at VI.C. Summary of Environmental, Cost and Economic Impacts, *What are the non-air environmental impacts?* (page 25408, col. 1 to col. 2):

60.1. The EPA has not demonstrated that compliance with the requirements of 40 C.F.R. 192.32(a)(1) and, by reference, 40 C.F.R. 264.221 will protect ground and surface water from contamination from liquid and sold tailings impoundments as a result of extreme weather events (storms, hurricanes, and tornadoes).

60.2. The Proposed Rule does not include any data and information that would support the installation of of nonconventional impoundments without regard to size or number at conventional or ISL uranium recovery operations. The Proposed Rule does not support the assumption that the number and size of these fluid impoundments will not appreciable impact on surface and ground water contamination.

60.3. The Proposed Rule fails to address the assumption that, over the long-term, ground and surface water will be protected by three elements: 1) the existence of a double liner (which will eventually deteriorate), 2) the dewatering of the impoundment (which will be impossible in areas where there is a great amount of precipitation (such as Virginia), and the placement of the final radon barrier that will prevent the infiltration of precipitation during the long-term (also unlikely in areas such as Virginia). The Proposed Rule fails to examine all of the regulatory programs, historical experience, and long-term effectiveness associated with contamination of ground and surface water from lined tailings impoundments at uranium mills.

60.4. The EPA does not provide any data and information about the impacts to ground and surface water from leaks and spills at ISL facilities. There are documents and data available regarding the numerous leaks and spills from these impoundments, which demonstrate that having a double-lined impoundment will not, of itself, be protective of ground and surface water at licensed facilities.

60.5. The Proposed Rule only addresses the double lining of impoundments that contain 11e.(2) byproduct material. The EPA must also address the necessity of using double liners on all liquid impoundments at licensed uranium recovery facilities. The leakage of fluids into ground water has the potential to mobilize uranium that may be in the ground naturally or from previous spills or leakage,

61. Proposed Rule, at VII.B. Statutory and Executive Orders Review, *F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments* (page 25410, col. 2).

61.1. The EPA claims that the proposed action "does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000)." That is supported by the assertion that "the action imposes requirements on owners and operators of specified area sources and not tribal governments." The EPA provides no support for the assumption that Executive Order 13175 (EO) does not apply if the proposed action does not impose requirements on a tribal government or governments and, therefore, does not have tribal implications. However, Section 1(a) of the EO defines policies that have tribal implications and require consultation and coordination with Indian Tribal Governments as "regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes." The introduction to the EO states that it will "ensure that all Executive departments and agencies consult with Indian tribes and respect tribal sovereignty as they develop policy on issues that impact Indian communities." An example of an Indian community that will be directly impacted by the Proposed Rule is the White Mesa Band of the Ute Mt. Ute Tribe in San Juan County, Utah. The White Mesa land is adjacent to the White Mesa Mill and the community is the closest community to the mill. The community will be directly and adversely impacted by the provisions in the Proposed Rule.

61.2. Earlier this year the EPA sent letters to 46 tribes, including the Ute Mt. Ute Tribe, requesting input on the Proposed Rule, thereby initiating a consultation process. This letter was signed by Jonathan D. Edwards Director, EPA Radiation Protection Division. Since that time the Ute Mt. Ute Tribe has been actively engaged in the consultation process, as envisioned by the EO.

62. Proposed Rule, at VII.B. Statutory and Executive Orders Review,*G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks*;[52] (page 25410, col. 3).

62.1. The EPA concludes that the Proposed Rule is not subject to Executive Order 13045 because it is based solely on technology performance." Commenters do not agree with that conclusion. The EO Policy states that each federal agency (a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." The proposed rules have clear health and safety implications for children, particularly those in the vicinity of conventional uranium mills. The Proposed Rule, though supposedly a radon emission standard, will not include any radon emission limits for conventional uranium mill radon emissions, including emissions from liquid effluents. The failure of the EPA to require numerical limits on these radon emissions, to require monitoring or other methods of determining the radon emission, to require corrective actions to bring the emissions into compliance, and the failure to limit radon emissions from other sources at uranium recovery operations are not "technical" issues, they are health and safety concerns that directly impact children.

63. Proposed Rule, at VII.B. Statutory and Executive Orders Review, *J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*, (page 25411, col. 1).

63.1. As part of the Proposed Rule, the EPA "has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population." The population in closest proximity to the White Mesa Mill is a minority, low-income community, as contemplated by Executive Order 12898. The Proposed Rule will in no way increase the level of protection for this population and other affected populations in southeast Utah. The Proposed Rule will eliminate the radon emission standard and compliance requirements for the existing tailings impoundments, will not require compliance with any radon emission standard for new impoundments, and ignores the significant radon emissions from the liquid effluents in 5 impoundments. High levels of radon are being emitted from over 140 acres of processing fluids and other effluents at the White Mesa Mill (Cells 1, 3, 4A, 4B, and Roberts Pond). The Proposed Rule ignores the fact that unregulated radon is emitted from stockpiled ore, contaminated soils, and other radon emission sources at the White Mesa Mill. The failure of the Proposed Rule to establish radon emission standards and actually regulate the radon emissions will have a disproportionately high

[52] http://www.gpo.gov/fdsys/pkg/FR-1997-04-23/pdf/97-10695.pdf

and adverse human health or environmental effect on the minority and low income population in the vicinity of the White Mesa Mill.

64. PART 61—Subpart W. National Emission Standards for Radon Emissions From Operating Mill Tailings (page 25411 to page 25412).

Commenters propose the following changes or additions to the Proposed Rule:

64.1. The proposed rule should define "closure." The definition must include the requirement that closure cannot commence until an approved closure plan (reclamation plan) for the impoundment or mill and appropriate enforceable reclamation milestones are incorporated into the facility license.

Currently, there are impoundments that have supposedly entered the "closure" period, yet there is no approved reclamation plan and no reclamation milestones in the license, as required by 40 C.F.R. § 192.32 and 10 C.F.R. Part 40, Appendix A, Criterion 6A.

64.2. The operational phase of an impoundment should end when the final radon barrier is placed on the tailings impoundment.

There must no longer be long periods when radon emissions from tailings impoundments are not monitored or controlled. Recent data on Cell 2 of the White Mesa Mill demonstrates the necessity of continual radon emission monitoring and corrective actions to being tailings impoundments into compliance with a standard. This should apply to existing and new impoundments. If Cell 2 is no longer subject to the Subpart W emission standard, it enters a decades-long period when there are no applicable emission standards and emissions increase due to dewatering. Considering that the White Mesa Mill licensee does not plan on placing the final radon barrier on the 4 conventional tailings impoundments until final mill closure,[53] the closure period will likely last 40 or more years. The EPA cannot allow the unmonitored and uncontrolled release of radon into the community during the decades to come.

64.3. There is no factual and legal basis for the elimination of the radon emission standard for existing impoundments at 40 C.F.R. § 61.252(a), so that section must remain in the rule.

64.4. The radon emission standard at 40 C.F.R. § 61.252(a), or a more restrictive standard, should apply to both existing and new tailings impoundments.

The 1990 CAA Section 112(h) does not authorize the establishment of a design or work practice standard in lieu of an emission standard for conventional mill tailings

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[53] Reclamation Plan, White Mesa Mill, Blanding, Utah. Radioactive MaterialsLicense No. UT1900479. Revision 5.0. September 2011.
http://www.deq.utah.gov/businesses/E/energyfuels/docs/2011/10Oct/recplan5_0.pdf
http://www.deq.utah.gov/businesses/E/energyfuels/plans/ICTM_2010.htm

impoundments. Further, the most effective methods for reducing the radon emissions include monitoring, reporting, and corrective actions to limit the emissions.

64.5. The EPA must apply the 40 C.F.R. § 61.252(a) radon emission standard to liquid effluent impoundments, whether nonconventional impoundments or water covers on conventional impoundments.

Recent data that shows there are significantly high levels of radon emission levels from liquid effluents at the White Mesa Mill that cannot be ignored. The EPA must establish the emission standard, provide for a method to measure or calculate the liquid effluent radon emissions, the require methods to remove radium from these effluents (for example, barium chloride treatment). The goal should be radium content that is as low as reasonably achievable.

64.6. The EPA must limit the size and number of nonconventional impoundments at ISL operations and conventional mills. There should be no more than 40 acres of nonconventional impoundments. Even with a 40-acre limit, at conventional mills, the total acreage of liquid effluents emitting radon will be much greater due to the water cover on conventional impoundments (up to 100% of the impoundment). The EPA can no longer assume that the radon emissions from these impoundments, at least as conventional mills, are negligible.

64.7. Due to the high levels of radon emissions from liquid effluents at a conventional mill, which increases over time, any new tailings impoundments that are constructed must use the continuous disposal method. This should apply to any new impoundment that was approved, but has yet to be constructed. Tailings impoundments with water covers are not longer acceptable.

V. OTHER EPA REGULATIONS

1. 40 C.F.R. Part 61 Subpart A General Requirements.

1.1. The EPA or Utah Div. of Air Quality should be required to provide an opportunity for public comment on any application to construct a tailings impoundment, pursuant to 40 C.F.R. § 61.07.

1.2. If an impoundment is approved for construction, but is not constructed during a certain time frame (e.g., within 5 years), the authorization expires and a new application must be resubmitted.

2. 40 C.F.R. Part 61 Subpart T Rescission

2.1. The EPA has created a thoughtless, unjustified gap in the regulation of radon from “existing” uranium mill impoundments. The application of a radon emission standard and requirements to monitor, report, and take corrective actions for “existing impoundments” supposedly ends when a mill or impoundment in no longer operational

and the closure period commences. At that time, there is supposed to be a closure plan and enforceable reclamation milestones related to the eventual placement of the final radon barrier, pursuant to the requirements in 40 C.F.R. § 192.32 and 10 C.F.R Part 40, Appendix A, Criterion 6A. Therefore, for "existing impoundments," once closure has commenced, there is an indefinite period of time when the regulations allow for the unmonitored, unreported, and uncontrolled emissions of radon from existing impoundments. However, if a licensee requests that milestones be extended, then the licensee must show again demonstrate annually that the impoundment meets the 20 pCi/m^2-sec emission standard.

The "closure" period commences at the very time when the tailings impoundment is being dewatered actively or through natural evaporation, or a combination of both. The drying out period causes the radon emissions to increase. In 2012, the radon-222 emissions from Cell 2 at the White Mesa Mill were still being reported to the EPA and Utah DAQ, even though the impoundment last received tailings in 2008. The White Mesa Mill license still authorized disposal of tailings in Cell 2, up until the July 23, 2014, order issued by the Utah DRC. It was a good thing that the emissions were being monitored and reported. As a result, the license was required to conduct monthly monitoring and reporting and take corrective actions to bring the impoundment back into compliance with the standard. Additional material was placed on the interim cover, windblown tailings from Cell 3 were cleaned up, and a barrier was placed between Cells 2 and 3. If the licensee had not been complying with the Subpart W requirements for Cell 2, no one would have known about the increase in radon emissions and no corrective actions would have been taken. Now, because Cell 2 has now entered the indefinite closure period, there will be no monitoring, reporting, or corrective actions under Subpart W. There will be no monitoring, reporting, or corrective actions under Subpart T (National Emission Standards for Radon Emissions From the Disposal of Uranium Mill Tailings), because the EPA rescinded Subpart T in 1994. The period of unregulated radon emissions from the tailings in the closure period (before the placement of the final radon barrier) is indefinite. There is no approved reclamation plan and no enforceable reclamation milestones for Cell 2, and the licensee plans to place the final radon barrier at the end of the operational life of the mill, not at the end of the operational life of Cell 2.

This is what the EPA has planned for Cells 3, 4A, 4B, and any other existing or new tailings impoundment. The EPA is deregulating radon emissions, not regulating radon emissions.

2.2. The EPA must do one of 2 things to fill the regulatory gaps: 1) It must apply the 20 pCi/m^2-sec for both new and existing tailings impoundments throughout the operational and closure periods, or 2) apply the 20 pCi/m^2-sec for new and existing tailings impoundments and reinstate the Subpart T radon emission standard (20 pCi/m^2-sec) for tailings impoundments in operation in 1994 or constructed after 1994.

VII. OTHER ISSUES

1. The Sticky-Wicket

1.1. "Existing enforcement issues seem to be the sticky-wicket." This quote is part of the subject line of EPA staff July 10, 2014, e-mails.[54] The EPA did not want to address this "sticky-wicket" in the context of the Rulemaking. Apparently, the EPA believes that Subpart W compliance and enforcement issues are not at all relevant to this Rulemaking. There is no mention of Subpart W compliance in the Proposed Rule. The EPA failed to include relevant Subpart W compliance reports as part of the Rulemaking Docket, specifically recent compliance reports for the White Mesa Mill.

1.2. Enforcement issues include the fact that the EPA and Utah DAQ never enforced the 40 C.F.R. § 61.252(b)(1) requirement for the White Mesa Mill: "The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time." Since 1989 the EPA and DAQ did not count the liquid impoundments as impoundments "in operation." When the EPA finally acknowledged that liquid impoundments were impoundments "in operation," and that there were more than 2 operational impoundments, the EPA staff informed me that that was all right, because there was really no health and safety concerns. The EPA assumed that there were no health and safety concern, because they assumed, without current data to back up that assumption, that the radon emissions from the liquid effluents (Cells 1, 3, 4A, 4B, and Roberts Pond) are negligible. Based on current data, this is not only untrue, it is egregiously untrue. The radon emissions from impoundments with liquids are greater than 100 pCi/m^2-sec. *See* Section IV. 45.11, above.

1.3. There are enforcement issues related to the implementation of Method 115. *See* Section VII, below.

1.4. The EPA should include a full discussion of the enforcement issues associated with Subpart W since 1989 and make all relevant annual reports and enforcement documents available on the Rulemaking Docket.

2. Method 115, Section 2: Radon-222 Emissions from Uranium Mill Tailings Piles.

2.1. The EPA must take a harder look at Method 115 and how it has been implemented.

2.2. Method 115 should make clear that monthly or quarterly monitoring must include 4 quarters or 12 months of data. Three quarters or 9 months of data cannot be used to demonstrate compliance, as recently happened at the White Mesa Mill.

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[54] EPA staff e-mails. EPA Subpart W Non-Privileged Records, July-Sept. Part 1, pages 337-338. http://www.epa.gov/radiation/docs/neshaps/npr/2014-july-sept-part1.pdf

2.3. The licensee should not be permitted to average the radon flux from various regions of an impoundment: water covered areas, water saturated area, dry top surface areas, and sides. The goal is to have the radon emissions as low as reasonable achievable. If allowed average different regions, one region may have a radon flux higher than 20 pCi/m^2-sec, but not take simple corrective actions to reduce the emissions because the licensee is allowed to average the flux from more than one region.

2.4. The licensee should not be permitted to average regions that have a final radon barrier with regions that do not have a final radon barrier.

2.5. Method 115 should not allow a license to average radon flux from one region that was the result of a single monitoring event with the radon flux from another region that was the result of 3 quarterly monitoring events. In this instance, after the licensee realized that one monitoring event on one impoundment region had an unacceptable radon flux, the licensee conducted 2 more quarterly monitoring events for that region, averaged the 3 quarterly events, then averaged the result with the earlier single event for the other region. So, the White Mesa Mill licensee manipulated the monitoring event process to get a desired result.

2.6. The EPA must delete the provision at Section 2.1.3(a), which states: "Water covered area-no measurements required as radon flux is assumed to be zero." Recent data demonstrates that this is not true and that, in fact, the radon flux from water covered areas can far exceed the radon flux standard.

2.7. The EPA must establish a method for determining radon emissions from liquid effluents; for example, calculation based on a site-specific formula that takes into consideration the meteorological conditions and radium content of the effluent. For conventional mills, this must occur at least quarterly. The EPA must also explore methods for measuring radon emissions from liquid effluents.

2.8. The licensee must not be permitted to average the radon flux from water covered areas with those from water saturated and dry areas.

2.9. The EPA must establish a methodology for accurately determining the radon emissions from heap-leach operations.

2.10. Section 2.1.2 indicates that the radon flux from sides must be determined "except where earthen material is used in dam construction." The EPA must clarify that this must be clean earthen material. If, say, uranium mine waste rock or low-grade ore is used to construct a tailings dam, the radon flux from the sides must be measured.

2.11. If after the radon flux is measured and calculated, and the licensee determines that there has been an exceedance of the standard, that exceedance should be reported immediately to the appropriate agency. The license should not wait until the end of March of the next year and commence monthly monitoring months after the exceedance is discovered. The 2012/1013 delays between the discovery of an

exceedance and the commencement of monthly monitoring at the White Mesa Mill was 9 months. There is no justification for this delay.

2.12. The EPA should move the date for submittal of the annual compliance report to the beginning of January of the following year. If a licensee can submit reports on a monthly basis, it can submit annual reports by the first of each year.

2.13. There should be methods to periodically verify the radon measurements; for example, placement of more than one canister at the measurement locations for comparison.

2.14. The EPA should evaluate other methods of determining radon flux on tailings impoundments. Tests should be done by takings measurements using more than one methodology on a tailings impoundment.

2.15. Method 115 does not include a methodology for determining the radon-220 flux. Since there are radon-220 emissions at the White Mesa Mill, it is necessary to measure those emissions.

2.16. The EPA must develop methodologies for measuring radon emissions from heap leach operations and any other source of radon at licensed uranium recovery operations.

3. EPA Radionuclide NESHAPS Guidance

3.1. A guidance document is an important element in any federal regulatory program. After the promulgation of the 1989 Radionuclide NESHAPS, the EPA developed the Guidance on Implementing the Radionuclide NESHAPS, July 1991.[55] The Guidance was a reiteration of the regulations, and did not provide any real guidance to the EPA or implementing state staff, the industry, or the public. The history of the implementation of Subparts B and W in Utah is an example of regulatory confusion and failure of the regulatory agencies and mining and milling industry to comply with the regulations in a timely manner. Questions like what, exactly, is an operational impoundment or when, exactly, the closure period commences were ignored.

3.2. The current Guidance is out of date and inadequate. A new Guidance must be developed and be made available for public comment.

Thank you for providing this opportunity to comment,

Sarah Fields
Program Director
Uranium Watch

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[55] http://www.epa.gov/rpdweb00/docs/neshaps/nesh_implement_07_91.pdf

And on behalf of:

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Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 7:59 AM
To: Thornton, Marisa
Subject: Fw: Air and Radiation Docket No. EPA–HQ– OAR–2008–0218
Attachments: UWatch_FinalComments_EPA-HQ-OAR-2008-0118_141029.pdf

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From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:10 AM
To: Collections.SubW
Subject: FW: Air and Radiation Docket No. EPA–HQ– OAR–2008–0218

From: sarah@uraniumwatch.org [mailto:sarah@uraniumwatch.org]
Sent: Wednesday, November 05, 2014 11:28 AM
To: A-AND-R-DOCKET
Cc: Rosnick, Reid
Subject: Air and Radiation Docket No. EPA–HQ– OAR–2008–0218

EPA Air and Radiation Docket

Dear Sir or Madam,

On October 29, 2014, I posted timely comments on the regulations.gov website for the EPA 40 CFR Part 61 Subpart W Rulemaking: Air and Radiation Docket No. EPA-HQ- OAR-2008-0218.

Subsequent review of those comments revealed some typos, misspelled and extraneous words, and a few incomplete sentences. Attached is the edited final version. There are no substantive changes.

I realize that you cannot replace the document submitted on the regulations.gov website, but I request that when the EPA reviews the Uranium Watch et al. comments that you review the attached Final comments. Also, if you post the comments on the Subpart W Review Website (which I hope you will do) please post the attached version of our comments.

Thank you for your consideration of this request.
Sorry for the inconvenience.

Sincerely,

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Program Director
Uranium Watch
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Moab, Utah 84532
435-260-8384

Meeting with Members of Sierra Club and Information Network for Responsible Mining

11117/14

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Tom Peake	EPA/RPD	202-343-9725	

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:00 AM
To: Thornton, Marisa
Subject: Fw: word file
Attachments: reid0001.docx

From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:12 AM
To: Collections.SubW
Subject: FW: word file

From: Miller, Beth
Sent: Wednesday, November 19, 2014 9:48 AM
To: Rosnick, Reid
Subject: word file

Please consider the environment before printing this e-mail.

Beth Miller
202-343-9223

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:00 AM
To: Thornton, Marisa
Subject: Fw: Uranium Mill Tailings NESHAP

From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:14 AM
To: Collections.SubW
Subject: FW: Uranium Mill Tailings NESHAP

-----Original Appointment-----
From: Rosnick, Reid
Sent: Tuesday, November 25, 2014 6:33 AM
To: Johnson, Ann
Subject: Accepted: Uranium Mill Tailings NESHAP
When: Tuesday, November 25, 2014 10:00 AM-10:30 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Ann will call Reid

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:00 AM
To: Thornton, Marisa
Subject: Fw: Subpart W Docket

From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:12 AM
To: Collections.SubW
Subject: FW: Subpart W Docket

From: Miller, Beth
Sent: Thursday, November 20, 2014 7:32 AM
To: Rosnick, Reid
Subject: RE: Subpart W Docket

Done

Docket ID: EPA-HQ-OAR-2008-0218

Document ID: EPA-HQ-OAR-2008-0218-DRAFT-0194

Title: Stake Holder Meeting November 2014
Document Type: SUPPORTING & RELATED MATERIALS
Status: Metadata_Ready

Current Assignee: Akram, Assem (EPA)

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Beth Miller
202-343-9223

From: Rosnick, Reid
Sent: Wednesday, November 19, 2014 10:07 AM
To: Miller, Beth
Subject: Subpart W Docket

Please.

Reid J. Rosnick
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Radiation Protection Division
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Meeting with Members of Sierra Club and Information Network for Responsible Mining

11117/14

Name	Affiliation	Phone	Email
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Over the course of the meeting the stakeholders and the Agency held discussions on issues related to the Subpart W proposed rulemaking. The issues centered on radon emissions from tailings piles and evaporation ponds, as well as monitoring requirements and general comments on the rulemaking.

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:00 AM
To: Thornton, Marisa
Subject: Fw: Subpart W Docket
Attachments: stakeholder mtg.docx

From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:15 AM
To: Collections.SubW
Subject: FW: Subpart W Docket

From: Rosnick, Reid
Sent: Wednesday, November 19, 2014 10:06 AM
To: Miller, Beth
Subject: Subpart W Docket

Please.

_____

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Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:00 AM
To: Thornton, Marisa
Subject: Fw: Docket Item
Attachments: Comment(1).pdf

From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:17 AM
To: Collections.SubW
Subject: FW: Docket Item

From: Rosnick, Reid
Sent: Thursday, November 06, 2014 1:49 PM
To: Peake, Tom
Subject: Docket Item

Actually it was easier to go into the docket and save it.

_____

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October 29, 2014

By email attachment - pdf
Air and Radiation Docket,
Environmental Protection Agency,
Mailcode: 2822T, 1200 Pennsylvania Ave. NW.
Washington, DC 20460
email: a-and-r-docket@epa.gov

RE: Comments on Rulemaking Docket ID No. EPA–HQ–OAR–2008–0218; Clean Air Act Regulation of Radon Emissions from Uranium Mill Tailings

These comments are submitted on behalf of Colorado Citizens Against ToxicWaste ("CCAT") Grand Canyon Trust, and the Rocky Mountain Chapter of Sierra Club.

Summary of Comments

Comprehensive review of National Emission Standards for Hazardous Air Pollutants ("NESHAP") regulations applicable to uranium processing wastes was mandated by the 1990 Clean Air Act Amendments ("CAAA"). The mandate was a direct response to the Environmental Protection Agency's ("EPA") refusal to adopt effective NESHAP regulations in the 1980s.

The present review and revision of the Clean Air Act rules applicable to uranium tailings was prompted by a 2007 lawsuit brought CCAT, which is located in the Cañon City, Colorado community directly impacted by the inadequate standards contained in Subpart W. EPA–HQ–OAR–2008–0218–0013, EPA–HQ–OAR–2008–0218–0019. Despite settlement promises of prompt action in 2009, EPA's failure to commit adequate resources to the rulemaking effort resulted in five more years of delay. Unfortunately, the draft rule prepared by EPA's Office of Radiation and Indoor Air, Radiation Protection Division ("ORIA") continues to ignore Clean Air Act ("CAA") requirements and community concerns. In short, the proposed rule effectively eliminates CAA NESHAP regulation, monitoring, and control of radon emissions from uranium mill wastes. Key features of CAA and NESHAPs applicable to other hazardous air pollutants and area sources - control technologies, emissions limits, monitoring, and reporting – are omitted from the proposed rule. The proposed rule does not justify the radical and nearly complete departure from the purpose and structure of the CAA NESHAP program.

These comments are based largely on the information and experience gained by the communities in the airsheds and watersheds containing Cotter Uranium Mill near Cañon City, Colorado and the Energy Fuels Uranium Mill near White Mesa, Utah. Unfortunately, OIRA declined invitations to send representatives to either community to discuss the proposed rule. Had OIRA held hearings in these communities, EPA would have gained information about the actual emissions from these milling wastes, some of which is contained in EPA files. The community

knowledge, which is quite sophisticated, confirms that OIPA's proposal to eliminate monitoring and emissions limits and change some definitions cannot effectively repair inadequacies, gaps, and ambiguities in current NESHAPs, as they apply to conventional mill tailings in private ownership. Comments were provided by the few community members that were able to attend the single rulemaking hearing, held in downtown Denver, Colorado, blocks away from the offices of the uranium industry and the National Mining Association and hundreds of miles from the impacted communities. The community statements are incorporated here by reference.

EPA's rulemaking records do not contain available and obtainable data from the Cotter and Energy Fuels mills that is necessary for EPA to make an informed decision on whether or not the existing regulations have resulted in unnecessary radon emissions and groundwater contamination. The observations and experience of the impacted communities confirm that radon emissions are largely uncontrolled while tailings are 'stored' in open-air impoundments without adequate cover. Cotter recently demolished its mill and dumped it into the uranium tailings impoundments, but there is no approved plan or timeline for installing a permanent cover. EPA has done nothing to monitor or control radon emissions at Cotter, even though the leaking tailing impoundments are being dewatered while other impoundments receive contaminated groundwater and other wastes. An approved plan for permanent radon barrier does not exist for the impoundments near Cañon City or White Mesa. Due to the lack of state or federal enforcement in Utah, Grand Canyon Trust brought a CAA citizen enforcement action seeking to remedy repeated exceedances of the 20 pCi/m2/sec emissions limits, reporting requirements, and the work practice standards limiting the number and acreage of the open-air tailings dumps. Exh. 1 (First Amended Complaint).

Groundwater contamination remains an ongoing problem at every closed and operating tailings impoundment where saturation and water cover was used as a "control technology." By continuing the 1950s practice of open air dumping with water cover, the proposed rule ignores 21st Century "control technology" and "management practices" that could eliminate and minimize both radon emissions and groundwater contamination caused by keeping talc-like uranium wastes saturated and covered with water, often for decades. Continuous cover, paste tailings, dry placement, and solidification are among the alternative technologies that are not identified or considered in the proposed rule, despite repeated requests by impacted communities.

The present rule has failed to achieve the EPA's previously-stated goal of eliminating the industry practice of leaving uranium tailings in open-air storage, without permanent cover, for decades. Due to gaps and arbitrary distinctions between operating and non-operating tailings cells carried through into the current regulations, the Clean Air Act goal of minimizing or eliminating radon emissions has not been achieved. Instead of maintaining two sets of regulations applicable to privately owned uranium wastes – Subpart W and Subpart T – actual conditions warrant a new rule that sets a single, comprehensive emissions limit and monitoring requirement for disposal of uranium processing wastes.

These comments also echo and incorporate by reference the comments by the Office of Management and Budget, including the concern that EPA has not explained or justified the decision to forego an emissions limit. The current monitoring and enforcement gaps created by

Subpart W and Subpart T resulted in delayed closure and has not minimized or eliminated radon emissions at the Cotter and Energy Fuels facility. Where the current record confirms the failure of a regulatory scheme adopted in 1989, EPA should adopt an interim emission limit of 10 pCi/m2/sec based on Method 115 monitoring and reporting requirements for all private tailings impoundments while EPA prepares a new draft. According to the regulated industry comments contained in the record, a 10 pCi/m2/sec emissions limit is currently achievable at conventional mills, even without modern control technology.

Although EPA did not carry out a review of available control technologies, the existing record confirms that that an emission limit of less than 10 pCi/m2/sec is warranted. Sources of information include the tailings handling and proposals used by industries that have been active in the 21st Century. EPA ignored other sources of information that support a lowered numeric standard, incluing the control technologies employed by the Department of Energy, which is actively placing tailings from Moab, Utah into the Crescent Junction, Utah tailings facility using a continuous cover work practice. DOE has data from placement and monitoring of tailings from numerous other sites now in DOE's perpetual care and maintenance, which are subject to a 20 pCi/m2/sec standard that DOE presumably confirms is being met by regularly taking radon flux measurements. 40 C.F.R. § 192.32(b).

A new rule should be drafted to address existing regulatory gaps that lead to indefinitely open tailings cells by adopting a single NESHAP regulation to replace Subpart T and Subpart W that ensures elimination or minimization of radon emissions for the entire period of private ownership. Private ownership typically ends after closure when permanent radon barrier is completed and proven effective and the private license is terminated. 40 C.F.R. § 192.32(a)(4)(i). In short, comprehensive rewrite of NESHAPS applicable to conventional mills is warranted based on ineffective implementation of 40 C.F.R. Part 192, which lacks the citizen enforcement provisions of the Clean Air Act. These regulatory gaps, ineffective implementation, and lack of enforceability was not revealed by EPA's narrow review of Subpart W, which was based on an arbitrarily limited data set.

These comments support EPA's confirmation that in-situ leach facilities are subject to EPA's Clean Air Act NESHAP jurisdiction. However, where the rule does not include emissions limits confirmed by monitoring and reporting requirements, EPA has carried out its Clean Air Act duty to minimize or eliminate radon emissions. The comments also support NESHAP regulation of radon from heap leach projects; although it is likely that open-air heap acid leaching of uranium is a not a viable industrial practice where "technologies" such as enclosures are available.

In sum, the conventional milling component of these comments request that the Administrator take action to satisfy EPA's CAA duties and to comply with the settlement agreement by:

1) withdrawing the proposed rule and entering a finding that the rulemaking record confirms that Subpart T and Subpart W do not satisfy CAA NESHAP requirements;

2) gathering information necessary to minimize and eliminate radon emissions from uranium processing wastes;

3) dedicating the necessary agency resources to work cooperatively with impacted communities to comprehensively revise NESHAPs applicable to effectively reduce and eliminate radon emissions from uranium processing facilities without impacting groundwater; and,

4) dedicating the necessary agency resources to publish and adopt an effective rule before July 1, 2015.

Existing and Proposed NESHAP Regulations Improperly Exclude Emission Limits and Measurements

Radon in uranium tailings has a well-established impact on human health.

> The radon concentration present in mill tailings can be up to 1,000 times higher than the concentration in natural soils (Ferry et al. 2002). Because radon has been classified as a Group 1 human carcinogen by the International Agency on Cancer Research, regulatory agencies have enacted limits on the radon releases from mill tailing sites (IACR 1988).

Exh. 2 Altic, Nickolas, Pilot Study Report for Radon Exhalation Measurements (2014) at 1. The hazardous characteristics of radon and its decay progeny is confirmed in the National Environmental Policy Act documents rulemaking record prepared in the 1980s for support of 1989 radon emissions NESHAPs. Unfortunately, the currently proposed rule deviates from those findings without revising or updating the 1980s-era studies.

Instead, the proposed rule relies on cursory overview of a limited set of data and unreliable risk assessments prepared by third-party contractors with close ties to the regulated uranium industry. The rulemaking record indicates that EPA experts spent little or no time gathering data or conducting scientific analysis for the proposed rule. As a result, an informed and reasoned decision to forego emissions limits and monitoring requirements cannot be based on the erroneous and unreasonably narrow scope of data contained in the current rulemaking record. Where EPA scientists have contributed almost nothing to the rulemaking record, there is no basis to reduce NESHAP regulatory requirements based on 1980s-era the health impacts analysis.

Instead, the data and scientific analysis contained in the 1980s rulemaking records, combined with available data, compels a determination that radon from uranium mill processing wastes requires an emissions in the range of 1 to 5 pCi/m2/sec based on presently deployed and available control technologies. In the EPA analysis prepared in the1980s, limits as low as 2 pCi/m2/sec were confirmed as protective of human health, but EPA chose a higher limit and work practices based on industry's economic arguments. 54 Fed. Reg. 9637-9638 (Draft Rule discussing protective standards and limits as low as 2 pCi/m2/sec), 54 FR 51654 (Final rule setting a limit 10 times higher than the 2 pCi/m2/sec limit). EPA did not update any of the industry cost data from the 1989 rulemaking, and has no current basis to reduce the standards below what is protective of human health.

Where EPA removes emissions limits and ignores the technology-forcing health benefits of numeric standards, the EPA proposal runs contrary to the agency's science, previous regulatory

determinations, and Clean Air Act mandates. These factors compel EPA to continue to regulate radon at uranium mills as a hazardous air pollutant, until and unless the agency determines the source category is no longer necessary and makes the necessary determinations to remove these sources from NESHAP regulation. Of course, data in the rulemaking record prevents EPA from lawfully removing uranium mill tailings facilities from NESHAP regulation. The proposal to eliminate numeric emissions standards and monitoring has the effect of removing radon from uranium tailings, a regulatory action which could not be achieved under the standards applicable to NESHAP deletions.

The Clean Air Act provides Clear Authority to Regulate Radon Emissions

Comments of the regulated industry argue that EPA does not have authority to directly regulate radon emissions from uranium processing facilities. The industry's arguments provides statutory basis to stripping EPA of its Clean Air Act authority over uranium mill tailings, relying instead on cherry-picked agency memos taken out of context. As above, if industry wishes to remove a tailings facility from NESHAP regulation, it should submit a petition showing that radon emissions are not hazardous. Of course, this effort would fail. Fortunately, EPA's proposed rule continues to recognize the health hazards of uncontrolled radon emissions from uranium mill tailings and the rulemaking record confirms that CAA NESHAP regulation is a necessary part of EPA's role in regulating uranium mill tailings pursuant to its Clean Air Act and Uranium Mill Tailings Radiation Control Act authorities.

The industry's argument appears to be an attempt to shift all authority to NRC and thereby avoid the CAA's robust enforcement provisions, which unlike NRC's program, includes citizen enforcement. The uranium industry argues for regulation solely under the Atomic Energy Act and UMTRCA authorities, which has proven ineffective at accomplishing timely closure of numerous tailings facilities, including Shootaring Canyon, Cotter, Wite Mesa and Sweetwater, all of which involve tailings cells that have lingered on so-called "standby" without final radon barriers or closure plans. Despite EPA's Part 192 regulations, uranium tailings cells still remain idle and unmonitored without proven or final radon barriers, often for decades. 40 C.F.R. § 192.32.

In order to avoid unnecessary regulatory gaps and jurisdictional confusion between CAA and UMTRCA regulation, EPA's belated 1990 CAAA rulemaking should eliminate the artificial distinction between Subpart W and Subpart T and require that all privately owned tailings cells comply with the typical CAA numeric standards framework, regardless of operating, closure, or standby status. The alteration of NESHAP regulation based on a company's stated intent is not warranted and should be precluded where tailings cells linger for decades, uncovered, unclosed, and inactive based on a bare assertion that the facility may reopen, someday.

Information in the rulemaking record confirms that separate CAA regulations for impoundments that are "operating" and "in closure" does not serve the purposes of either UMTRCA or the Clean Air Act, both of which seek to reduce, minimize, and eliminate hazardous emissions, including radon. 42 U.S.C. § 7412(d), 42 U.S.C. § 7901. Where EPA has CAA authority over privately owned uranium tailings, the NESHAP rules should be structured to achieve UMTRCA and CAA statutory goals by setting CAA numeric emissions limit coupled with reporting

requirements and enforcement regime. Unfortunately, EPA's proposed regulation needlessly and without explanation abandons these basic CAA tools and leave uranium mill technologies stuck in a Cold-War era open-air storage and disposal regime.

EPA Failed to Provide Transparency and Robust Community Involvement

The rulemaking was initiated based on a 2009 settlement agreement reached with CCAT where EPA promised the agency would conduct an open and inclusive rulemaking. However, the proposed rule was developed without EPA's meaningful engagement with the impacted communities.

Throughout the comment period, and until CCAT took steps toward judicial enforcement of the settlement, EPA did not provide access to non-privileged agency records. In 2014, at the very end of the comment period, EPA confirmed OIAR violations of the settlement and began releasing, in bulk, the non-privileged agency records created and obtained during the five-year span of rulemaking. I In an belated effort to respond to CCAT complaints, EPA personnel from the Washington D.C. Office met with CCAT while in Denver for the public comment hearing. The meeting involved what appeared at the time to be a sincere effort by EPA staff to understand the past impacts and ongoing emissions at tailings piles at the now-demolished Cotter Mill in Canon City, Colorado. CCAT representatives told EPA staff that Cotter's impoundments are still actively receiving 11e2 byproduct, including buildings, soils, and uranium-contaminated groundwater from an active pumpback system. EPA has not followed up or made any subsequent attempt to address or consider the ongoing radon emissions at Cotter, which repeatedly exceed the 20 pCi/m2/sec flux standard used throughout EPA's radon regulatory scheme.

During the rulemaking hearing, EPA staff did acknowledge that impacted communities are asking for a comprehensive rebuilding of the NEPSHAP regulations to ensure Clean Air Act purposes and mandates are met. To paraphrase an EPA staffer's astute summary made outside the hearing: what the impacted communities request is that EPA conduct a tear-down and rebuild, not a remodel. In the hearing, EPA staff requested that CCAT prepare an alternate set of regulations. If provided the adequate time and resources, the commenting groups would enjoy working with a coalition of other impacted communities and EPA technical staff to develop a proposed rule based on compliance with Clean Air Act mandates. A community-led rebuild of the NESHAP rules could correct fundamental flaws in the structure and detail in the 1989 regulations and the pending EPA proposal. Because Environmental Justice concerns are implicated, EPA programs such as NEJAC could provide play a role to leverage other EPA funding sources and provide a framework, resources, and technical support for such an effort.

Unfortunately, real community involvement remains an empty prospect and unlikely based on a series of unfulfilled EPA promises. EPA has not sought to address the concerns of the other impacted communities in Utah, Colorado, Wyoming, South Dakota, Nebraska, Texas, Arizona, and New Mexico that did not bring legal action. EPA's refusal to reach out and hear community concerns during rulemaking on the Clean Air Act regulation of radon emissions from uranium mill tailings continues a legacy of environmental injustice. If EPA had provided a forum, local and regional communities would have undoubtedly made their voices heard. Indeed, a

community meeting about EPA's proposed Subpart W Rule was held on October 23, 2014 in White Mesa, Utah by the Grand Canyon Trust and Uranium Watch. The community meeting was attended by over thirty interested citizens from the Four Corners Region, including numerous Ute Mountain Ute tribal members.

In 2014, communities still bear the burdens of hazardous radon emissions, while companies and the federal government continue to reap the benefits of cheap and dirty yellowcake production that began with the Manhattan Project, the Cold War, and the promise of energy production "too cheap to meter." EPA's treatment of communities burdened by uranium mill tailings stands in stark contrast to EPA's Environmental Justice policies and promises, as well as Executive Orders.

Work Practices Require Numeric Standards based on Available Technologies

Read carefully, the present proposal is not based on any type of available control technology. Water cover and limited size and number of tailings ponds are not "control technology," as that term is used in the CAA. Size and number of impoundments are "work practice" standards carried over from the stale 1989 rule. These work practices are, at best, archaic industry practices of an industry gone largely dormant due to the low grade/high cost U.S. uranium ores that lack value in a competitive global market.

Without any reference to the record and in direct contradiction to facts well known to EPA staff and impacted communities, "the proposed GACT for conventional impoundments retains **the two work practice standards** and the requirements of 40 CFR 192.32(a)(1), because they **have proven to be effective methods for limiting radon emissions while also protecting ground water**." EIA-BID at 64 (emphasis supplied). Even the sparse rulemaking record confirms the alleged "effectiveness" not proven and is demonstrably false. The current regulatory scheme has not limited radon emissions where ongoing violations exist at the Cotter and Energy Fuels mills. EPA does not point to a single conventional uranium mill that has not caused groundwater contamination. Simply put, EPA's basis for the proposed rule is contrary to established fact.

EPA's renaming of the "work practices" from the present rule into a "control technology" does not avoid the requirement that **a "[work practice or similar] standard […] shall be promulgated in terms of a [numeric] emission standard whenever it is feasible** to promulgate and enforce a standard in such terms." 42 U.S.C. § 7412 (h)(4)(emphasis supplied). The misplaced intent of the revised rule to continue using 1989 work practices without numeric standards is confirmed by the rulemaking record as applied to ISL facilities: "By incorporating these impoundments under the work practice standards, the requirement of radon flux testing is no longer needed and will be eliminated." EIA-BID at 63. Where an array of feasible means exist to promulgate numeric standards and then measure, report, and enforce radon flux standards in accordance with the normal CAA framework, EPA does not have discretion to dispense with radon flux testing or numeric limits.

No Rationale is Provided for Choosing GACT over MACT

The proposed rule does not explain how EPA exercised its discretion in choosing a Generally Available Control Technology ("GACT") instead of a Maximum Achievable Control Technology ("MACT"). EIA-BID at 61- 63 (discussing standards). Although the CAA does provide some discretion to deviate from presumable application of MACT to hazardous air pollutants, merely asserting GACT can be used for uranium tailings without providing some type of reasoned basis for the decision to use GACT violates basic rulemaking requirements of the CAA and the Administrative Procedure Act. 5 U.S.C. § 701, *et. seq.*

Whichever "control technology" may eventually be used to set the numeric emissions limit, an array of available technologies exist to reduce and eliminate radon emissions without the well-established groundwater contamination that comes with using water cover as a "control technology." For example, paste tailings and cemented tailings provide a means to place tailings in an impoundment without liquids, and are appropriate for immediate placement of a continuous radon barrier without a dewatering period. *See e.g*. Exh. 3 Dudgeon, Disposal of Uranium Tailings as Paste (1999), Exh. 4 P. Moran, Cemented Tailings Backfill – It's Better, Now Prove It! (2013). These and other methods are used by mineral processing industries that have been active since 1989. In countries with uranium ore deposits supporting active conventional uranium milling after 1989, technologies that do not involve the notoriously ineffective water cover approach are being used to stabilize and control uranium mill tailings. None of the post-1989 technological advancements are analyzed in the rulemaking record, with new technologies brushed off with a conclusory sentence addressing alternate cover techniques. EIA-BID at 30 *citing* NRC "Workshop on Engineered Barrier Performance Related to Low-Level Radioactive Waste, Decommissioning, and Uranium Mill Tailings Facilities," ML101830458, August 3–5, 2010.

It is unlikely that the United States will ever see a resurgence of conventional milling due to the low quality ores and high processing costs. Nevertheless, EPA is required by the CAA and principles of Environmental Justice to ensure that numeric standards for privately owned tailings cells are set based on available technologies used, sometimes by U.S. firms, in Australia, Canada, and other countries with an active conventional uranium milling industry. Although it is often presumed the United States is a technology leader, EPA's current proposal lags behind the rest of the world by several decades. The proposed rule ignores existing tailings handling and disposal systems that would serve the "technology-forcing" structure and purpose of the Clean Air Act, which depends on setting numeric standards and limits.

EPA's decision to choose GACT is particularly unacceptable in light of its failure to comply with the requirements of 42 U.S.C. § 7412(c)(1) – the list of source categories. EPA is required to publish a list of all categories and subcategories of major source and areas sources of radionuclides and/or radon. This requirement forms the basic foundation for EPA's regulation of these hazardous air pollutants. However, EPA has not complied with this requirement with respect to uranium mills as a source category of radionuclide emissions. EPA must comply with the mandates of 42 U.S.C. § 7412(c)(1) with respect to radon and uranium mills before it can justify its choice of GACT rather than MACT standards in its proposed rule.

Available Monitoring Technologies Could Improve Monitoring at a Small Price

Existing regulations require annual monitoring based on Method 115 – a short-term radon flux test. Although the public asked EPA to analyze and adopt improved monitoring technologies early in the rulemaking, it does not appear that EPA conducted any inquiry into alternative monitoring techniques.

EPA was specificcally alerted to an inexpensive long-term monitoring technology that is is described by Landauer on its website:

> **The RadTrak radon gas detector accommodates the preferred EPA long-term test protocol to account for daily and weekly fluctuations in radon gas levels, contrasting a 2-5 short term test which could yield a false high/low report.** The Radtrak has been used by the US Environmental Protection Agency, US Department of Energy, US Department of Defense, National Institute of Health, American Lung Association, and numerous other public and private organizations and is trusted worldwide.

Exh. 5 (pdf of landauer.com/Radon_Solutions/Industrial_Radon_Monitoring_Service.aspx). On the December 3, 2009 quarterly call, a representative of the regulated industry confirmed that the industry believes that Landauer RadTrak is an example of a viable radon monitoring technology that would only modestly increase industry's monitoring costs:

> It was further discussed that a viable alternative could be the placement of Landauer RadTrak detectors. It was estimated by Oscar Paulson that implementing this alternative would increase costs by 50-100%.

EPA-HQ-OAR-2008-0218-0004. Unfortunately, it does not appear that EPA compared the benefits of requiring improved monitoring technologies with the small increase in monitoring costs described by the industry representative.

As stated above, monitoring based on modern technology must be included in a revised rule.

The Draft Rule Ignores Available Data Sources

The rulemaking is based on an unreasonably narrow review of EPA records, and includes no EPA investigation of conditions on the ground. In discussing exceedances of the 20 pCi/m2-sec limit, the EIA-BID confirms that "[t]wo instances exist in the records that were reviewed" by EPA in promulgating the rule. EIA-BID at 30. These exceedances were identified at both Cotter Mill (2007) and Shootaring Canyon Mill (2009). Seven and five years later, no radon flux monitoring has been reviewed by EPA, even though both mills have open tailings cells and even though each mill is inoperative and/or demolished. There is no indication that EPA followed up at either of these sites to determine actual conditions or to measure current radon flux. Publicly available documents confirm that Cotter's ALARA report included a flux test in August 2012 that resulted in a measured average of 23.3 pCi/m2-sec, contradicting EPA's conclusion that the 2007 exceedances was remedied by throwing some dirt over some of the hot spots. EIA-BID at

30. This information is well known to the community living with the tailings in their airshed, but appears unknow to EPA officials conducting the rulemaking.

Similarly, EPA relies on stale data provided by Denison Corporation, the former owner of the mill near White Mesa. Reliance on Denison-supplied data ignores EPA notices of violation and enforcement actions involving Umetco Minerals Corporation for excessive radon emissions in the early 1990s. EPA Docket No. CAA 113-91-05. The EIA-BID also ignores exceedances of the 20 pCi/m2-sec radon limits and work practices standards in reports submitted to Utah and EPA by Energy Fuels in 2012-2013 that are subject of an ongoing citizen enforcement action. Exh. 1 Amended Complaint, Grand Canyon Trust v. Energy Fuels, Civil Case No.14cv00243 (U.S. Dist. Ct. Utah). The result is a proposed rule based on the misleading and erroneous conclusion that "all values were within regulatory standards" at White Mesa. EIA-BID at 27. EPA review of past and present activities at the mill near White Mesa, many of which are well known in the impacted community, would confirm that the exceedances are recurrent, and that temporary cover results in recurring exceedances. These recurring exceedances support the normal regime of numeric limits, monitoring, and reporting to ensure the predicable spikes in radon emissions do not go undetected and unabated while idle processing wastes linger in private ownership without a permanent radon barrier.

Further, the EIA-BID only discusses the average of the measurements taken across the tailings, and the company-defined regions of the tailings impoundments. Averaging conceals the fact that EPA records confirm radon flux measurements in the 140 pCi/m2-sec range in several regions of existing impoundments. Some of these regions, including the sides and beaches, remain uncovered, resulting in uncontrolled radon emissions for years and sometimes decades. Even with averaging, an undisclosed number of acres at the White Mesa Mill Cell 3 were reported emitting radon at an average flux value of 50.2 pCi/m2-sec. EIA-BID at 31, Table 7.

For cells using phased disposal and water cover, EPA provides no data to confirm whether there are exceedances and recurrent problems with tailings beaches and precipitates associated with water covers. However, the data taken from existing cells compels actual measurement of the effectiveness of phased disposal being used by Energy Fuels at its numerous tailings cells, including Cells 4A and 4A, where radon flux is not being measured and reported pursuant to Subpart W. EIA-BID at 27. The EPA proposal simply ignores the performance of these recently constructed, active cells. EPA inspection and review of the cumulative emissions at the facility near White Mesa would confirm many more than two active impoundments, some of which are larger than 40 acres in size. Similarly, EPA review of existing data and filling data gaps with rulemaking monitoring would confirm the actual amount of radon being emitted from impoundments constructed and put into service after 1989 as compared to post-1989 cells. Perhaps most important, EPA review of the existing UMTRCA licensing documents would confirm that the Part 192 regulations are not being enforced by NRC or Utah, and cannot be used as a basis to avoid EPA CAA regulation. Only after EPA reviews and collects the necessary data and analyzes the regulatory reality can the effectiveness of phased disposal, the current "control technology" being used during operations, be compared against real control technologies such as dry-stack placement, paste tailings, solidification, or any number of available continuous cover technologies. By contrast, no tailings-handling and placement technology that avoids open air storage and water cover is even mentioned in the EIA-BID. The EIA-BID does not consider the

lack of approved closure plans at the White Mesa and Cotter facilities, but bases the proposed rule on the false assumption that closure plans exist and are being implemented expeditiously.

The data provided for the Sweetwater Mill is somewhat more comprehensive, and confirms that radon emissions vary widely over time. In order for EPA to reach a reasoned decision, this type of information, from 1989 to the present, must be made available from all sites, analyzed, and confirmed by EPA site visits and third-party radon flux measurement.

The Sweetwater data reveals, but does not analyze or explain, an achievable reduction from 9 pCi/m2-sec reported in 1990 to 1.44 pCi/m2-sec reported for 2010. EIA-BID at 24. These variations and reductions provide the basis of a numeric limit no greater than 10 pCi/m2-sec, and likely lower where modern technologies are deployed. According to Kennecott, "The twenty (20) year average for the impoundment as a whole is 4.65 pCi/M2-sec. The average for the exposed tailings is 8.69 pCi/m2-sec." Kennecott's Subpart W Comments dated April 25, 2012 at 5.

Despite the reduced radon emissions, the Sweetwater mill provides another example of the indefinite storage of uranium wastes without permanent radon barrier. Sweetwater is the current example confirming an industry practice of leaving inactive the tailings cells unclosed, sometimes for decades, claiming a vague intent to restart operations. Cotter made the same types of claims until it demolished its milling facilities in 2011, then dumped them into tailings impoundments that still lack an approved closure plans with enforceable milestones. The proposed rule is based on the erroneous premise that Cotter has plans use the impoundments for heap leaching. EIA-BID at 38. Cotter has requested that Colorado terminate Cotter's UMTRCA license, even though no closure plan has been approved for the existing impoundment. Exh. 6 CCAT Comments on Superfund and License Actions at 2. Where radon NESHAP Parts W and T have proved ineffective at preventing indefinitely open tailings cells, and NRC and Agreement States do not require Part 192 closure plans that achieve permanent radon cover within a reasonable time, a comprehensive rewrite of these NESHAPs is required. This is particularly true where the proposed rule is based on demonstrably inaccurate information.

In Situ Leaching of Uranium From Aquifer-Covered Orebodies

These comments support the NESHAP regulation of radon from all uranium processing wastes, including all solid and liquid wastes created and stored at in situ uranium leach ("ISL") facilities. The data collected by EPA supports emissions limits and monitoring to ensure available control technologies are deployed. Industry representatives' claims of being able to achieve and maintain zero radon emissions from evaporation cells should be used as a basis to set a very low radon flux limit for ISL facilities, somewhere in the range of 1 to 2 pCi/m2-sec or at measured, pre-ISL background levels.

However, industry's horatory claims of zero emissions are contradicted by Kennecott's explanation of high radon background readings at its Sweetwater facility. Kennecott claims that its background radon is elevated where water bodies 9-10 miles upwind contain high radium-226 and associated evaporites that contributes a significant source of radon emission.

> These long term elevated background radon concentrations in ambient air are probably due to the presence of a series of playa lakes in an area known as Battle Spring Flat approximately nine (9) to ten (10) miles southwest (upwind) of the facility. This area and its relationship to the facility are shown on the image provided in Appendix 20. This area contains numerous springs and seeps of groundwater that create shallow playa lakes with associated deposits of salts left behind by evaporation of the groundwater. These salts contain among other elements Radium-226 which are a Radon-222 source. The water in these playa lakes (depending on the level of evaporation) can have high concentrations of Radium-226. The August 28, 1975 sample of Hansen Lake had a Radium-226 activity of 33.6 picoCuries per liter. (Annual Report – Permit to Mine #481 – October 27, 2004).

Kennecott's Subpart W Comments dated April 25, 2012 at 13. Kennecott's concern about the upwind playa lakes highlight the important role of radium-226 in radon emissions from evaporation ponds at existing conventional and ISL facilities.

EPA has sufficient authority and information to confirm the need to regulate radon emissions from solid and liquid wastes at all uranium processing facilities as NESHAPs, including ISL facilities. However, EPA has not gathered the necessary information to determine the proper standard based on what is achievable by available ISL technologies or at what cost.

Open Air Heap Leach

Open air leaching of uranium poses an unacceptable risk, whether conducted via acid or alkali leaching. These comments support a new rule for heap leaching that sets numeric emissions based on available technologies such as a physical enclosure during the leaching process. Although heap leach has been used in the U.S. and is being used internationally, EPA provides no data from the files kept by any company or regulatory body that confirms the groundwater contamination and emissions from such sites. As with conventional mills, such data will confirm that NESHAP regulation must include numeric emissions limits and enforceable monitoring and reporting requirements.

Conclusion

EPA has failed to provide a radon NEPSHAP regulation for uranium processing facilities that embraces the numeric standards, enforceability, and technology-forcing components of the Clean Air Act.

These comments request that EPA prepare a new draft, without further delay, that respects principles of Environmental Justice, Clean Air Act mandates, and the on-the-ground failures of the current work practice standards. These and other impacted communities remain willing to work closely with EPA to achieve these ends, given the opportunity and resources required to carry out EPA's Environmental Justice policies.

Respectfully Submitted,
s/Travis E. Stills
Travis E. Stills

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:02 AM
To: Thornton, Marisa
Subject: Fw: One tweak to new Subpart W page, then publish, please!

From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:22 PM
To: Collections.SubW
Subject: FW: One tweak to new Subpart W page, then publish, please!

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Thursday, October 30, 2014 10:40 AM
To: Romero, Carmen; Thornton, Marisa
Subject: One tweak to new Subpart W page, then publish, please!

ON:
http://epastage.epa.gov/staging1/rpd/neshaps/subpartw/rulemaking-activity.html

Please replace the sentence that starts “EPA is evaluating…”:
With this sentence, and publish to the server.

EPA is now evaluating the comments and information received as we prepare the final rule for the Subpart W standards.

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:02 AM
To: Thornton, Marisa
Subject: Fw: Update to Subpart W page after comment period ends today

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Sent: Wednesday, December 3, 2014 5:22 PM
To: Collections.SubW
Subject: FW: Update to Subpart W page after comment period ends today

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Thursday, October 30, 2014 9:22 AM
To: Rosnick, Reid
Subject: RE: Update to Subpart W page after comment period ends today

How about: EPA is now evaluating the comments and information received as we prepare the final rule for the Subpart W standards.

Let me know if that is OK—we'll make the change and publish the page to the server.

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Rosnick, Reid
Sent: Thursday, October 30, 2014 6:20 AM
To: Nesky, Anthony
Subject: RE: Update to Subpart W page after comment period ends today

Hi Tony,

I noticed one thing on the first paragraph; least sentence, EPA is now evaluating the comments and information received as we revisions to the Subpart W standards.

I would say: EPA is now evaluating comments and information received as we produce the final rule for the Subpart W revisions. Or something like that. Thanks

Reid

From: Nesky, Anthony
Sent: Wednesday, October 29, 2014 3:18 PM
To: Rosnick, Reid
Subject: Update to Subpart W page after comment period ends today

Dear Reid:

I drafted an update to the Subpart W page to be put on the web after the comment period ends. Basically, all the documents from the rulemaking have been moved into the Documents list. I do ask that you take look at the rewritten first paragraph on the page and let me know what you think.

http://epastage.epa.gov/staging1/rpd/neshaps/subpartw/rulemaking-activity.html

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Center for Radiation Information and Outreach
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nesky.tony@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:02 AM
To: Thornton, Marisa
Subject: Fw: Need to delete bullet from RPD Home Page

From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:22 PM
To: Collections.SubW
Subject: FW: Need to delete bullet from RPD Home Page

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Wednesday, October 29, 2014 6:39 PM
To: Thornton, Marisa; Romero, Carmen
Subject: Need to delete bullet from RPD Home Page

Dear Carmen and Marisa:

The comment period for Subpart W ended 10/29, so we need to update the home page on 10/30. On the home page, under "Regulations Under Review," please delete the first bullet entirely. The second bullet can remain as it is.

We'll update the Subpart W page after Reid has a chance to review it.

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

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To: Collections.SubW
Subject: FW: Need to delete bullet from RPD Home Page

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nesky.tony@epa.gov

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To: Collections.SubW
Subject: FW: Update to Subpart W page after comment period ends today

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To: Rosnick, Reid
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http://epastage.epa.gov/staging1/rpd/neshaps/subpartw/rulemaking-activity.html

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Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:01 AM
To: Thornton, Marisa
Subject: Fw: Please draft changes to the Subpart W page and put on staging server

---

From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:21 PM
To: Collections.SubW
Subject: FW: Please draft changes to the Subpart W page and put on staging server

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Wednesday, October 29, 2014 3:15 PM
To: Thornton, Marisa
Subject: RE: Please draft changes to the Subpart W page and put on staging server

Thanks!

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Thornton, Marisa
Sent: Wednesday, October 29, 2014 2:27 PM
To: Nesky, Anthony
Subject: RE: Please draft changes to the Subpart W page and put on staging server

Done - http://epastage.epa.gov/staging1/rpd/neshaps/subpartw/rulemaking-activity.html

---

From: Nesky, Anthony
Sent: Wednesday, October 29, 2014 1:50 PM
To: Thornton, Marisa
Subject: RE: Please draft changes to the Subpart W page and put on staging server

Fast as greased lightning! Under "On this Page" please delete

- Comment Period Extended to 10/29/2014
- Proposed Rule

Under On this Page, please add links to the sections "Presentations," Historical Rulemakings,' "Applications," "Enforcement," "Useful Links, and "Mine Location Database"

And please add one last row to the Documents table as follows--
Requests for a Public Hearing

- Memo to Docket on Telephone Request for Public Hearing (PDF) (1 pp, 196 KB About PDF)
- Letter from Uranium Watch (PDF) (1 pp, 42.9 KB About PDF)

Thanks! Call me if you have questions!

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Thornton, Marisa
Sent: Wednesday, October 29, 2014 1:11 PM
To: Nesky, Anthony; Romero, Carmen
Subject: RE: Please draft changes to the Subpart W page and put on staging server

Done - http://epastage.epa.gov/staging1/rpd/neshaps/subpartw/rulemaking-activity.html

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From: Nesky, Anthony
Sent: Wednesday, October 29, 2014 12:50 PM
To: Romero, Carmen; Thornton, Marisa
Subject: Please draft changes to the Subpart W page and put on staging server

Dear Carmen and Marisa:

The comment period for Subpart W ends today, so we will need to update the Subpart W page. Please make the following changes to http://www.epa.gov/radiation/neshaps/subpartw/rulemaking-activity.html. Please make them on the staging server so that Reid can review them first.

Please replace the first paragraph with the following:

NESHAP Subpart W is a radon emission standard for operating uranium mill tailings. In accordance with the Clean Air Act Amendments of 1990, EPA formed a workgroup to review the standard. On May 2, 2014, EPA published a Notice of Proposed Rulemaking that would revise Subpart W. Comments on the proposed revisions were accepted through October 29, 2014. EPA is now evaluating the comments and information received as we revisions to the Subpart W standards.

Deletions

Please delete the following sections in entirety—

Public Hearing

Requests for Extension of the Public Comment Period

EPA is proposing revisions to Subpart W. Comments due October 29, 2014.

Download the Proposed Rule and Submit Comments on Line

Changes To The Documents Table

At the end of the document sections *please add the following BEFORE* "Email request for extension of the comment period":

- Notice of Proposed Rulemaking from the Federal Register.
- Fact Sheet on the Proposed Rule (2 pp, 52 K, About PDF)

Please replace the row "Email request for extension of the comment period to with the following:—

Extension of the Comment Period

- Federal Register Notice about the Extension (2 pp, 216 KB About PDF)
- Request from Uranium Watch (PDF) (2 pp, 58.9 KB About PDF)
- Request from NTAA (PDF) (1 pp, 32.4 KB About PDF)
- Letter from Jennifer Thurston 6-19-14 (PDF) (1 pp, 60K)
- Hearing Request (PDF) (5 pp, 82K)

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- Letter from Uranium Watch (PDF) (1 pp, 42.9 KB About PDF)

Changes to "Historical Rulemakings"

Under 'Historical Rulemakings," please add the following entry at the end—
Notice of Proposed Rulemaking, May 2, 2014

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:01 AM
To: Thornton, Marisa
Subject: Fw: Please draft changes to the Subpart W page and put on staging server

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From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:21 PM
To: Collections.SubW
Subject: FW: Please draft changes to the Subpart W page and put on staging server

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To: Thornton, Marisa
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Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Wednesday, October 29, 2014 12:50 PM
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Subject: Please draft changes to the Subpart W page and put on staging server

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Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:01 AM
To: Thornton, Marisa
Subject: Fw: Transcripts

From: Rosnick, Reid
Sent: Wednesday, November 26, 2014 7:18 AM
To: Collections.SubW
Subject: FW: Transcripts

From: Rosnick, Reid
Sent: Wednesday, November 05, 2014 11:53 AM
To: Nesky, Anthony
Subject: Transcripts

Hi Tony,

Are the final transcripts here yet?

Reid

_____

Reid J. Rosnick
US Environmental Protection Agency
Radiation Protection Division
202.343.9563
rosnick.reid@epa.gov

Public Hearing on
Proposed Revisions to National Emission Standards for Radon Emissions from Operating Mill Tailings

9:00 a.m. to 3:53 p.m.

Thursday, September 4, 2014

1595 Wynkoop Street

Denver, Colorado 80202

EPA PANEL:

ELYANA SUTIN, Chair; EPA

TOM PEAKE, EPA

DANIEL SCHULTHEISZ, EPA

C O N T E N T S

P R O C E E D I N G S

MS. SUTIN: So good morning everyone. I think we are going to get started. My name is Elyana Sutin, and I am the regional judicial officer here in EPA Region 8. Thank you all for coming this morning.

I will be presiding over the hearing today. And joining me on the panel is Tom Peake and Dan Schultheisz from the Office of Radiation and Indoor Air in Headquarters. This hearing is now in session.

We are here today to listen and receive your comments on EPA's proposed revisions to the National Emission Standards for Radon Emissions from Operating Mill Tailings, also known as 40 C.F.R. Part 61, Subpart W.

EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes general available control technology or management practices, also known as GACT, for this area

source category.

EPA announced this proposed rule on May 2nd, 2014. The comment period started on May 2nd and was to end on July 31st, 2014 -- on July 31st, 2014. On July 21st EPA extended the comment period to October 29th.

In a moment Tom will explain in more detail what was proposed in that notice. But before I turn it over to Tom, I'd like to explain a bit about how the hearing will work today.

There will be two sessions today, one this morning from 9:00 until noon, and one this afternoon from 1:00 until 5:00 p.m. here in this conference room.

Please be sure to have checked in at the registration desk even if you are not planning to speak today.

I will call the scheduled speakers to the chair in front of me and you will -- you will then speak. Your comments will be transcribed and included in the record of comments on the proposed rule.

In order to ensure that everyone has the opportunity to speak, and to ensure fairness, please limit your testimony to ten minutes. We will signal to you when you have one minute left to speak. When one minute has passed I will ask you to complete your testimony. There is no pressure to speak the ten minutes. If your remarks are less than that, please don't feel like you have to say more.

With that said, if you have more to say after your ten minutes and you would like to speak again with information that is new and discreet from your previous testimony, and is not a rebuttal to someone else's testimony, we are happy to have you speak again if there is time. And I believe there will be.

After you finish your testimony, members of the panel may ask clarifying questions. We are not here today to answer questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing.

If you have written copies of your testimony or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript. If you have additional comments you would like to make you can submit them in writing. Comments must be received on or before October 29th by 5:00 p.m.

Let me assure you that the EPA gives just as much consideration to written comments as we do to comments that we receive in public hearing. Instructions for submitting comments are included in the fact sheet at the registration table. And you can pick that up at the table outside of the door.

Today's public hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not registered to do so, please sign up at the registration table outside of the room.

Now I'll turn it over to Dan, who will summarize the proposed rule -- I'm sorry, Tom, I

apologize.

MR. PEAKE: Hello. My name is Tom Peake and I'm the director for the Center for Waste Management and Regulations in Washington, D.C. We're in the Radiation Protection Division of the Office of Air and Radiation.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the National Emission Standards for Radon Emissions, or NESHAPS, from Operating Mill Tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technologies, or GACT, to limit radon emissions from tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new definitions to the rule, revise existing definitions, and clarify that the rule applies to uranium recovery facilities that extract uranium

through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailing impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities and heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limit the amount of byproduct material that can be exposed.

For conventional impoundments, limit tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings

exposure using phased disposal and maintain a 30 percent moisture content in the pile.

For evaporation ponds, require at least one meter of liquid be constantly maintained in the pond.

We are proposing to add definitions for when a uranium recovery facility is in operation or standby.

Lastly, the proposed rule would require the owner/operator of a uranium recovery -- a uranium recovery facility to maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. The comment period ends on October 29th. And we are looking forward to hearing from you.

Thank you.

MS. SUTIN: Okay. We will get started. Our first speaker is Scott Bakken. Again, if you could please spell your name, especially your last name for the record -- for the court

reporter, that would be great.

MR. BAKKEN: Good morning. My name is Scott Bakken. Last name is spelled B-a-k-k-e-n. I'm an environmental manager with Energy Fuels. Our company is currently America's largest conventional uranium producer, supplying approximately 25 percent of the uranium produced in the U.S. in 2013.

The focus of my comments today are on the applicability of the proposed revisions to nonconventional fluid retention impoundments located at in-situ leach or ISL uranium recovery facilities. These nonconventional impoundments, commonly referred to as holding ponds, storage ponds or evaporation ponds, are used to store and/or treat liquid effluents during the wastewater disposal process at facilities regulated by the U.S. Nuclear Regulatory Commission and/or NRC Agreement States.

It is Energy Fuels' position that regulation of radon emissions from nonconventional fluid retention impoundments by

the EPA is unnecessary. The administrative records in Subparts T and W, as well as the EPA's Method 115 rationale and procedures strongly suggest that radon emissions from nonconventional impoundments are low, if not negligible, pose little risk to public health and the environment. And, thus, do not warrant the application of standards to control radon.

Given that the NRC and Agreement States already have robust standards in place, the proposed revisions to Subpart W would result in dual regulation while providing little to no additional benefit to public health or the environment beyond what is already in place under the Atomic Energy Act.

Energy Fuels believes that the "one-size fits all" approach to nonconventional impoundments is not appropriate, and that any standards imposed on ISL facilities should be appropriate for the nature, scale and relevant risk associated with various impoundments.

Based on review of the proposed revisions

and supporting documents, it is Energy Fuels' opinion that the "base case" and other assumptions used to evaluate impacts to ISL facilities is not necessarily representative in terms of the number, size and type of various impoundments in place at current and planned ISL facilities.

The result is that the proposed revisions may result in much greater costs or operational impacts than those evaluated, including costs above and beyond what was required to license them under the NRC, contrary to what is stated in the proposed revisions.

Energy Fuels questions the methodology implied by the EPA in regards to radon attenuation and control attributed to the proposed control measure of maintaining one meter of water in nonconventional impoundments. In the proposed revision the EPA states:

"The benefit incurred by this requirement is that significantly less radon will be released to the atmosphere. The amount varies from

facility to facility based on the size of the nonconventional impoundment, but across existing facilities radon can be expected to be reduced by approximately 24,600 curies, a decline of approximately 93 percent."

It is perplexing as to how a 93 percent decline was attributed to this control measure. In Table 46 of the background information document, for example, a radon attenuation factor of 0.07, that is a 93 percent reduction was applied to the calculated maximum radon release of 36,500 curies per year from an operating ISL facility.

As described in section 4.4 of the background document, this calculation was based on either theoretical or actual release values and as such should be representative of radon releases for both processing facilities and impoundments.

Further, considering that the EPA has acknowledged that radon release from nonconventional impoundments is small, that is

less than 1 percent of the facility total radon release, it is assumed that -- it is assumed that the majority of this calculated radon release was associated with processing facilities, not the impoundments.

Assuming that the 36,500 curies per year radon release for the aforementioned ISL facility is from both processing facilities and impoundments, and that even 1 percent of this amount is attributed to impoundments, the annual radon release associated with the impoundments would be 365 curies.

Based on this analysis, a 93 percent reduction in radon release attributed to maintaining 1 meter of water in impoundments would only result in a maximum facility wide reduction of approximately 340 curies per year, not the 33,100 curies per year that is presented in Table 46 of the background document.

This represents a radon release reduction of less than 1 percent for the overall facility versus a decline of approximately 93 percent, as

stated by EPA in the proposed revision.

Clearly, an incremental reduction in "almost nothing" is still "almost nothing". Thank you for the opportunity to comment.

MS. SUTIN: Thank you.

MR. PEAKE: You said that the base case analyzed by EPA wasn't representative.

MR. BAKKEN: That's correct.

MR. PEAKE: In your comments, will you be providing information or data that you think is more representative?

If you say that what we have isn't representative, will you be explaining why that is not the case and have other information?

MR. BAKKEN: Yes, we will, in our written comments we will provide more detail.

MR. PEAKE: And will that include data or just calculations or --

MR. BAKKEN: It will include data in terms of the variety of wastewater treatment and disposal systems that are in place at ISL facilities, that range from, for example, small holding ponds,

storage ponds located at facilities. Also you utilize deep disposal well injection for disposal of wastewater. It would include nonconventional impoundments that may be used to store water prior to disposal via land application and conventional evaporation ponds that are located at ISL facilities.

MR. PEAKE: Okay. Thank you.

MR. BAKKEN: You're welcome.

MS. SUTIN: Thank you.

Next if we could have Sarah Fields?

MS. FIELDS: Thank you. My name is Sarah Fields, S-a-r-a-h, F-i-e-l-d-s. I'm with Uranium Watch in Moab, Utah. Thank you for the second -- or fourth, I think, opportunity to speak.

I want to say just a little something about your nonconventional impoundments that the previous speaker talked about, the nonconventional impoundments at ISL facilities. However, under the proposed regulations your nonconventional liquid impoundments would also include those liquid impoundments at conventional

mills. They're currently at the White Mesa Mill. You have a Cell 1 and a Cell 4B that are just receiving liquids. So they would be currently considered nonconventional impoundments.

And based on EPA's calculations as to the amount of radon emissions per picocuries per liter of radium, Cell 1 is releasing 228.9 picocuries per meter squared per second at this -- for 2013. And Cell 4B would be 102.2 picocuries per meter squared per second.

You also have liquid impoundments on top of Cell 3. And Cell 4A is also mostly liquid at this time. And Cell 3, 573.3 picocuries per meter squared per second, and Cell 4A, 110.6 picocuries per meter squared per second.

So these liquid impoundments, based on Energy Fuels' data regarding the amount of radium in these liquid impoundments, and EPA's determination as to the emissions per -- based on the amount of the radium in these liquid impoundments, these are not negligible emissions. So you can't lump all nonconventional

impoundments together.

If there's a determination that the nonconventional impoundments at ISL do have minimal emissions, first you'd have to look at the radium content, you'd have to look at actual data and put those data into a formula, into a model, and use a little bit of math and figure that out. Unfortunately, that really wasn't done.

Now I'd like to a little bit about what -- these new impoundments. Now, my assumption is you're not going to be able to remove the emissions standard for existing impoundments because you don't have a factual basis for that. Your factual basis doesn't hold water. So we have to look at the new impoundments.

There are two new impoundments at conventional mills since 1989. Those are cells 4A and 4B at White Mesa. They are approximately 40 acres. 4B is now just being used for liquids, but eventually it will receive the solid tailings

slurry.

You don't have a -- any radon emissions standard. And I think that's a grave error. I think you need -- and one of the reasons is that you don't -- your requirements for a double lined impoundment and the forty acres really does little to stop -- to stop the emission of radon. You're just assuming that throughout the whole life of that impoundment that everything will be okay.

In the Federal Register Notice, they talk about the use of soil and water to attenuate the radon for these impoundments, but there is no requirement for -- in the proposed rule for the use of soil or the use of water to attenuate the radon throughout the life.

Let's just assume we're talking about Cell 4A. So now assume gradually over the years it will get filled up. And at some point it will have -- they will stop putting liquid in the impoundment. And through either a natural process or active dewatering, that will start to

dry out.

Well, if that were an existing impoundment with radon monitoring, and the requirement to keep it under 20 picocuries, the licensee would start covering it with soil as it started to dry out. But under your current regulations there's no requirement to start covering it with soil.

And that impoundment might sit there for decades uncovered, without an interim cover, emitting radon. The licensee doesn't intend to put a permanent radon barrier on any of those impoundments until the closure -- until at least 4A and 4B have been -- have ceased operation and are ready for the final radon barrier. But you can't put a final radon barrier on until it has dried to a certain point because the impoundment has to settle.

So there are two reasons to dry it out. One is to reduce the heads so there will be no more leakage. And that's why they accelerated the process for drying out Cell 2, because that

was done under their groundwater discharge permit, not their radioactive license -- I mean, that requirement to accelerate the dewatering.

So what you would have at Cell 4A is an impoundment that's drying out. There's no requirement to monitor the radon, there's no requirement to keep -- put a soil cover on after it -- once the liquids on the top or -- and the liquids in -- within the cell are eliminated. And that's the situation.

But it seems like the EPA doesn't really have a very good concept of what exactly happens at a tailings impoundment. It's certainly not reflected in the Federal Register Notice.

And another thing about the available technology, one of the available technologies that is currently being used and relied upon to reduce the amount of radon emissions at conventional mills is measuring and monitoring the radon emissions. And then if the radon emissions are above the standard, taking

corrective actions to reduce emissions -- the emissions.

But if you have no requirement for monitoring, you have no knowledge of what exactly is going on at a tailings impoundment, what -- so that no action can be taken because nobody knows what's going on.

And that's what you're asking us to believe is an adequate means of controlling radon. It's like -- it's a little bit bizarre in my mind that you would think that --

MS. SUTIN: One minute, Ms. Fields.

MS. FIELDS: -- not knowing is the best approach to controlling the radon emissions. Not knowing what the emissions are, not having any requirement to take corrective actions to reduce the emissions is the best way to regulate the conventional tailings impoundment. I find that really ridiculous.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

Next if we could have Travis Stills?

MR. STILLS: Do I need to hold the mic or --

MS. SUTIN: Yes, so folks in the audience can hear.

MR. STILLS: I didn't know if which -- and now that I hear the echo, it's even more fun.

Good morning. My name is Travis Stills. I'm an attorney with Energy and Conservation Law. And today I'm here with the Plaintiffs who brought the lawsuit that compelled this rulemaking, including Colorado Citizens Against Toxic Waste.

You know, the key issue that we're dealing with is in the rulemaking we're writing new law responding to a real problem in the world as far as what should be done to reduce radon emissions associated with uranium processing.

I think you have heard quite a bit from the public about the inadequacies of the -- both the NRC regulations and the Clean Air Act regulations that apply, that have resulted in emissions far beyond the 20 picocuries that were adopted in '89, far beyond the 10 picocuries that

really should have been adopted as the numeric standard in 1989.

But let me back up and welcome you to Denver and to Colorado. I appreciate that you're here, that folks have come from Washington.

Unfortunately, and I won't dwell on this, you have basically come to the industry's headquarters. I know EPA has a regional office here as well. But it's well known that Denver is the headquarters for the industry. And you have seen that reflected in the attendance here.

I'll renew and reiterate the request of many groups, community groups, Native American tribes, who have asked that the folks from D.C., you know, get away from the lobbyists, the consultants, the abstract models, and come out on the ground and talk to people, who you've heard a couple, and will hear a couple here, who probably know these sites better than the operators themselves.

You hear a lot of, you know, measurement in a bucket to simulate what a uranium mill does

and what the tailing cells do. Come out and actually take some measurements and talk to people, find out the real impacts on the ground.

And like I said, I understand that the folks here are not the ones to mete this criticism out to, but please take that back to Washington and let folks know that there's a lot of good folks with a lot of good information that you would very much benefit in this rulemaking if you went to the sites and you went to the affected communities.

As a matter of environmental justice, I think the EPA's own policies compel that.

So again, this is a Clean Air Act rulemaking. There is no serious question that EPA has authority to regulate hazardous air pollution, and in particular, radon from uranium processing.

The National Mining Association, who meets regularly with the EPA and NRC, and are perhaps in this room but -- you know, they floated these arguments over and over and over again. And note that their arguments are based

on staff memos of NRC who has over the decades attempted to push EPA out as far as a regulator when it comes to uranium processing.

The groups that I work with very much welcome and invite and encourage and depend on EPA to regulate in this field.

It is the norm, it is not the exception for multiple laws to apply to a given facility. Any kind of industry knows that inside or outside of the energy field.

There is some mention today by Energy Fuels of deep well injection of some of their wastes. That is also an EPA program, the Safe Drinking Water Act -- Safe Drinking Water Act Underground Injection Control Program. This is not unique.

The National Mining Association's one stop shopping argument has failed, and it should fail again. And it really should be ignored as a diversion to the real work at hand. It's not a serious argument, it doesn't have a serious basis.

Congress has also rejected that single regulating approach when adopting UMTRCA, which is a response, a direct response to an industry that has failed to operate cleanly, has cost billions of dollars in taxpayer money on clean up, and has caused unnecessary deaths and health impacts due to the failure to follow laws and to -- and based on the aggressive lobbying against environmental protection laws.

What we're dealing with in this rule is largely -- although processing facilities, as you have heard today, is also a major source of radon emission that should be looked at within this rulemaking -- and now I have information from Energy Fuels on the record that says that the processing facility itself should probably be regulated because of its contribution to overall emissions.

But what we're mostly dealing with here today is open air processing and disposal, whether it’s heap leach or the disposal.

This is dark ages kind of stuff for folks

who work outside of the uranium industry. Processing -- industrial processing in an open air setting, that's absurd. I don't know why in the world that's even still on the table.

What the focus should be in the rulemaking, where it should really shift the focus back on the mechanisms that are used in the Clean Air Act, the mechanisms adopted by Congress as the policy of the United States to keep it clean.

You should be looking at numeric limits, probably more in the 5 picocuries or 4 picocuries level that was analyzed in the 1986 and 1989 documents. At a -- you know, at a 10 would be probably too high. It was raised to 20 for economic reasons. If you want to protect -- be protective of health, you need to be looking at 5 and 10 numeric limits, actual monitoring, actual reporting and actual enforcement.

When this lawsuit was brought to bring this rulemaking, Region 8 didn't know who regulated what. We have emails in the court

record back and forth saying, oh, does it say do that, oh, I don't know, maybe the EPA does, let's find out.

This is an important regulatory field. And we are happy to help EPA bring it back into line with the Clean Air Act. And not as far afield as the National Mining Association is arguing to take you as far as, you know, you don't even have a role here. And that's -- that's just absurd. The EPA has a role. We welcome it, we depend on it, we look forward to it.

Control technologies, that's what the Clean Air Act is about. Open air processing with some water on it is not a control technology. Limiting the number and size of open air storage is not -- is not control technology.

Our written comments will talk in a little more detail about the generally available versus maximum achievable. You know, this is radon, this is radioactive materials, this is cancer and this is health effects, not to mention

the environmental effects that haven't been really looked at.

This should be looked at and implemented under a maximum available control technology. But unfortunately, as written, there are really no technologies -- they're not analyzed in the rule. I don't seen anywhere where EPA has taken a good look, either directly or comparatively, across technologies. Phased disposal is not a control technology. It's dump and wait and clean up someday in the future. That should be -- that should be abolished. It barely squeaked through in the 80's. It is not a 21st century technology.

When it comes to the industry's financial capacity, this industry has not been -- has not really been viable financially, you know, probably since the price accords were taken away in the 1950's. It depends on open air and open water dumping.

You know, dumping water underground to pollute our groundwater, dumping their waste into the open air, that's not a -- that's not a viable

21st technology.

This industry will not change on its own. We've seen that in practice at White Mesa, we've seen it at Cotter, we've seen it at Uravan. This industry only responds to regulation.

MS. SUTIN: One minute, Mr. Stills.

MR. STILLS: Okay. Thank you.

And to close, what we really need to look at here is the full life cycle of processing, creation of tails and wastes -- I won't get into the fake nuances that were put forward as far as the differences there. Liquid wastes or 11e.(2) byproduct, that's well established.

But this rulemaking is an opportunity to pull back and look at 21st Century control technologies, which should probably also include a prohibition on open air processing, also known as heap leach, and open air dumping of wastes, which is the phased disposal, in favor of pace technologies (phonetic), continuous cover, all different forms of tailings disposal that are used throughout the mining industry. And get

past what I would describe as a filibuster by industry to keep the EPA's regulations from moving into the 21st Century.

MS. SUTIN: Time is up.

MR. STILLS: We are private citizens and we are here to help. I hope you all from the federal government are here to help too.

Thank you very much.

MS. SUTIN: Thank you, Mr. Stills.

MR. STILLS: S-t-i-l-l-s, T-r-a-v-i-s.

MS. SUTIN: Mr. Stills, we have a clarifying question.

MR. STILLS: Certainly.

MR. PEAKE: In your written comments, will you be providing specific language as part of your comments? You know, as far as rule language that you're recommending?

MR. STILLS: If that will be helpful as part of the process, I think we are contemplating that. And given your interest in it, I think it's more than likely we will.

MR. PEAKE: Thank you.

MS. SUTIN: Thank you, Mr. Stills.

Okay. Next, if we could have Richard Blubaugh?

MR. BLUBAUGH: Thank you.

My name is Richard Blubaugh. And I am the vice president of health, safety and environmental resources with Power Tech USA Inc.

Power Tech is currently completing permitting activities for a Dewey-Burdock ISR project in Southwest South Dakota. Power Tech is in the process also of completing a business transaction with Azarga Resources Inc. And the new company will be named Azarga Uranium Resources, Inc.

However, Power Tech USA, which has recently received a license to operate an ISR in South Dakota from NRC, is a South Dakota company, a wholly-owned subsidiary, and will not be affected by the transaction, the corporate change.

Our headquarters are located in the Denver Tech Center, and our initial project is

the Dewey-Burdock project.

As a prospective operator of an ISR facility, Power Tech is concerned about the regulations under which it must operate. We believe regulations should be protective of human health and environment. We also believe they should be fair and reasonable, and not punitive, particularly to small business entities.

While the proposed rule appears to be reasoned and technology based, there are errors and omissions in the proposed rule that should be reviewed and reconsidered.

However, there are some changes to the rule that are commendable, some that were mentioned earlier, eliminating the limits on pond number and size for ISL and ISR operations, eliminating the requirement for radon monitoring ponds that maintain the water level, and choosing to regulate these facilities under the generally available controlled technologies and management practices, or GACT.

Our comments here today are going to

focus really on just a couple of issues. And they will be followed by written comments prior to the extended deadline.

In the preliminary discussion of the rule there is a quote that reads in part, “EPA cannot allow a situation where the reduction of radon emissions comes at the expense of increased pollution of the ground or surface water. Therefore, all piles will be required to meet requirements of 40 C.F.R. 192.32(a), which protects water supplies from contamination."

Interestingly, the statement that immediately follows this quote reads, therefore, all impoundments are required to meet the requirements at 40 C.F.R. 192.32(a).

While EPA may not clearly distinguish between piles and impoundments, those of us in the ISR side of the industry do not accept the premise that our facilities generate tailings, which EPA on page 20 of the document clearly describes being generated by conventional uranium mills.

Power Tech potentially will be using a dual system for disposal of wastewater, deep disposal wells, which is a preference, and land application, or possibly both.

In either case, Power Tech will treat the water to remove radium, the precursor to radon and its progeny. Consequently, there will not be any radon levels to reduce in the storage and holding ponds. The radium will be contained in one of two radium treatment ponds upstream of the storage holding ponds which will have the required liner system.

It appears that the agency did not consider this technological situation for ISR facilities and that its requirement that all impoundments are required to meet the requirements at 40 CFR 192.32(a) is another one size fits all remedy that EPA seems to prefer.

There's a statement the ISL facility ponds contained uranium byproduct materials. It apparently assumes that no ISL operator removes radium prior to disposal of wastewater. This

assumption should be revisited.

Power Tech has proposed and NRC has licensed a treatment process that removes radium 226 before the water is piped to a storage pond. From there it will go to a deep disposal well or used as irrigation water on the native soils.

On page 25 of the risk assessment -- and again, this is from the April 17th version, Table 15 -- EPA demonstrates the effectiveness of barium chloride in removing radium from the Church Rock ground point sample groundwater, which reflects a 95 to 99 percent radium removal efficiency for barium chloride given by the EPA in 2006.

So without reconsideration and revision of the proposed rule by EPA Power Tech will likely be required to construct (unintelligible) designed ponds at considerable cost, even though there will be no radon gas emissions, nor a realistic risk of contaminating groundwater or surface water.

The description of the liner system

indicates that 40 CFR 264.221 requires a triple liner with a leak detection collection system. I know it was said earlier that it was a double liner, but you're talking about three feet of compacted clay. That's also a liner.

There will be no hazardous waste deposited in these storage or holding ponds, nor do the radium treatment ponds contain hazardous waste. They contain byproduct material.

I hope you will consider these comments. Thank you for your attention.

MS. SUTIN: Thank you, Mr. Blubaugh.

Could you please spell your name, your last name for the record for the court reporter?

MR. BLUBAUGH: Sure, I'm sorry.

B-l-u-b-a-u-g-h.

MS. SUTIN: Okay. Next if we could have Sharyn Cunningham?

MS. CUNNINGHAM: Hello, my name is Sharyn Cunningham. I'm from Cañon City, Colorado, specifically from the Lincoln Park area, which is the Superfund site that the Cotter Uranium Mill

caused with the contamination that moved away from their site. I'm also a co-chair of Colorado Citizens Against Toxic Waste, which is a local Cañon City, Fremont County group that formed in 2002 to follow and address and try to help with the Superfund issue and the issues happening at the Cotter Mill.

I live about one-and-a-half miles or less downhill from the Cotter Uranium Mill. I have two wells that have been contaminated, one still above standards.

I feel like what often is missing is just this real life experience. I fear that people are sitting in Washington or here in Denver at their desks and looking at things in a very generalized way.

And just an example of that is ever since our group began we have climbed a ridge on the south side of Cotter, above Cotter, with permission from the owner, and taken photographs of impoundment ponds. And one of the things in this rule is that you're going to -- the proposed

rule is you're going to depend on these work practices to reduce radon.

And everyone commenting has talked about the water cover, that prevents radon, you know, reduces it down to a very, very low emission rate.

What you don't realize, and if you could look at photographs we've taken over these twelve years, you would see that every year the water coverage changes. If we have two or three years of drought, the water shrinks, because the Cotter Corporation at that time had to pay for city water to treat its city water to keep that 157 acre impoundment pond covered with water. So some years there would be tailings (unintelligible), and then other years we were fearing it was going to overflow when we would have a lot of rain.

This all began after our group began. I mean, this rulemaking we're at right now, when we became concerned about the radon situation at the Cotter Mill. Their flux reports went up and

down. Some years they would be low. One year in particular it was almost at 20 picocuries per square meter per second. And we were concerned. We read at that time that anytime a radon flux gets close to that standard that the agencies could step in and say, okay, you need to do something, like put some dirt out there or water, and they did both over a number of years. Or you need to do a radon flux test monthly for a little while. That didn't happen.

Also, Cotter's whole method of determining radon emissions at their mill, whether at the boundary with their air stations, came into question and they were told to create a method of doing that.

And we've had two world renowned scientists look at their method of determining the radon. And that's what we are going to depend on now. If a conventional mill like this with their impoundment don't have to do those radon flux tests, then the people that live near them are depending on that company's method of

determining background from radon and whether or not they're in compliance with standards.

Also, we were concerned because Cotter's 157 acre impoundment pond is divided into two cells. One of them is called a secondary impoundment. And they filled it with old tailings and covered it with water, and said we're not putting anymore tailings in this, therefore, we don't have to do radon flux tests.

So for all of the years that radon flux tests were required, they didn't do them on the secondary impoundment. And we were concerned about that. And so we probably made enough noise that somebody came in, either the health department here in Colorado, or maybe EPA, and so Cotter in 2007 did a radon flux test on that secondary impoundment. And it was -- it was above the standard, it was at 23.

So they then put dirt where they thought they needed dirt in order to reduce it and they got it reduced down. But then they never did another radon flux test.

And I think the point's been made. In real life, when you're a mile from this place and you see it frequently, you know that it -- the conditions change as time goes by with weather and so on.

Then in 2010, Cotter had -- was on standby. And they said, well, we're not going to use that primary impoundment anymore. That was when they were putting stuff in. And so we're not going to do radon flux tests anymore.

And so at that point EPA said, well, you're supposed to. But then we never saw anything else about that. Cotter came back and said we don't think we have to. Then in January of 2012 -- oh, yeah, in July -- January of 2012 Cotter submitted to the state their request for termination of their license. So they kind of officially finally said that they were going to close.

And then in July of that year, I don't know who -- why they did it, they were -- I'm sure they didn't do it voluntarily, somebody

probably asked them to do it, the health department or EPA, they did radon flux test. So they hadn't done radon flux for 2 years.

So in 2012 they do one in July and the primary impoundment is above the standard. It's at 23 something or other. So Cotter goes out there and they cover with dirt some of the hot spots and so on. But they didn't send -- they weren't required to do it, they claimed, so they didn't send an official report to EPA on it.

So basically, one of the issues I wanted to address is the risk assessment that was done by Cohen. And from -- in layman's terms, you asked them to look at and do a risk assessment again. And the purpose of it is to do an analysis of the dose and the risk to revise the risk assessment for NESHAPS.

And it's basically about the risk from radon. And you -- Cohen went to a number of sites, conventional mills, ISL facilities, et cetera. And then you at EPA base your decision on how to change these regulations using that

risk assessment.

And one of the things that I was very upset with living next door to this, and in this -- I am inside the Superfund site, was that there were several huge errors by Cohen in regard to the Cotter Mill.

First of all -- and when we send our written comments out we'll do more details on this. But on page 22 of the report Cohen claims that there was no Cotter radon data for them to get. And so instead they used the radon flux reports to then do a calculation as to the amount of radon coming off of the mill site.

Well, Cotter's been collecting radon data for decades. In fact, in a 1995 annual report -- this is sentence from it -- they got Colorado State University to do a risk assessment in 1995. And they said the data that CSU collected included airborne particulate data and radon 222 data. But Cohen's report says that --

MS. SUTIN: One minute.

MS. CUNNINGHAM: Okay. That there was no

data.

The second real big problem was the population. They used a 2000 census, did a calculation when -- Cohen's report came out in November 2011. They could have used the 2010 census data.

Cohen claims in a two mile radius around the mill there are 400 people. No, within a two mile radius there's 6,000 people.

And there was further problems with that. A third one was meteorology. They claimed that there was no meteorological data from Cotter. And they used meteorological data from Colorado Springs. Cotter has had a meteorological air station on their site for decades. It's in their annual report every year.

There's more. If I have time later I may say something else. We came to you in 2000 -- we started in 2006 with concerns about this radon. And we look to you to protect us and you -- I hope that you will reconsider doing real measurement rather than assuming that a company

is going to put dirt on there when they feel like it when no one is out there inspecting them for months and months at a time.

So anyways, thank you for the chance to talk.

MS. SUTIN: Thank you, Ms. Cunningham.

Next if we can have Kay Hawklee?

MS. HAWKLEE: It's K-a-y, H-a-w-k-l-e-e.

Thank you all for allowing us to testify. I'm member of the community advisory group to the Cotter Lincoln Park Superfund Site, the CAG. But I'm here speaking as an individual, I'm not speaking for the CAG. I've been a member of the CAG since 2007.

And January 3rd of 1965 the Denver Post published the first article saying that Cotter was going to close. This January that will be fifty years. So for fifty years they have been going into lengthy times of standby and saying that they were going to close, but here we are fifty years later.

UMTRCA was created so that uranium mills

would not linger with contamination. But in Cotter's case, with a leaking impoundment, leaking into Lincoln Park's groundwater and causing a Superfund site that's been here for thirty years -- the Superfund site has been around for thirty years -- Cotter is the prime example of lingering contamination.

Under the Clean Air Act the EPA needs to look at the full history of this industry. This is why what is ongoing at Cotter needs a new rule. We're concerned because the Cohen study was just wrong in many places. And you've proposed a rule that relies on this misinformation by Cohen.

So what I'm asking is, will you correct the rule to reflect the proper actual data. And often it's us, the affected citizens, who check those facts. And we're inviting you to come to Cañon City and meet with us to go through the actual data that Cotter has not provided yet, but is -- that is there, that is out there and has been done.

We would like for you to check on actual radon flux measurements that have been taken and have at times exceeded the 20 picocuries limit. You do have the authority to do so no matter what the NMA says.

Instead of relying on hypothetical models of Brown and Cohen, we would like for you to come out and look at the reality, our real world examples using real world data. It would take more time than I have today to detail what has fallen through the regulatory cracks at Cotter.

And here we go again. This rulemaking is creating another very large gap. So what we're asking for you to do is help us close the gap. That gap is being created where there is no radon flux measurements between closure and the placement of the cap, which could be decades away still. And we would like you to use authority under the Clean Air Act to regulate hazardous pollutants from these uranium mills.

We look forward to working with the EPA. You've heard from the National Mining Association

that there are no emissions. There are. And they've been measured many times above the limit. This is a real world problem. We need a real world solution from EPA.

I just brought a study that I have gotten that talks about the need for monitoring. And I will give it to you. I don't have the capacity to upload it at home and send it so -- but there's a line in here that says the implications for the various assessments of long term releases of radon are discussed, including aspects such as the need for ongoing monitoring of rehabilitation at uranium mining and milling sites and life cycle accounting.

And I would just ask you to please relook at this concept of no monitoring because Sharyn lives a mile from the toe of the impoundments, the Arkansas River is a mile-and-a-half from the toe of the impoundment. And not taking measurements is such an avoidance of documentation that is -- in my mind is absurd and it's outrageous. And I would just ask you to

please look at that again and reconsider that aspect. So I will give you this paper.

Thank you.

MS. SUTIN: We have a question too.

MS. HAWKLEE: Oh, okay.

MS. SUTIN: Thank you.

MR. PEAKE: Okay. You said that you have data that you want to share with us. Will you be providing that in your written comments?

MS. HAWKLEE: Yes, we can.

MR. PEAKE: Okay. Thank you.

MS. SUTIN: Thank you, Ms. Hawklee.

Okay. We have heard from all of the registered speakers so we will pause the hearing until someone arrives that would like to speak.

Thank you.

We're going to take a break and come back at 10:30.

(Whereupon, a recess was taken.)

MS. SUTIN: Okay. We're back on the record. And we have two additional speakers. First is Sarah Fields.

MS. FIELDS: Thank you. My name is Sarah Fields and I'm with Uranium Watch in Moab, Utah.

I think, as some of the discussion has revealed, that one of the big issues is what happens when a tailings impoundment or a mill as a whole enters some sort of closure period. And the EPA, or in Utah the Division of Air Quality, determines that Subpart W compliance for an existing tailings impoundment is no longer applicable.

In both Cañyon City and White Mesa you had closure and ending of radon monitoring, but no compliance with EPA 192 or NRC criterian 6A of appendix A which require reclamation milestones. For Cell 2, there is no approved closure plan. These are long processes.

So recently at White Mesa a determination was made that Subpart W no longer applies. And whether or not there is an approved closure plan, and whether or not there are reclamation milestones for dewatering, interim cover and the final radon barrier, those tailings impoundments

are going to sit there for decades. And there will be no requirement to monitor the radon emissions and determine whether or not the radon emissions are increasing, and no requirement to take corrective -- any corrective actions.

Fortunately for Cell 2, even though in 2008 they ceased putting waste in the impoundment, there were six years where even though you might say essentially they had entered the closure period, they had not officially requested that they no longer be required to comply with Subpart W.

So for six years they continued to accumulate data. And when they found that the 20 picocuries standard was exceeded they took corrective actions. But from now on for the next, I don't know, fifty years, there will be no data.

So as a friend of mine has often said, "no data, no problem". So as long as the EPA feels that they don't need any data on radon emissions because the impoundment has entered

closure, or the whole -- as in Cañon City, the whole mill has entered closure, there will be no data. And there will be no problem. And with no problem there's no requirement to take any corrective action.

I don't call that regulation. I don't call that protecting the public health and safety. And it really goes back to the rescission of Subpart T. Subpart T would have required compliance with 20 picocuries throughout the closure period.

Subpart T was rescinded a number of years ago. And it was basically to take -- to address certain situations at a number of mills that had already been closed down.

Well, currently any of those mills that were addressed in the 1991 memorandum of understanding between the EPA and the NRC in the agreement states, "those mills have either had the completion of the radon barrier or they are currently under a requirement to maintain a 20 picocuries limit on the radon emissions because

they have gone beyond the initial reclamation milestones." So they've had the milestones extended. Because they requested those extensions of the milestones they have to now comply with the 20 picocuries.

The rescission of Subpart T really didn't address the issues that you now see at the Cotter Mill or at the White Mesa Mill. So what you see now will be extensive periods of time before there is a final radon barrier where there will be no monitoring and no requirement for corrective actions.

It will be even worse for the new impoundments because throughout the life of those new impoundments at White Mesa there never will be a requirement for any radon monitoring. There will be no requirement for keeping the tailings impoundments wet, there will be no requirement when they do start to dry out for putting an interim cover and soil on the impoundment because it seems they enter closure and there's no closure plan, there are no reclamation

milestones. So these impoundments, Cell 4A and 4B, will likely, at least under EPA regulation, just sit there emitting radon. No one will know how much radon for decades.

I don't think that this is what the EPA had in mind. I think the EPA should reinstate Subpart T because I think it is important for these -- for the Cotter Mill and for the White Mesa Mill to have continual radon monitoring throughout the closure period.

I think it's important that corrective actions be taken in a timely manner to assure that the radon emissions are kept within the 20 picocuries limit.

And they -- the situation for Cell 2 has shown this is a very doable solution. And it also demonstrates how as the tailing impoundment dries out, the radon emissions will increase.

You have a regulatory gap. You shouldn't have this gap. You shouldn't have a whole period that may extend for decades when there's no data information on the radon emissions and no

requirement to reduce those emissions.

And I also agree with Mr. Stills, you have to also consider the possibility that -- reducing that 20 picocuries of limit. And it would have been helpful in the rulemaking if there had been additional data on each of the mills, the history of all of the impoundments, what their radon emissions have been over the years. Unfortunately, that data wasn't included in the rulemaking.

Thank you.

MS. SUTIN: One question, Ms. Fields.

MS. FIELDS: Thank you.

MR. PEAKE: In listening to what you were saying, it sounds like you're addressing the issue of operations of the facility as far as the definition.

In the regulation and proposal, we have a definition of operation. And so I would like to ask to help clarify, you know, how do you think EPA should define when operations end for compliance with Subpart W?

MS. FIELDS: Well, you could extend the period of operations until the placement of the final radon barrier. In fact, Energy Fuels assumed, and this is stated in their annual Subpart W compliance reports, that closure began after the placement of an interim cover.

I mean, that was their assumption. So there has always been a confusion as to when closure actually began. I mean, differing opinions as to when closure began -- or when it begins.

So that is something that you could do, is extend that period of compliance with Subpart W. But just having an interim cover doesn't always -- you still need the radon monitoring throughout the period of drying of the impoundments to give you a heads up on different areas where you might need additional soil, a heads up on the fact that wind-blown tailings had come from another impoundment and they needed to be removed, or maybe - and in this case they put a barrier between impoundments. With the

placement of the different charcoal, these little charcoal monitoring devices in the different areas that tells you which area needs additional soil.

And there's a big question, like at White Mesa, it might be fifty years before they put the final radon barrier because they're not going to put a final radon barrier on one impoundment, and then another impoundment, and then another impoundment. Their whole idea in their reclamation plan is to put them over all of the impoundments.

Well, the rescission of Subpart W assumes that once one impoundment was closed and dewatered, you would have at least within seven years a placement of final radon barrier, not an indefinite period. And right now it's an indefinite period because who knows when all of those additional impoundments will be filled up and they'll want to put the final -- and then they go through closure period, dewatering, settlement and time to put the final radon

barrier on.

So you have a lot of reality issues that the EPA has never -- hasn't really considered, at least for White Mesa and for Cañon City.

MR. PEAKE: Thank you.

MS. SUTIN: Next Sharyn Cunningham.

MS. CUNNINGHAM: My name again is Sharyn Cunningham. I'm co-chair of Colorado Citizens Against Toxic Waste from Cañon City.

I also forgot to mention that I have been a member of the Community Advisory Group for the Cotter Lincoln Park Superfund site since it began in 2004.

I thank you for this opportunity because there are a couple of other points that I wanted to make that I didn't have time, ten minutes went fast.

I had mentioned with the Cohen Risk Assessment that there was actual data at Cotter that they did not make an effort to get for the risk assessment.

In fact, every three months we

participated in a teleconference call with EPA on this Subpart W rulemaking since 2008 or 2009. And on one of the calls after the Cohen Risk -- the first draft came out of the risk assessment, I brought up the fact with the problems with population being wrong, et cetera. And Jim Cain of the Cotter Corporation was on the call -- I believe it was Jim Cain -- and he stated that Cohen never contacted them for specific data from their site.

Now, I don't know if after that some contact may have happened, but it's not reflected in the November 2011 version of the risk assessment.

I mentioned that there was no radon data, which was available from Cotter. There was available meteorological data that they did not use. But there was another important part, I thought.

In 2003 the health department asked Cotter to submit an inventory of the contents of the impoundment ponds. Right at this moment

there is close to 6 million tons of contents. And that includes all of the tailings over all of the years, plus buildings, semi-trucks, heavy earth moving equipment. It's all in that impoundment pond now. And there is a good million or more that will have to go into it as they finish cleaning up.

So if Cohen had gotten that inventory from 2003 they would have known the exact amount of radium and its radiological concentration from that inventory, which would have helped them determine the potential radon emissions, as well as the yearly radon flux tests that happened.

And then another point that I wanted to bring up in regards to the risk assessment was that it's about radon, it's about risk from radon. But the radon progeny, or daughters is what I used to refer to it as, is not mentioned or considered in this.

And I live a mile or so from this impoundment pond. I'm not worried about inhaling radon gas, I'm concerned about radon traveling

through the groundwater. But nobody tests for that in the groundwater.

And I'm concerned about the progeny because it changes within three-and-a-half days or so, it changes to radioactive lead, which attaches to dust, which lands on the ground. And every time the wind blows it gets lifted up and re-suspended and moves farther down.

And in fact, the NRC was concerned about these progeny and they put out a draft interim guidance, September 2011, called Evaluations of Uranium Recovery Facilities Surveys of Radon and Radon Progeny in the Air. And this is a -- and I'll provide that paper in written comments.

Here is a direct quote, "as discussed later, radon progeny are addressed because most of the dose to people from the releases of radon is actually due to exposure to radon progeny." And one of the things -- and that can include radioactive bismuth, radioactive lead.

I think that should have been a part of this risk assessment. You have to realize we've

never had any epidemiological studies at our site. All that's ever been looked at is cancer, the cancer registry.

When you look at radon and its daughters, then you're looking at health effects that are more than just cancer.

And then the last point I wanted to make again, which has been made, the gap. I'm concerned about the gap. I have heard health department and EPA staff state that the final cap may not go on that impoundment pond for twenty to fifty years. And as it's been stated, at least when you're doing radon flux tests, you know when some dirt needs to be put out there to reduce the radon.

For twenty years or -- to fifty, you know, we're not going to have that protection. And we'll be exposed to radioactive lead blowing in the wind.

Also, it causes us to rely solely on Cotter's method to determine background and compliance with radon standards at their boundary

of the air stations. And we question Cotter's method. There's a written method, we gave it to Reid Rosnick. He told us to give it to Steve Tarlton at the health department.

We wouldn't have given it to Reid if the health department would have looked at this. And we asked that it be evaluated by a radon expert from the EPA. That started in 2008, six years ago.

We've still never gotten an agency person to evaluate that method. And now, without the radon flux tests, we are solely dependent on Cotter's method of determining that they're in compliance.

And one of the things in the NRC Interim Guidance stated, it said background must be determined very carefully. And that's what this method of Cotter's does, it -- and so we -- I'd like to ask once again, and I'll discuss later with you, having some expert review this method that they're using.

And, you know, finally, I just want to

say that as a layperson, it looks to me like the Clean Air Act provides EPA with the authority to regulate all radon at mills. And I really hope that you will work to close this gap that people who live near these facilities are going to suffer from.

Thank you.

MS. SUTIN: Thank you, Ms. Cunningham.

MS. CUNNINGHAM: Okay.

MS. SUTIN: Okay. We are through the speakers that registered. And it is 10 -- almost 5 of 11:00. We will pause the hearing until 11:30.

If anyone wants to speak between now and 11:30, go to registration table. At 11:30 we will close the hearing and we will start up again at 1:00 O'clock.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: It is 11:30 and we have no additional speakers for the morning session. So we are officially closing this session for today.

(Whereupon, the morning session was concluded at 11:30 a.m.)

MS. SUTIN: Good afternoon everyone. I think we're going to get started. My name is Elyana Sutin and I am the Regional Judicial Officer for EPA Region 8. Thank you all for coming this afternoon.

I will be presiding over the hearing. And joining me on the panel is Tom Peake and Dan Schultheisz from the Office of Radiation and Indoor Air in headquarters. This hearing is now in session.

We are here today to listen and receive your comments on EPA's proposed revisions to the national emission standards for radon emissions from operating mill tailings, also known as 40 CFR, Part 61, Subpart W.

EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes general available control technology or management practices, also known as GACT, for this area

source category.

EPA announced this proposed rule on May 2nd, 2014. The comment period started on May 2nd and was to end on July 31st. On July 21st, 2014 EPA extended the comment period to October 29th, 2014.

In a moment Tom will explain in more detail what was proposed in that notice. But before I turn it over to Tom, let me explain a bit about how today's hearing will work.

There was a session this morning from 9:00 to noon and one this afternoon. Please be sure to check in to the registration desk even if you are not planning to speak today.

I will call the scheduled speakers to the chair in front of me. When it is your turn to speak, please state your name, spell your last name for the court reporter and your affiliation before you begin your testimony. Your comments will be transcribed and included in the record of comments on the proposed rule.

In order to ensure that everyone has the

opportunity to speak, and to ensure fairness, please limit your testimony to ten minutes. We will signal to you when you have one minute left to speak. When one minute has passed, I will ask you to complete your testimony.

As I said before, there is no pressure to speak the ten minutes if your statement is shorter.

However, if you have more that you want to say and there is time, we're happy to take additional comments that are new from what you have said before and are not a rebuttal to someone else's testimony. If you would like to speak again please check in with the registration desk and they will sign you up.

After you finish your testimony members of the panel may ask clarifying questions. We are not here today to answer questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing.

If you have written copies of your

testimony, or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript. If you have additional comments you would like to make you can submit them in writing. Comments must be received on or before 5:00 p.m. on October 29th, 2014.

Let me assure you that EPA gives just as much consideration to comments we receive in writing as we do to comments we receive at public hearing.

Instructions for submitting comments are included in the fact sheet at the registration table. And you can pick up a copy of that outside the door.

Today's public hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not yet registered to do so, please sign up at the registration table.

Now I will turn it over to Tom who will summarize the proposed rule.

MR. PEAKE: Thank you.

Hello, my name is Tom Peake. And I am the director for the Center for Waste Management and Regulations in the Environmental Protection Agency's Office of Radiation and Indoor Air in Washington, D.C.

And with me is Dan Schultheisz, the associate director for the Center for Waste Management and Regulations.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the national emission standards for radon emissions, or NESHAPS, from operating mill tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technologies, or GACT, to limit radon emissions from the tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new

definitions to this rule, revise existing definitions, and clarify that the rule applies to uranium recovery facilities that extract uranium through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailings impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities, and heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limit the amount of byproduct material that can be exposed.

For conventional impoundments, limit

tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings exposure using phased disposal and maintain a 30 percent moisture content in the pile.

For evaporation ponds, we propose to require at least one meter of liquid be constantly maintained in the pond.

We are also proposing to add definitions for when a uranium recovery facility is in operation or standby.

The proposed rule would also require the owner/operator of a uranium recovery facility to maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. The comment period ends on October 29th, 2014. And we are looking forward to hearing from you today.

Thank you.

MS. SUTIN: Okay. I will call our first

speaker, John Cash.

MR. CASH: Thank you.

My name is John Cash. And I am the vice president of regulatory affairs for Ur-Energy. We operate the Lost Creek in-situ facility near Bairoil, Wyoming.

And I really do appreciate the opportunity to make some comments today. And I just want to say that I'm thankful I live in a country where I can make comments on proposed rules.

A number of my colleagues in the industry have already commented earlier today and yesterday on some legalities of the proposed rulemaking. And I'm not going to spend much time on that.

What I would like to do today in my comments is focus more on the Lost Creek Facility that I'm familiar with, and how the proposed rules will impact that facility. So I will try to give you real life examples of the impact of these proposed regulations.

I'd like to start off by talking about a meeting that I had here with Wayne Heili, he's our president and CEO, back in September of 2009. We met I believe just down the hall here in this office, Region 8, to discuss the Lost Creek project, and specifically EPA's decision to reinterpret 40 CFR, Part 192, health and environmental protection standards for uranium, uranium mill tailings, to include holding ponds at in-situ facilities in the definition of mill tailings.

At that time and currently we do not agree with EPA's proposed action to redefine or re-interpret the term mill tailings to bring in-situ holding ponds under the jurisdiction of 40 CFR, Part 192 regs.

It continues to be our position that the framers of the regulation did not intend water impoundments to be regulated as tailings. And a plain reading of the regulations supports this conclusion.

Despite our holding a contrary

understanding of the regulations from EPA's new interpretation, we felt compelled to submit a holding pond application to the EPA in order to advance the permitting process so that uranium recovery could occur in accordance with corporate objectives.

The engineering design of the holding ponds presented in the application, and subsequently approved after a lengthy review process by the EPA -- and I'll just interject there that that review process I believe was slightly over a year -- on December 20th, 2011, complied with the design criteria enumerated in 40 CFR 264.221.

It should also be noted that EPA approved the design of the Lost Creek holding pond while Subpart W rulemaking was in progress.

We are greatly concerned that the proposed regulation does not expressly grandfather in nonconventional impoundments like the ones recently permitted by the EPA at Lost Creek, and subsequently constructed at

significant cost.

Earlier this week, before I traveled down to Denver for this for this meeting from Casper, I spoke with our engineers who designed and constructed the facility. And they went and they added up all of the costs of the facility that we had built, the holding ponds, and it's right at about 600,000 dollars that we have invested to construct those ponds. That is a significant amount of money.

The EPA approved design and permit does not require maintaining a minimum of one meter of fluid cover. And such a requirement will render the new ponds virtually worthless since the water level must also be maintained at least three feet below the top of the embankment to prevent overtopping.

We respectfully request that EPA remove this requirement from the proposed regulation, or at least grandfather in all existing approved facilities.

And I would like to interject one other

point here. It's not just EPA that approved these holding ponds after over a year of review, there are six other agencies that were involved in the review and/or permitting of the facilities, including the Wyoming State Engineers Office, the NRC, Wyoming Department of Environmental Quality Land Quality Division, the BLM.

And then there were a couple of agencies that were involved in regulatory reviews, and that included the Wyoming Game and Fish Department and the U.S. Fish and Wildlife. Without doubt, these are the most heavily regulated systems at our mine.

And I forgot to mention Sweetwater County also performed a review.

Evaporation ponds are typically designed to be very shallow in order to minimize the thermal mass and therefore maximize the evaporation rate. The proposed, and apparently arbitrarily selected, one meter standard will diminish evaporation rates and operators will be required to build larger evaporation ponds or

seek alternative disposal methods in order to compensate for the loss of evaporation rates.

The consequences of the rulemaking should be fully understood, and the associated costs, including the resulting need to install larger evaporation ponds should be analyzed.

The regulation should specifically address the use of alternative methods to control radon emissions on a case by case basis if the proponent can adequately demonstrate the efficacy of the proposed method.

For example, an operator may wish to install a floating cover to keep birds off the water. And this is a real issue. Such a floating cover may also prevent the release of radon and should be allowed in lieu of maintaining one meter of fluid.

And I would like to switch now to discussion of the definition of byproduct material and the impact of that on operations in relation to this rulemaking.

Since the EPA is expanding the coverage

of 40 CFR 61, Subpart W to include nonconventional impoundments, the agency should recognize that such impoundments may contain byproduct material that, while meeting the strict AEC definition, have been treated to below the effluent standards promulgated in 10 CFR 20, Appendix B, Table 2.

For example, a proponent may wish to store permeate generated from reverse osmosis in the holding pond. The permeate may satisfy all drinking water and effluent standards, but would still be considered byproduct under the Atomic Energy Act, and therefore regulated under the proposed rule.

Waters treated to meet the effluent standards present little or no hazard. And therefore EPA should consider removing them from regulation under the proposed rules, especially if the water meets the radium and radon effluent standards.

Regulating water which does not present a hazard creates unintended additional regulatory

burden and associated cost for industry and the agency while generating no benefit to the public.

The EPA has at least two legal mechanisms to distinguish between byproduct and byproduct which falls below the effluent standard. The Clean Water Act allows for deletion of source categories in Section 112(c), or alternatively the administrator, when developing standards, "may distinguish among classes, types and sizes of sources within a category or subcategory in establishing such standards," as provided for in Section 112(d).

So those -- that concludes my remarks. Again, I think you for the opportunity to provide these to you guys. And hopefully you take a look at these as very site specific issues that we're facing at Lost Creek.

One final comment is, and we've talked about the issue of putting permeate holding ponds, that is something that we are considering at Lost Creek. And that water will meet drinking water standards, even the new proposed standard

for radon that the EPA is now going through the process of promulgating. So it is essentially drinking water. And to leave that under regulation just would create a lot of additional burden unnecessarily.

I thank you for your time.

MS. SUTIN: Thank you, Mr. Cash.

Next if we could have David Frydenlund?

MR. FRYDENLUND: Good afternoon. My name is David Frydenlund, it's F-r-y-d-e-n-l-u-n-d.

I am senior vice president and general counsel for Energy Fuels Resources USA, Inc. We operate the White Mesa Uranium Mill in Utah, which is the only operating uranium mill in the United States.

We are also in the process of permitting the Sheep Mountain project, which is a proposed uranium heap leach processing facility in Wyoming.

I will touch on a few key points this afternoon. Energy Fuels will be submitting more comprehensive written comments at a later date.

First, I'd like to note that Energy Fuels agrees with a number of the positions taken by EPA in the proposed rules. For example, we agree that evaporation of similar ponds should not be counted as one of the two impoundments that may be in operation at any one time under the proposed management practice standards.

We also agree that there should be no limitation on the number and size of such ponds. In order to operate a uranium mill, a large evaporative capacity is necessary. Water balance is paramount at a zero-discharge facility such as the White Mesa Mill.

However, requiring the proposed minimum of one meter of water cover can be prohibitively burdensome with little or no benefit. As EPA has noted, the radon emissions from saturated tailings are only approximately 2 percent of emissions from dry tailings. And adding one meter in water would result in a negligible reduction.

However, there are significant costs associated with this proposed requirement.

First, the cost of maintaining this one meter of water would be significantly greater than EPA has estimated given the high evaporation rates and scarcity of water at facilities such as the White Mesa Mill. We will address these costs in more detail in our written submissions.

Second, this requirement will seriously impact and may eliminate a mill's ability to recirculate tailings solutions back into the process because the addition of fresh water will change the chemistry of the solutions in the tailings.

Third, a mill will be prevented from reducing solution levels in evaporation ponds from time to time to inspect, and if necessary, perform maintenance activities on the impoundments.

Finally, evaporative and holding capacity at a uranium mill is at a premium. And adding fresh water to the system would displace needed capacity for process solutions. This would generally require construction of additional

evaporative and holding capacity at significant capital cost.

Energy Fuels fully supports added protections to public health, safety and the environment when required. However, in these circumstances the added protections are negligible or non-existent, and the cost of the added requirements are prohibitive and cannot be justified.

Energy Fuels recommends instead that the proposed rule be changed to require full saturation or water cover on evaporation ponds during operation, but not to require a minimum liquid level in the ponds.

The next point I'd like to make is that the definition of 11e.(2) byproduct material in the existing and proposed rules is different from the definition in the Atomic Energy Act. We don't believe EPA has the authority to promulgate a different definition of 11e.(2) byproduct material. And in any event, a difference in such a key definition can lead to unnecessary

confusion. Those definitions should be the same.

We also have concerns relating to the proposed application of Subpart W to heap leach facilities. A heap leach facility is not a tailings impoundment while in operation. Heap leaching is part of the milling process. And the proposed rules would interfere with such processing operations.

For example, the requirement to maintain a 30 percent moisture content would have the effect of diluting process solutions and impacting operations.

This is in stark contrast to a tailings impoundment at a uranium mill where Subpart W does not apply to process operations, but only to tailings that have been finally disposed of after processing, and hence cannot impact processing. Subpart W should not extend to regulating process operations.

Once process operations have ceased at a heap leach facility, the facility would then go into closure and be subject to the requirements

of 10 CFR Part 40, Appendix A. Hence, there is no place for regulation under Subpart W at heap leach facilities.

The radiological protection programs required under 10 CFR, Parts 20 and 40, include adequate protections and monitoring for radon at such facilities.

Finally, the removal of the phrase "as determined by the NRC" in 40 CFR 61.252(b)(1), and a number of the additional record-keeping requirements, amount to dual jurisdiction over the construction and operation of tailings impoundments.

This is in contravention of Section 275 of the Atomic Energy Act under which EPA is required to set standards for the management of 11e.(2) byproduct material. And the implementation and enforcement of the standards is expressly stated to be the responsibility of NRC and Agreement States in the conduct of their licensing activities under the Act.

Section 275 of the Atomic Energy Act also

expressly states that no permit is required by EPA for the processing, possession, transfer or disposal of 11e.(2) byproduct material.

Under the proposed rules an operator would be required to simultaneously go through the entire design and permitting process for new tailings cells with the NRC or Agreement State, and with the EPA. Otherwise, the facility would be subject to possible different implementation of the rules by the EPA after construction.

There is no need for such dual jurisdiction in order to implement the NESHAPS requirements under the Clean Air Act. And it will unnecessarily burden the regulatory process. Such dual jurisdiction is tantamount to EPA requiring a permit for the disposal of 11e.(2) byproduct material, in contravention of the Atomic Energy Act.

Thank you for the opportunity to comment. As I mentioned earlier, Energy Fuels will be submitting more detailed written comments at a later date.

MS. SUTIN: Thank you.

Next if we could have Sarah Fields?

MS. FIELDS: My name is Sarah Fields. And I am with Uranium Watch of Moab, Utah.

One thing I would like to point out is that uranium recovery facilities have lived under this, quote, “dual regulations”, since the early 80's. And that was over thirty years ago, or around thirty years ago. And now all of a sudden it’s become a very important issue to some members of the industry and the National Mining Association.

One thing I wanted to touch on is the question of uranium mills that are on standby. The White Mesa Mill is going to go on standby at the end of this year. I do not doubt that at some point -- and it’s just reasonable, that in the future they will start processing ore again. Not only do they have a mill, they also have a number of permitted uranium mines both in Utah, in Arizona -- I think they also have some in Colorado.

It's a totally different situation for the Shootaring Canyon Mill. The Shootaring Canyon Mill last operated for a very short period of time in 1982. There have been several -- the uranium industry is a boom and bust economy. A number of mills closed down in the 80's. Some started up again. And for a long period of time no ore was processed at the White Mesa Mill. And now at the end of this year they're going to shut down.

All during this up and down period in the last uranium renaissance, the Shootaring Canyon Mill did not reopen. So you have a small tailings impoundment. And the only reason really that it's kept on standby is not because at some time the mill will start operating again and need a place to put the new tailings, but because they will not be able to put new tailings in that impoundment because it does not comply with the current requirements for a tailings impoundment. So the Division of Radiation Control would not allow the mill to start operating again without

the construction of a new lined impoundment.

So the reason it's kept open is because at some point, and this may happen at any time, the mill owner will decide to enter -- close the mill and enter reclamation. And they need that impoundment to dispose of the mill contaminating soils.

In fact, they'll put more material closing the mill than is actually in the impoundment right now. Most of the stuff that is in the impoundment is not even from the processing of ore at the mill, it's from the disposal of the waste and equipment from the old hydra-jet heap leach operation.

So both the EPA, and first the NRC and now the Utah Division of Radiation Control, have kind of let that mill stay on standby for over thirty years assuming that at some time it's going to start operating again.

And I don't think that's a very reasonable way of regulating uranium mills, whether you're doing that under the Clean Air Act

or under the Atomic Energy Act.

I think there must be some kind of limit on the length of time that a mill can be on standby. I mean, there aren't even any permitted mines associated with this mill at this time.

So if it was ever to start up again they would need a new lined impoundment. And they now actually need to permit several uranium mines. And no company has come up with the money to do this.

Apparently a new company is going to purchase the mill. They'll have to submit either a plan for reclamation or a license renewal application. So by the end of this year they will kind of know exactly what's going to happen. But leaving a mill on standby for over thirty years does not make sense.

Another thing I wanted to cover is the discussion of possible uranium milling in Virginia, which has a very different kind of situation than the west. The west is dry.

I guess my time is about up -- no, I

don't know what that light means.

Okay. So the EPA seems to think that all you need to do is follow the construction and design requirements of having lined impoundments at forty acre impoundments and that will create a very safe controlling environment for radon.

And yet if you envision a uranium mill in Virginia, you also have to envision a lot of holding ponds, because under the EPA regulations for -- oh, I think it's 440.34 -- they would be allowed to discharge tailings effluent because the amount of precipitation is greater than the rate of evaporation. But they would have to with barium chloride or some kind of other treatment.

So you would probably have a number of treatment ponds. You would have a number of ponds that would be more than you would have at a conventional mill in -- let's say Utah.

So you would also have unusual meteorological conditions. You have the potential of hurricanes, you have the potential for large storms, and you have the potential for

tornados.

So I don't really see how the EPA can think that a liquid effluent, whether they're on top of a more solid tailings impoundment, or just a totally liquid pond, would contain those liquids, or contain those tailings under those circumstances.

I also don't understand how the EPA can conceive of a situation where a solid tailings impoundment could actually dry out in the State of Virginia where you have continual precipitation. You have sometimes very intense precipitation.

And the whole basis for 192, and NRC, EPA regulation of conventional tailings, and the reclamation of tailings, is based on the assumption of eventually the tailings dry out so that there could be a permanent radon barrier. And that permanent radon barrier would prevent liquid, rain and other precipitation from entering the tailings impoundments.

I don't see that happening in Virginia. And I

don't see any kind of really honest evaluation by either the NRC or the EPA as to the whole water balance, the whole conceptual basis for regulating that under either Subpart W or NRC's Part 40.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

MS. FIELDS: Any questions?

MS. SUTIN: Okay. We have heard from all of the registered speakers. We are anticipating others coming later this afternoon. So we will be on pause until the next speaker arrives.

Thank you.

(Whereupon, recess was taken)

MS. SUTIN: So we are back on the record and it is 3:53.

We have had all of the registered speakers that intended to speak give their comments and so the hearing this afternoon is officially closed.

Thank you all for attending.

(Whereupon, the hearing concluded at 3:53

p.m.)

Environmental Protection Agency

Public Hearing on
Proposed Revisions to National Emission Standards for Radon Emissions from Operating Mill Tailings

9:00 a.m. to 4:30 p.m.

Wednesday, September 3, 2014

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EPA PANEL:

ELYANA SUTIN, Chair; EPA

TOM PEAKE, EPA

DANIEL SCHULTHEISZ, EPA

C O N T E N T S

P R O C E E D I N G S

MS. SUTIN: Good morning everyone. My name is Elyana Sutin. And I am the regional judicial officer here in EPA Region 8. Thank you all for coming this morning.

I will be presiding over the hearings today and tomorrow. Joining me on the panel is Tom Peake and Daniel Schultheisz -- Schultheisz -- sorry, I apologize, we are just meeting for the first time -- from the Office of Radiation and Indoor Air in headquarters.

This hearing is now officially in session. We are here today to listen and receive your comments on EPA's proposed revisions to national emissions standards for radon emissions from operating mill tailings, also known as 40 CFR, Part 61, Subpart W.

The EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes generally available control technology or management practices, also known as GACT, for this area

source category.

EPA announced the proposed rule on May 2nd, 2014. The comment period started on May 2nd, 2014 and was to end on July 31st, 2014. On July 21st, EPA extended the comment period until October 29th, 2014.

In a moment Tom will explain in more detail what was proposed in that notice. But before I turn it over to Tom, let me explain a little bit about how the hearing will be run today.

There will be two sessions, one this morning from 9:00 until noon, and then another this afternoon from 1:00 until 5:00 p.m. here in this conference room.

Please be sure that you have checked in to the registration desk even if you are not planning to speak today. I will call the scheduled speakers to the chair in front of us. When it is your turn to speak, please sit and then state your name, spelling your last name for the court reporter, and your affiliation before

you begin your testimony. Your comments will be transcribed and included in the record of the comments of the proposed rule.

In order to ensure that everyone has the opportunity to speak, and to ensure fairness, please limit your testimony to no more than ten minutes. We will signal you when you have one minute left to speak. When one minute has passed I will ask you to complete your testimony.

There is no pressure or obligation to speak for ten minutes. If your testimony is less than that time, that is fine. Just know that you have that amount of time to speak this morning.

We have plenty of time today as well in terms of the number of speakers. So if you have prepared testimony and then would like to speak again later, please go back to the registration desk and we might be able to fit you in if there is other information that you would like to provide.

That is also true for the folks that have come today and were here to listen but have

decided they want to make a statement. Please go to the registration desk and we will be able to accommodate you.

After you finish your testimony members of the panel may ask clarifying questions. We are not here today to answer those questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing and they can help you.

If you have written copies of your testimony, or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript.

If you have additional comments you would like to make you can submit them in writing. Comments must be received on or before October 29th at 5:00 p.m. Let me assure you that EPA gives just as much consideration to comments we receive in writing as we do the comments that we hear today, that we hear at the public hearing

today. Instructions for submitting comments are included in the fact sheet at the registration table. You can pick that up at the table as you leave.

Today's public hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not registered, as I have said, please do so.

Now I will turn things over to Tom, who will summarize the proposed rule.

Thank you.

MR. PEAKE: Hello. My name is Tom Peake. And I am the director of the Center for Waste Management and Regulations in the EPA Office of Radiation. And with me is Dan Schultheisz, who is the associate director of the Center for Waste Management and Regulations.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the national emission standards for radon emission, NESHAPS, from operating mill

tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technology, GACT, to limit radon emissions from tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new definitions to this rule, revise existing definitions and clarify that the rule applies to uranium recovery facilities that extract uranium through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailings impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities, and

heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limits the amount of byproduct material that can be exposed. For conventional impoundments, limit tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings exposure using phased disposal and maintain a 30 percent moisture content in the pile.

For evaporation ponds, require at least one meter of liquid be constantly maintained in the pond.

We are proposing to add definitions for when a uranium recovery facility is in operation or standby.

The proposed rule would require the owner/operator of a uranium recovery facility to

maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. And as previously mentioned, the comment period ends on October 29th, 2014. We are looking forward to hearing from you.

Thank you.

MS. SUTIN: Okay. We will get started. I'd like to call up our first speaker, Thomas Johnson.

MR. JOHNSON: Thomas Johnson, T-h-o-m-a-s, Johnson, J-o-h-n-s-o-n. And I'm just representing myself today.

MS. SUTIN: I'm sorry, we don't have a microphone for you yet. So if you don't mind projecting as loudly as you can, that would be great.

MR. JOHNSON: That's okay. I've been told I'm loud before.

So my comment today is that I was very

disappointed in the rule that was proposed because in my opinion the purpose of the EPA is to protect people and the environment from harm.

Unfortunately, the EPA did not do an analysis of at what level radon emissions are indeed harmful. I don't think you looked at the risk to humans, real humans, rather than imaginary fence line humans. And you didn't look at the need to regulate radon emissions, if indeed a need exists.

The reason I phrase my comment in that fashion is because what we would like to do, I believe, as a regulatory body, is protect people from harm. That should be our number one goal.

Unfortunately, no one has ever demonstrated harm from being around a Subpart W facility. Certainly workers have demonstrated harm based on epidemiologic studies.

However, multiple studies have been performed by people such as John Boice, the National Institutes of Health, that have demonstrated there is no increased risk of cancer

in the areas and the communities surrounding uranium mills.

Furthermore, the EPA continues to utilize the National Academy of Sciences report in which they do say that the linear no-threshold model upon which EPA bases its risk is only a construct and may or may not reflect reality. It is only used as a convenience.

I would hope the EPA would consider that as well as the French National Academy of Science's rebuttal to the linear no-threshold model.

Furthermore, the EPA should consider the Health Physics Society's position statement when looking at radon emissions from these facilities. We should be looking at doses to real people, not imaginary people. We should also be doing things such as measuring doses.

Unfortunately, the levels that EPA currently regulates, Subpart W, are almost impossible to measure in any meaningful fashion and only doses can be modeled to people.

To give you an example of how low the EPA limits are and how difficult it is to measure, I took a radiation measuring device with me today to the parking garage to here. The variation in radiation levels at the parking garage at 1660 Wynkoop over here to over here, was approximately 10 microrems per hour.

Next to my car in the parking lot I read approximately 25 microrems per hour on the fourth floor. Here I am reading approximately 15 microrems per hour.

If you look at the EPA regulation, which says we should only have 25 millirems per year, that parking garage is in direct violation of the EPA's dose recommendations -- or rules, rather, not recommendations -- because this would translate to approximately 3 microrems per hour at the fence line dose for many of these facilities.

Not only is this less than -- it's not only difficult to measure, the natural variability in a place like downtown Denver is

greater than that, let alone a place where we have more bodies, we have naturally occurring structures that can create differences far greater than that.

The other things I noticed about the Subpart W was that the EPA certainly did consider the costs. And you did use your linear no-threshold model exactly to figure out how to minimize doses to the public.

Unfortunately, you did not take a holistic view. If you look at some of the new requirements that would be imposed, it would require large quantities of earth moving equipment, movement of water. And these things, it's been shown time and time again, anytime you use earth moving equipment, and anytime you move large quantities of dirt, there will be fatalities and injuries.

This was not considered by EPA. We need to take a holistic view of the entire worker environment.

One of the other things EPA failed to

consider is the most dangerous thing there is, according to the Department of Labor, and that is for a person to be out of work. So the impact of these regulations on the number of people hired, or the potential for facilities to be operated or not operated, was also not considered by the EPA.

This is unfortunate because there is actually a name in epidemiology for people who do not work. It's called the Healthy Worker Effect. Those people who do have work and find work are considered healthier and have been proven to be healthier by epidemiologists.

And in fact people who work in industries that deal with radioactivity have the most profound work Healthy Worker Effect.

So I would ask the EPA consider all of these things in this rule making and in any future rule makings, and take a more holistic view of not just a single item and single-mindedly pursue the emissions of radon but rather look at the entire health of the population and the people who live near these facilities.

Thank you.

MS. SUTIN: Thank you, Mr. Johnson.

Next if we could have Frank Filas.

MR. FILAS: Good morning.

MS. SUTIN: Good morning.

MR. FILAS: My name is Frank Filas. I am vice president of permitting and environmental affairs for Energy Fuels Resources. Our company is currently America's largest conventional uranium producer, supplying approximately 25 percent of the uranium produced in the United States in 2013.

We have significant concerns with the proposed regulations as it appears that the EPA is attempting to impose dual regulation over portions of uranium recovery operations that are already sufficiently regulated by the NRC and Agreement States.

We don't believe that the EPA needs to regulate very low level radiation sources such as evaporation or holding ponds. We recommend that the Subpart W regulation be limited to size and

number restrictions for tailings impoundments and other permanent byproduct disposal facilities.

We believe that the "one-size fits all" approach of mandating one meter of water cover over evaporation and holding ponds is unnecessary and wasteful of scarce and valuable water resources. The EPA stated the following in its October 1984 Final Rule for Radon-222 Emissions from Licensed Uranium Mill Tailings in its Response to Comments:

"Recent technical assessments of radon emission rates from tailings indicate that radon emissions from tailings covered with less than one meter of water, or merely saturated with water, are about 2 percent of emissions from dry tailings. Tailings covered with more than one meter of water are estimated to have a zero emissions rates.

The Agency believes this calculated difference between 0 percent and 2 percent is negligible. The Agency used an emission rate of zero for all tailings covered with water or

saturated with water in estimating radon emissions."

Again, this is from a 1984 EPA Response to Comments.

Clearly, there would be very little benefit to be gained by requiring one meter of water cover over material that is already saturated with a minimal water cover. Instead there would be a significant waste of water resources through evaporation of an excessive and unnecessary water cover.

EPA's calculation of reduced radon emissions is incorrect as there would only be a 2 percent reduction in emissions with one meter of water, not 93 percent stated in the rationale for this proposed rule.

In addition, the EPA's cost estimates for maintaining such a water cover are low by many orders of magnitude. We estimate that it will cost millions of dollars to drill deep wells of 1,000 feet or more, or pipelines of many miles to supply the additional water needed at

conventional mill facilities.

Evaporation ponds are designed to remove solution through evaporation, not to add water. An additional one meter of water cover would also incur the need for building larger ponds at significant additional cost.

EPA's proposed replacement of the word "tailings" by "byproduct materials or tailings" in the definition for "Operation" is inconsistent with NRC regulations and appear to be an attempt by the EPA to circumvent the previous rescission of Subpart T of 40 CFR, Part 61.

Further, we disagree with EPA's assertion that "the operational life of the heap leach pile be from the time that lixiviant is first placed on the heap leach pile until the time of the final rinse."

As long as the heap is being leached, the ore on the heap is being processed. It does not become 11e.(2) byproduct material until leaching is permanently discontinued.

The heap leaching cycle is essentially no

different in theory than the successive leaching of uranium that occurs in the counter current decantation or CCD circuit of a conventional mill where the ore pulp from the leach circuit is successively further leached in a series of thickeners. The material does not become tailings -- i.e.; 11e.(2) byproduct material -- until it leaves the final thickener and is discharged to the tailings impoundment.

Thank you for the opportunity to comment. Energy Fuels will provide more detailed comments at a later date, plus my colleagues will be providing testimony in subsequent public hearing sessions. I would be happy to answer any questions that you might have.

MS. SUTIN: Thank you very much.

Next if we could have Sarah Fields.

MS. FIELDS: My name is Sarah Fields. And I represent Uranium Watch in Moab, Utah.

Thank you for the opportunity to come here and provide oral comments. I wish that the EPA had been able to also hold hearings in the

vicinity of the communities that will be affected by these regulations.

Earlier, as you were planning the Subpart W rule making, you went to communities into the city and White Mesa and other - I think some other communities. But this time apparently you didn't have the funding to actually go to those communities with the most important aspect of the rule making, which is the proposed rule.

I was very disappointed in the Federal Register Notice. It contains incomplete, outdated, erroneous and misleading information. One thing I noted was that the EPA sent letters to uranium mill licensees asking questions about their mills and 11e.(2) byproduct material impoundments, but failed to send letters to the Sweetwater and Shootaring Canyon Mill licensees, or at least you didn't post those letters and you didn't post any responses.

Also, you sent a letter to Energy Fuels to -- you sent two letters, one was responded to and the second was not responded to. And the EPA

didn't follow up on that.

The EPA justifies the elimination of the radon emission standard for "existing" impoundments. That would be the White Mesa Mill, Shootaring Canyon and the Sweetwater Mills. Based on various assertions the EPA claims that the White Mesa Cell 3 will close at the end of 2014. That appears not to be true.

According to recent documents from Energy Fuels, they plan on keeping Cell 3 open to receive ISL waste because they cannot dispose of ISL waste in the new Cell 4 until more solid tailings have been disposed of in Cell 4A so there is a base for the burial of the ISL waste which is not processed.

And then they would need a license amendment to authorize the disposal of ISL waste in Cell 4A.

And since they plan on closing -- putting the mill on standby at the end of 2014, I don't know when exactly they would be able to use Cell 4A for the disposal of ISL waste. So there is no

basis for the assumption that Cell 3 would close at the end of 2014.

Also, the EPA claims that both the Shootaring Canyon and Sweetwater impoundments comply with the new requirements, requirements for new impoundments in 40 CFR 61.252(b).

This again is not true. The EPA claimed that the Shootaring Canyon Mill has a synthetic liner. It does not have a synthetic liner. So maybe if you asked for more information from the licensee about that impoundment you would have learned that it has a clay liner. Unless you're going to redefine the meaning of synthetic to mean clay, it does not have a synthetic liner.

Also, the Sweetwater impoundment is 60 acres, it's not 40 acres. So it does not meet the 40 acre requirement for a new impoundment.

So in sum, I don't think there is the factual basis for removing the requirement for the radon emissions -- for monitoring and reporting the radon emissions from these existing impoundments. And the EPA should remember that

Subpart W is an emissions standard. It's a standard that's supposed to regulate the emissions. And normally that means setting a limit on what those emissions are going to be. Yet the EPA intends to completely eliminate any requirement -- any kind of limitation on these radon emissions at operating uranium mills.

Now there is only going to be a design work -- the design and work practice standards for conventional ISL and heap leach facilities. And I believe that this does not comply with the requirements of the Clean Air Act exception 112(h).

In the Federal Register, notice that you didn't mention Section 112(h) at all. 112(h) is work practice standards and other requirements. And it says what the purpose is of this section. And that is Section 112 and these regulations are being promulgated pursuant to Section 112 of the Clean Air Act.

It says for the purposes of this section, if it is not feasible in the judgment of the

administrator to prescribe or enforce an emissions standard for control of a hazardous air pollutant or pollutants, the administrator may in lieu thereof promulgate a design, equipment, work practice or operational standard or combination thereof.

So what that means is that the EPA is going to promulgate a design, equipment, work practice or operational standard or combination in place of an emissions standard. The administrator must find that it is not feasible to prescribe or enforce an emissions standard.

Although the administrator could not make that finding certainly for conventional uranium mills because you already have such a standard.

For decades you have shown that such a standard is feasible. It's feasible to measure the radon emissions from these conventional impoundments. I think it would have been really helpful if the EPA in the Federal Register Notice had discussed this provision and how that -- these Clean Air Act requirements affect this

rulemaking. I also think that for liquid impoundments it is possible to calculate the radon emissions.

So under my reading of the Clean Air Act, there must be an emission standard and the EPA -- unless the administrator finds that such an emissions standard is not feasible. And the administrator has not done so.

And then another aspect of the proposed rule is the question of the radon flux from liquid impoundments. In the evaporation pond risk assessment at Table 2, it contains information about the radon flux for various radium concentrations, and shows the radon flux for 3 conventional mills and 8 ISL facilities under concentrations of 1, 100 or 1000 picocuries per liter.

However, the EPA didn't actually incorporate the actual data on what the radon flux is for specific liquid impoundments.

MS. SUTIN: You have one minute.

MS. FIELDS: Okay. And I think the EPA

should have obtained actual data and information on -- as to what the current radon flux is at impoundments such as White Mesa Mill and at other liquid impoundments, the Sweetwater and ISL facilities, so they would have a more accurate picture of what the radon emissions actually are. There is recent data from White Mesa. I will include some of that data in my other written comments.

Let's see -- well, maybe in the second round of comments I will be able to touch on a few other things.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

MS. FIELDS: Fields, F-i-e-l-d-s, and Sarah with an H.

MS. SUTIN: We are still trying to figure out the IT issues here, but I'm going to take one more speaker and then we will take a break so that they can come in and -- they have to shut everything down and start it back up again. So we will have one more speaker and then we will

take a short break and come back.

If I could have Anthony Thompson.

MR. THOMPSON: My name is Anthony Thompson. I am one of a number of speakers on behalf of the National Mining Association. I was the lead counsel for then the American Mining Congress and now the National Mining Association in filing comments on Subpart T and Subpart W. And then was the lead negotiator for the American Mining Congress on the rescission of Subpart T which applied to inactive mill tailings impoundments, as opposed to Subpart W, which applies to active mill tailings impoundments.

And I believe that there is some confusion in the draft about what is an active mill tailings impoundments under Subpart W and what is an inactive mill tailings impoundment that would have been under Subpart T but is now under NRC regulations.

And I point out that during the year or so that the rescission of Subpart T was negotiated with EPA, with representatives -- NGO,

with NRC and Agreement States listening in -- was a very complex operation and it required -- before rescission of Subpart T it required changes to NRC's 10 CFR, Part 40, Appendix A regulations. And those are reflected in Criteria 6. And I will mention that it's very important that EPA go back and look at this. And I'm sure we will say this in more detail in the comments that NMA files.

I don't have the actual Federal Register pages but at one point we talk about in the proposal that after the uranium moves out of the heap what remains is 11e.(2). And to the extent that active leaching is ceased, that's correct. What remains is a waste. And when it becomes a waste it's 11e.(2).

But is not subject to Subpart W because it is an inactive tailings impoundment and would be subject to the requirements in Criterion 6 if it's going to be closed in place of Appendix A to begin final remediation as soon as practicable.

And so I think that is part of a problem

that comes from the definition of operations which Mr. Peake mentioned.

We agree that a standby mill is still operational. Certainly a mill that is actually producing uranium, even if it stops for various periods during the year, it is an operational facility until the day closure begins.

And when the closure begins, it steps out of the Subpart W realm and it would be in what was Subpart T, but which is -- no longer exists and is subject again to the modifications in Criterion 6 of NRC's regulations.

For example, the definition of operational seems to suggest that if you're continuing to put tailings on a tailings pile, that that somehow means it is still operational. And that is clearly an incorrect assumption if you go back and look at the rescission of Subpart T.

For example, it explicitly identified in Criterion 6 is -- where a mill tailings pile could be closed in sections, the Western Nuclear

pile.

And the requirement is that if you say you're going to close down a third of it in one year, then you have to measure the radon 20 picocuries per meter squared per second over that closed part. And then when you do the next third, you have got to do the same thing. But that clearly implies that you have part of a tailings pile open and you're putting tailings in. If you put the mill in the pile, it can't be an operational facility. And so if you are then bringing windblown tailings into the impoundment, if you bring -- if you have -- as explicit in Subpart W, if you have, for example, an evaporation pond either beside, as at Western Nuclear, or on top of a tailings impoundment that is doing groundwater corrective action actively and you need to leave a portion of the pile open, that is explicitly provided for in Criterion 6 if you can show you meet the 20.

So there are situations where you are going to be putting 11.e(2) byproduct material,

whatever it may be -- it could be portions of the mill, it could be windblown tailings, it could be the liners from an evaporation pond long after the mill is gone, long after there is any active processing. And that is not subject to Subpart W.

I think we will explain this in more detail in the detailed comments but that is my primary comment for the morning.

MS. SUTIN: Thank you, Mr. Thompson.

Okay. I think we will take a ten minute break to resolve our microphone issues and we will be back.

Thanks.

(Whereupon, a recess was taken.)

MS. SUTIN: Okay. So let's get going again. I apologize for the delay and I think we are good now.

If I could have Christopher Pugsley.

MR. PUGSLEY: Good morning. I thank you for having me today.

My name is Christopher Pugsley and I am a partner and member of the law firm of Thompson

and Pugsley. And I serve as outside counsel to the National Mining Association.

My comments today will be strictly limited to statutory and regulatory definitions and interpretations because I believe, as everyone here knows, sometimes the most complicating factors associated with any type of statutory program lies in the definitions of terms, materials, and the execution and use of those definitions.

If I can take a few minutes to talk about something that happened about 36 years ago when Congress passed the Uranium Mill Tailings Radiation Control Act of 1978, which amended the Atomic Energy Act of 1954 to define a new class of materials from uranium recovery facilities known as 11.e(2) byproduct material.

What people focus on these days is what is 11.e(2) and how is it managed and what agencies are required to deal with it. What is not talked about is the institutional memory associated with why that statute was passed in

the first place.

The issue was to deal with a class of materials that was previously known as tailings. And tailings itself were defined back then not as tailings impoundments but as tailings piles. And that is important to know going forward because the reason Congress passed this statute was because there were issues associated with potential radiation risks associated with tailings or solid materials that were generated from uranium recovery operations and stored in tailings piles.

Many of these materials on several occasions were used for road fill, foundation materials for buildings and homes. Hence, the folks that deal with radon on a regulation basis know that it's an issue to use these things for foundation materials because radon is at its most dangerous in an enclosed area.

So when the statute was passed in 1978, there was a dichotomy of regulatory authority that Congress bequeathed on two agencies.

First was to the Environmental Protection Agency to propose generally applicable standards associated with the management and containment of the 11.e(2) byproduct material at mill tailings facilities.

The second was through the Nuclear Regulatory Commission, which was to -- they were directed to implement and execute and enforce EPA's generally applicable standards.

Now, with that said, you have heard many people in the industry talk about that program and how the EPA does it. The EPA has a proposed rule hopefully coming out sometime in the next few months, 40 CFR, Part 192. Those are generally applicable standards.

The one part people do not talk about are the definitions of materials that are defined not by EPA, and not by NRC, but by Congress. Congress defined what 11.e(2) was. And it's the tailings and other wastes associated with uranium recovery or processing ores primarily for the source material content, in this case uranium.

What I'd like to talk about briefly today is how important definitions are to this proposed rule. And I would like to start with 11.e(2) itself and who has the authority to deal with this.

The NRC, the Commission, and not the Environmental Protection Agency, have exclusive federal preemptive authority over 11.e(2) byproduct material. If you need a reference for that see the Staff Requirements Memorandum that was issued by the Commission in the year 2000 responding to a paper known as SECY, S-e-c-y-99-023, otherwise known in the industry space as the concurrent jurisdiction decision, in which there was a dispute from the what was then known as the Office of the Executive Legal Director, and now known as the Office of General Counsel at NRC, over whether states who are non-agreement states had dual or concurrent jurisdiction over 11.e(2) byproduct material, or more specifically the non-radiological components of 11.e(2).

The Commission, acting under its

exclusive authority from Congress, determined that the NRC and not EPA, not states, and no other agency had exclusive preemptive jurisdiction over both the radiological and non-radiological components of 11.e(2) byproduct material.

Thus, meaning the Commission has the exclusive authority to define what is and what is not 11.e(2) byproduct material.

This is important because EPA should take care in its proposed rule to assess its definitions as they are currently written to look back on its administrative rulemaking records from the December 1989 final rule on Subpart W and adequately assess where they are going in terms of jurisdictions.

Under the Clean Air Act, the EPA is not delegated any authority to define what is and what is not 11.e(2) byproduct material. They cannot define what are known as tailings.

And as my colleague, Anthony Thompson, said earlier, there are multiple classes of

materials that are considered waste at a uranium recovery facility, hence 11.e(2) byproduct material. But as we like to say, all tailings are 11.e(2) byproduct material, but not all 11.e(2) byproduct materials are tailings.

For example, as Tony said, the mill itself, if not sufficiently decontaminated for resale of scrap or whatever offsite disposal might be, can be thrown into the tailings impoundment as 11.e(2). But no one thinks that the mill building are tailings in the conventional sense.

And that takes us to the next point, which are fluid retention impoundments. As I said before, the Administrative rule making records associated with EPA's initial Subpart W rule identified tailings as piles.

And that is -- makes sense because you're using the definition as articulated by Congress of tailings.

The last time I checked, water is not stored in piles. So in my opinion it cannot be

demonstrated that when talking about tailings, you're talking about water or any radionuclides that are in the water.

EPA is also not delegated any authority under the Mill Tailings Act to define what is and what is not 11.e(2) byproduct material. Congress defined the term, the Commission is empowered to determine what is and what is not.

All EPA can do is propose generally applicable standards for how to deal with 11.e(2) byproduct material which the Commission or NRC has to enforce.

There are several examples of this where the Commission has exercised its authority over defining what is 11.e(2) and how a state or another entity other than the Commission may regulate it.

For example, in the year 2000 the folks in the in-situ field, known as the Milling Underground Decision, where the Commission defined restoration fluid from an ISR operation as 11.e(2) byproduct material. This is a

Commission prerogative to define that.

EPA is not allowed to define tailings as restoration fluid because it is not within their statutory authority.

Another example is when the State of Texas as an Agreement State tried to alter the definition of 11.e(2) byproduct material. The then -- I believe it was then called the Office of General Counsel at NRC -- basically told Texas that either you will revise your definition to be consistent with that of the Mill Tailings Act or you could risk losing your Agreement State authority. And, of course, Texas changed the definition.

Another was a recent example in South Dakota where they had rules that were coming out that could regulate 11.e(2) byproduct material. And the General Counsel's Office sent a letter to the state saying you have no authority to regulate this because you're not an Agreement State, that rests with the Commission.

So what basically the point that I'm

trying to make here today is before we start analyzing the nuances associated with the technical/safety and environmental aspects of this proposed rule, it is critical that EPA go back and look at its jurisdictional authority under the Clean Air Act for these regulations and to make sure that their definitions do not impermissibly infringe on the exclusive federal brand of authority that the Nuclear Regulatory Commission has over 11.e(2) byproduct material, or what the rule calls uranium byproduct material.

And to ensure that EPA looks back at its past administrative record to make sure that the rule -- that the statute and the rule that was supposed to address tailings does not overstep its authority into other areas, such as fluid retention impoundments, because again water are not tailings.

So thank you for your time.

MS. SUTIN: Thank you, Mr. Pugsley.

MR. PUGSLEY: P-u-g-s-l-e-y.

MS. SUTIN: Okay. If we could have Katie Sweeney, please.

MS. SWEENEY: S-w-e-e-n-e-y, Katie, K-a-t-i-e -- there is lots of ways to spell it.

Good morning. I'm Katie Sweeney. I am with the National Mining Association. We represent most of the producers of most of America's minerals, including uranium. We represent producers of domestic uranium, as well as companies that are undertaking exploration projects or have pending applications for development of domestic uranium mining projects.

I know there is going to be several speakers from NMA over the next day or so but we really are divvying up the topics. And today I'm going to be addressing the potential, the very serious and significant potential for overlapping and duplicative regulations under the proposed rule.

So I think my issues follow very nicely from what Chris Pugsley was saying because he described the rules of NRC and EPA under the

Atomic Energy Act as amended by UMTRCA.

But let's talk about those standards as they apply to impoundments. So EPA has generally applicable standards NRC implements. Here EPA, under the proposed rule, is alleging it's acting under its Clean Air Act authority, but truly it is kind of upending the structure of the -- the structure that Congress intended when it divvied it up, certain roles to EPA and to NRC.

So generally EPA does the standards, NRC implements. And this is the way it worked when EPA did its 1983 standards on liners. NRC amended its regulations to conform to EPA's standards. This was recognized in the current Subpart W as it stands now, not the proposal.

In Section 61252(b)12, they specifically talk about phased and continuous disposal in impoundments operated in accordance with 40 CFR 192.32(a), as determined by the NRC.

So there was recognition when Subpart W was originally promulgated that NRC played that role. The NRC -- that the implementing would

approve those impoundments, et cetera.

The proposal as it stands now completely eliminates that reference to NRC's rule, which really confirms industry suspicions that EPA is trying to carve out a new role for itself here in approval of these impoundments, reviewing the records for these impoundments, even though NRC would have already have done that.

So we think that EPA needs to go back and look at the rulemaking as proposed and reconsider the way it doesn't reflect Congress' intent on what EPA and NRC's roles over these types of materials are.

And I guess kind of as an overall statement, NMA doesn't really see -- and I think more speakers are going to get into this later -- what the risk is here and why this rulemaking is even needed if the risks are so minimal.

But if EPA does move forward with the rulemaking, it should certainly aspire to eliminating opportunities for dual regulation. We really don't need to have two agencies

regulating the same thing. It's just a waste of resources not only for the industry but for the regulators as well. I think EPA needs to more clearly understand its role here and reflect that in any proposal moving forward.

Thank you.

MS. SUTIN: Thank you, Ms. Sweeney.

Next if we could have Oscar Paulson.

MR. PAULSON: Good morning. My name is Oscar Paulson. That's P-a-u-l-s-o-n. And I am here to discuss specifically research funded by the National Mining Association on determining radon flux from fluid retention impoundments at uranium recovery sites.

Now, the preamble for the proposed rule states our survey of existing ponds shows that they contain liquids, and as such this general practice has been sufficient to limit the amount of radon emitted from the ponds in many cases to almost zero.

Because of the low potential for radon emissions from these impoundments, we do not

believe it is necessary to monitor them for radon emissions.

The preamble continues and also states the effect of radon emissions from ponds are so low that it is difficult to determine whether there is any contribution above background radon values.

And the preamble also states we are also proposing that there is no maximum area requirement for the size of these ponds since the chance of radon emissions is small. Our basis for this determination is that radon emissions from the pond will be expected to be very low since the liquid in the ponds acts as an effective barrier of radon emissions.

Given that Radon-222 has a very short half-life, 3.8 days, there is simply not enough time for approximately 98 percent of the radon produced by the solids or from the solution to migrate to the water surface and cross the water-air interface before decaying.

These statements are fully supported by

the research that was funded by the National Mining Association and conducted by Energy Laboratories Incorporated in Casper, Wyoming.

Now, this research was performed to determine Radon-222 flux at the surface of water containing Radon-226 in solution and of course its decay product, Radon-222 with equilibrium under controlled laboratory conditions, essentially inside of a controlled building, undisturbed, at constant temperature, using an accepted method of determining Radon-222 flux.

Now, this accepted method specifically is the one that uses large area activated charcoal canisters as described in the paper, Radon Flux Measurements on Gardner and Royster Phosphogypsum Piles near Tampa and Mulberry, Florida.

This is the currently accepted method of determining compliance to the radon flux standards in 40 CFR Part 61.253, determining compliance as part of the Subpart W rule, the current Subpart W rule. And this method is known as Method 115.

Now, by using this already approved method for collection of radon flux data from the surface of tailings and tailings impoundments, the data gathered in the course of this study of flux from fluid surfaces can be effectively compared with other detector -- other data collected in prior compliance monitoring work using large area activated charcoal canisters since the measurement method is the same.

Now, in the study that Energy Laboratories did, they set up five barrels containing the ionized water with Radium-226 activities created by dissolving a traceable Radium-226 standard in the water in the barrels.

And the five barrels contained Radium-226 in activities of zero picocuries per liter -- that's with no radium added -- 5,000 picocuries per liter, 10,000 picocuries per liter, 15,000 picocuries per liter, and finally the last barrel had radium solution at 20,000 picocuries per liter.

These solutions were then allowed to

reach equilibrium so that the Radon-222 activities, the daughter product of Radon-226, were allowed to reach equilibrium in these solutions and obtain the same activity as the parent, the radium.

This was basically done by allowing the fluids to sit uncovered in the barrels for 40 days, which is slightly over ten half-lives for the Radon-222, the daughter product.

Styrofoam floats were created to float the large area activated charcoal canisters over the radium bearing and radon bearing water in the barrels. The large air activated charcoal canisters then were placed on top of the fiberglass floats so that any flux that would pass from the fluid would go through the canisters and the Radon-222 captured by the charcoal within the canisters.

And this was done a number of times on the fluids in the five barrels. Well, the results were as follows:

Radon-222 flux from water surfaces even

in the case of high Radium-226 and Radon-222 activities were minimal. And in the case of Radium-226 activities up to 5,000 picocuries per liter with equivalent activity in Radon-222, they were within the range and variability of natural background assuming a typical planet-wide background flux of 1 to 2 picocuries per meter squared second. And this background flux is provided by SENES Consultants Limited.

Construction of a fluid retention impoundment and filling it with water containing up to 5,000 picocuries per liter of Radium-226 would merely displace normal background flux of the surface soils over which the impoundment was constructed.

For this reason specifically, the very low radon flux from fluid surfaces, there is no need to monitor radon emissions from fluid retention impoundments, nor any reason to regulate the size or number of such impoundments as their emissions would be indistinguishable from background.

Thank you.

Are there any questions?

MS. SUTIN: Hold on, Mr. Paulson.

MR. PEAKE: Were any of the barrels agitated at any time or was it just still --

MR. PAULSON: The barrels were not agitated, they were left stationary in a temperature controlled room. An interesting side, the data for this study was presented at a joint National Mining Association Nuclear Regulatory Commission Uranium Recovery Workshop. And the Power Point presentation with all of the data in tabular form is on the Environmental Protection Agency Subpart W website so it can be regularly reviewed by anyone should the need arise.

MS. SUTIN: Thank you, Mr. Paulson.

Okay. At this time I would like to call back up Sarah Fields.

MS. FIELDS: This is Sarah Fields with Uranium Watch. And I wanted to follow up with some of the statements that have been made by the NMA and Mr. Paulson.

Regarding Subpart W, I don't believe that anything in the Clean Air Act states that the EPA can only regulate radon emissions from 11.e(2) byproduct material. My understanding of the Clean Air Act is that it directs the EPA to regulate radionuclides, including radon. There is no mention of only regulating radon from 11.e(2) byproduct material at uranium recovery operations.

So the efforts to -- or the statements made that appear to want to limit any regulation of radon at uranium recovery facilities to the radon that is emitted by 11.e(2) byproduct material, and therefore eliminating possibly the material that -- the liquid impoundments is incorrect.

In fact, I also believe that the EPA should regulate the radon emissions from ore piles, from the ore pads. And that conventional mills and heap leach facilities -- the ore which does not have the uranium removed also releases a great deal of radon. And yet the EPA has not

taken it upon themselves to even consider regulating this major source of radon.

In your discussion of heap leach operations, it will take quite a while before the ore is placed in an impoundment prior to the leaching of a heap leach impoundment with the lixiviant. And during that time a lot of radon will be released from heap leach impoundments.

And then as ore is stored at conventional mills you have dust, you have releases of radon. And I think the EPA should take a hard look at also regulating these sources of radon at uranium mills.

Also there seems to be a concern that under Subpart W that there is now a requirement for the approval of new impoundments. Well, that's been the case since 1989 because under Subpart A, which under general requirements in Section 61.07, a uranium recovery licensee must apply for a construction authorization.

The EPA a few years ago approved the construction impoundments at the proposed Pinon

Ridge Mill. And in Utah, where the Utah Division of Air Quality administers and enforces Subpart W and other radionuclide NESHAPS, White Mesa has also applied to the Division of Air Quality for the construction of new impoundments. So, yes, there is dual regulation.

The NMA seems to believe that dual regulation is about the worst possible thing that you can have. I don't believe that. I think if the EPA does not want a radon flux standard for uranium mills, then they should have put a radon flux standard in Part 192. They didn't do that. They had a chance to do that but they failed to do so.

So that was an oversight of the EPA and probably Subpart W came along because of the EPA's failure to establish certain radon flux standards for uranium mills.

Now, with regard to the emissions from liquid impoundments. There is recent data regarding the radium concentration at the impoundments at the White Mesa Mill. In the

EPA's evaporation pond risk assessment, they determine that for the White Mesa Mill liquid impoundment, that there would be a radon flux of 7 picocuries per liter per second for every 1,000 picocuries per liter of radium.

What the EPA did not do is go to the White Mesa Mill licensee and get some data as to exactly how much radium was in specific impoundments. They could have done that but they failed to do so. But there is recent data in the November 1st, 2013 White Mesa Mill 2013 annual tailings wastewater monitoring report for the groundwater discharge permit. And this document is available on the Division of Radiation Control website. There is data.

And my calculations are just based on the EPA's determination of what the radon flux would be based on the amount of radium in a tailings impoundment -- in a liquid impoundment. And in this case at White Mesa, they have a liquid impoundment on two -- two tailing cells that also receive tailings, so that's Cell 3 and Cell 4A.

And then at White Mesa, they have two impoundments that are just receiving liquids. That's Cell 1, which is an older impoundment, and the newer Cell 4B. So based on the Gross Radium Alpha for Cells 1, 3, 4A and 4B the radon emissions go from 102 to 573 picocuries per meter squared per second. And that's rather high, that's a little bit above the negligible -- a little bit above 20 picocuries, the current standard for solid tailings, which is 20 picocuries per meter squared per second.

Now, all I have is this data. Perhaps Energy Fuels Resources would have a different take on this. Perhaps if the EPA looked at this data they would have a different take on this. But the fact is the EPA did not look at this data. The EPA did not keep doing research on some of these pertinent aspects of uranium mills. And maybe -- since I probably have a few more minutes, go to the question of GACT, generally --

MS. SUTIN: One minute left.

MS. FIELDS: Huh?

MS. SUTIN: One minute.

MS. FIELDS: Oh, one minute.

Okay. Well, I think maybe I -- since I have covered these couple of issues, so maybe I will save this for this afternoon.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

Okay. Those were all of the speakers that we have listed so far. So we will take a pause in the hearing until there are other people that show up that would like to speak.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: We have a few more speakers.

First we have Steve Brown.

MR. BROWN: Good morning. My name is Steve Brown, B-r-o-w-n, with SENES Consultants of Englewood, Colorado. And I am signed up to speak tomorrow but I just wanted to comment on some things that I heard this morning just very quickly in regards to the subject of radon evolution from moisture ponds and so forth.

Mr. Paulson had made references specific to an empirical study that was done. And I think it was you, Tom, that asked a very pertinent question, would be were they still or were they agitated in some way.

Let me remind the EPA of the submittal by SENES Consultants that was submitted by Energy Fuels to EPA Region 8 in regards to Pinon Ridge Mill application and background information for Subpart W application which address the research of this physics associated with radon evolution in holding ponds. We have included looking at research and literature and information and provided the physics and mathematics, putting different credible wind speeds across the ponds.

I know several speakers this morning alluded to essentially -- and even EPA's own data from the days with 2 percent emission from wet tailings. Radon does not evolve from water bodies, period. It's a matter of the physics. And the EPA is well advised in the interest of the citizens of the United States to look at

physics and research already in the literature.

Thank you.

MS. SUTIN: Thank you, Mr. Brown.

Next, if we could have Anthony Thompson again.

MR. THOMPSON: I just want to take this opportunity perhaps to go into a little bit more detail when we talk about the issue of duplicative regulation.

When the Subpart T regulations came out, the American Mining Congress filed a lawsuit. Subsequently there were negotiations with EPA, with the NRC and Agreement States as interested listeners. And at one point actually NRC thought we were not part of this so we are not going to play, but we recognize that if EPA was going to rescind, then there were going to have to be changes in NRC's regulations, NRC had to play.

And I actually went out with -- at the request of EPA staff and OGC and EPA sat in the Commission meeting room with the EPA people to explain to the commissioner's assistants why NRC

should pay attention to this.

This took about a year of long phone calls working through things and things came out such as, well, you know that a tailings pile could have an evaporation pond or a pond on the surface of the tailings pile, because if the groundwater corrective action is ongoing -- although you have covered the tailings pile -- or you may have, as I mentioned earlier, phased closure of a pile, or you may want to keep out -- you may want to keep a portion of a pile open for 11.e(2) from someplace else, which is -- all of this was developed through the extensive negotiations that involved Sierra Club, EPA and American Mining Congress. And the point here was to avoid having NRC and EPA both regulate inactive tailings facilities.

And what EPA wanted with respect to EPA's concern and that of the NGO's was that once they had shut the mill down, because economics were not good and they were not going to go any further, that they would just let the tailings

pile sit there and emanate radon.

So the idea was -- and what happened was before EPA rescinded Subpart T was that NRC modified its regulations. And I mentioned Criterion 6 where they have these milestones, interim cover, et cetera, et cetera, in order to forego the concern of the NGO and EPA staff that they would just let the pile sit there.

So, you know, this was all worked out in rather meticulous detail. And EPA did not rescind Subpart T until NRC amended its regulations in accordance with the agreement that we had as a part of a settlement of a lawsuit.

I might also mention that subsequently Subpart I of the Clean Air Act regulations was also rescinded. And it was EPA who said, you know, we have looked at the fuel cycle facilities, it's more than uranium recovery. And we see that the exposure is way down, you know, a couple of millirem a year, three or four or something, but below ten.

And so we said, you know, there is no

point in having two agencies do things if you don't think there is a need to. Well, what came out of that was the ten millirem constraint requirement, which really isn't a regulation, but if you go above ten millirem at one of these facilities and go to the public and you have to explain it.

The point is that what happened with Subpart T was you had to measure pursuant -- because the Clean Air Act Subpart T required measuring the tailings to ensure that you met 20 average over the whole pile.

The EPA design standard in 192 under the Atomic Energy Act just was a design standard that would meet the 20 picocuries.

But as part of the settlement and rescission, you had to measure it. You had to demonstrate it's measured. So that's just a little more information why we were able to avoid overlapping regulation by getting things at EPA, or EPA and the other groups felt were important, to sort of ease their concerns, shall we say,

such as the very timely cover of the tailings and then the ten millirem constraint.

So thank you.

MS. SUTIN: Thank you, Mr. Thompson.

Anybody else wishing to speak while we are back on the record?

Okay. Well, we will pause the hearing again. And if no one has come by 11:30, I think we will close the morning session and we will start up again at 1:00 o'clock.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: We will close the morning session for today and we will start back up again at 1:00 o'clock. This session is officially closed.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: Good afternoon.

My name is Elyana Sutin and I am the regional judicial officer here in EPA Region 8. Thank you all for coming this afternoon.

I will be presiding over the hearing

today. Joining me on the panel is Tom Peake and Dan Schultheisz from the Office of Radiation and Indoor Air in headquarters. The hearing is now in session.

We are here today to listen and receive your comments on EPA's proposed revisions to national emissions standards for radon emissions from operating mill tailings, also known as 40 CFR, Part 61, Subpart W.

The EPA is proposing to revise certain portions of the standards based on its determination as to what constitutes generally available control technology or management practices, also known as GACT, for this area source category.

EPA announced this proposed rule on May 2nd, 2014. The comment period started on May 2nd, 2014 and was to end on July 31st, 2014. On July 21st, EPA extended the comment period until October 29th, 2014.

In a moment Tom will explain in more detail what was proposed in that notice. But

before I turn it over to Tom, let me explain a bit about how today's hearing will run.

We had a session this morning, as many of you know, and we have another session this afternoon from 1:00 until 5:00 p.m. We will have the same two sessions tomorrow.

Please be sure that you have checked in to the registration desk even if you are not planning to speak today. I will call the scheduled speakers to the podium. When it is your turn to speak, please state your name, spell your last name for the court reporter, and your affiliation before you begin your testimony. Your comments will be transcribed and included in the record of the comments of the proposed rule.

In order to ensure that everyone has the opportunity to speak, and to ensure fairness, please limit your testimony to ten minutes. We will signal to you when you have one minute left to speak. When one minute has passed, I will ask you to complete your testimony.

There is no pressure to speak for ten

minutes. If your comments are less than that, that is fine.

As we did this morning, we will allow people to speak again as long as that testimony is new and discreet information that was not provided in your earlier testimony. We want to avoid repetition and we also want to avoid rebuttal of other people's comments. So you are welcome to speak again as long it is new information.

After you finish your testimony members of the panel may ask clarifying questions. We are not here today to answer those questions about the proposed rule. If you have questions about the process please find one of the EPA representatives after the hearing.

If you have written copies of your testimony, or supporting documentation, please give a copy to our staff at the registration table. This will be helpful as we prepare the transcript.

If you have additional comments you would

like to make you can also submit them in writing. Comments must be received on or before October 29th at 5:00 p.m.

Let me assure you that EPA gives just as much consideration to comments we receive in writing as we do to comments that we receive at public hearings. Instructions for submitting comments are included on the fact sheet at the registration table which you can pick up outside the door.

Today's hearing is scheduled to end once the last registered speaker has provided comments. So if you would like to testify but have not registered to do so, please sign up at the tables outside of the room.

Now I will turn things it over to Tom, who will summarize the proposed rule.

Thank you.

MR. PEAKE: Thank you.

Hello, my name is Tom Peake, and I am the director of the Center for Waste Management and Regulations in the Office of Air and Radiation --

Radiation and Indoor Air. And with me is Dan Schultheisz.

We are here today to receive your comments on EPA's proposed rulemaking for the revisions to the national emission standards for radon emission, NESHAPS, from operating mill tailings, also known as Subpart W.

The proposed revisions would require the use of generally available control technology, GACT, to limit radon emissions from tailings at all uranium recovery facilities. Specific control technologies would be required at conventional tailings impoundments, evaporation ponds and heap leach piles.

We are also proposing to add new definitions to this rule, revise existing definitions and clarify that the rule applies to uranium recovery facilities that extract uranium through the in-situ leach method and the heap leach method.

Specifically, the EPA is proposing the following:

We are clearly stating that the standards apply to all units that contain uranium byproduct material. These units include, but are not limited to, conventional tailings impoundments, evaporation ponds or other nonconventional impoundments at uranium recovery facilities, and heap leach piles.

We are proposing that all uranium recovery facilities comply with GACT management practices, including the use of double liners and leak detection systems.

The proposed rule would remove the requirement for monitoring radon, but limits the amount of byproduct material that can be exposed. For conventional impoundments, proposed to limit tailings exposure using either phased disposal or continuous disposal.

For heap leach piles, limit tailings exposure using phased disposal and maintaining a 30 percent moisture content in the pile.

For evaporation ponds, require at least one meter of liquid be constantly maintained in

the pond.

We are proposing to add definitions for when a uranium recovery facility is in operation or standby.

And lastly, the proposed rule would require the owner/operator of a uranium recovery facility to maintain records that confirm that impoundments have been constructed according to the requirements.

In summary, we are here today asking for your comments on the proposed rule. The comment period ends on October 29th, 2014. We are looking forward to hearing from you today.

Thank you.

MS. SUTIN: Okay. I would like our first speaker to come up and sit in the chair, please. And that is Douglas Chambers.

MR. CHAMBERS: Thank you very much. I appreciate the opportunity to be here today. I was originally scheduled to talk tomorrow morning so of course my notes are actually back in my hotel room, so I will do the best I can off of

the top of my head. So I apologize for any confusion. I would be very happy to answer questions. I will be here tomorrow morning in case something occurs overnight.

In any event, I am Doug Chambers, PhD in Physics, graduate courses in -- I actually taught graduate courses as well in atmospheric dispersion and biostatistics.

I have been in the business of environmental radioactivity for longer than I care to remember, but 40 odd years. I'm particularly interested in the front-end of the nuclear fuel cycle and uranium mining and milling. And in potential health effects associated with front-end with the fuel cycle, which the large degree are perceived to be those associated with exposure to Radon-222.

I have a few general comments to make, which I originally thought I was limited to five minutes so I may end at five minutes or I may carry on to close to ten.

So I'm going to primarily focus on radon,

radon variability, and a few specific comments to put in context. It is a bit embarrassing to show my age but I was involved in the original NESHAPS discussions with EPA and heavily involved in the 20 picocuries per meter squared per second and the decision of presumptively safe, which is the exact terminology if you go back and look at the rule making.

And I think it is relevant in support of that, a number of people or so could -- for example, did calculations of radon concentrations and dose. For example, for all of the phosphogypsum stacks in the United States and other circumstances. And based on their own calculations, and we had similar results, it was concluded that radon from uncovered phosphogypsum stacks and radon at 20 picocuries meters squared per second did not pose a material health risk to the people living in the environment. This is well documented in the extensive annexes to the BID.

It's very important to understand that

radon is everywhere. Radon is everywhere because the parent, Radium-226, is everywhere. And all soils and rocks contain Radium-226. Building materials in this building will contain Radium-226. And some portion of the Radon-222 that is produced by the radioactive decay of radium is released, first of all, to the pore space in the soils, rocks, and building material. And if it survives long enough before decaying to a solid radioactive decay product, can be released to the atmosphere, where it is dispersed in the atmosphere.

And so basically there is rocks and soil everywhere so there is radon everywhere. And radon has a half-life of approximately 3.82 days.

So if you imagine -- say for example simply put a sandy material and radon is released from radium containing matrix in the depth of the pile, it has to migrate from some depth in natural materials or soils or radium tailings to the surface. And if that migration takes longer than 3.82 days, it will decay to a solid material

and not actually escape from the surface of the material.

It is well established that EPA correctly points out in their rule making and there is a great deal of documentation, much of it originating with Tanner from the past, that indicates or demonstrates quite conclusively actually that the diffusion coefficient for Radon-222 in air is 10,000 times greater than it is in water.

And simply put, that means the length of time it takes for radon to diffuse through water is roughly proportionate to the square root of that. I think there may be a square root missing in your document. So the bottom line is water is very effective at attenuating radon gas.

And our experience has been and we can show by calculation and by measurement actually that if the pore space in solid material, whether it's soils or tailings materials, is filled with water, the radon release is not zero, but for practical purposes it's as close to zero as you

could imagine.

And therefore basically I would argue that the difference if you have say uranium tailings that are saturated and maintained in a saturated state, there is very little difference in the amount of radon that would be released from the surface of the tailings that are saturated and from tailings that are covered with 10 centimeters or 20 centimeters or a meter of water.

And it's not clear from the documentation that the EPA provided why it is necessary to maintain a one meter of water cover. One of the operators may comment, may be more knowledgeable than I am on the need in the western U.S. to conserve water in the role of evaporation ponds.

So basically EPA is absolutely correct in my view in basically saying what I said, that there is very little difference, you have 2 percent and 98 percent. Water is very effective in attenuating the release of radon.

And so the only question I have there is

it is not obvious why you actually need a meter of water cover. I can understand why you want to maintain some nominal water cover to maintain saturation because that would be effectively the same.

The other thing I want to mention is radon is everywhere. And the health effects with radon is associated not with short term exposures, but with chronic exposures. Typically we look at annual exposures. I might add that I am very familiar with the health effects. I wrote -- which is basically everything you want to know about levels and exposures like radon. And I'm a member of NCRP Committee 85 that looked at radon. And I'm ICRP Committee 2 that is coming up with those numbers and factors and other things for radon as well.

And so basically radon is everywhere. Radon concentration is everywhere. If you measure radon in the morning and measure at night, it could easily be different. If you measure it indoors, it's much higher than

outdoors. If you measure it in calm valley bottoms it's likely higher in the mornings until the wind comes up and disperses it.

The bottom line is it's everywhere. And EPA and others have published data for variation of ambient radon across the country that ranges from less than a tenth of a picocurie per liter to perhaps as much as two, or even more than two picocuries per liter out of doors.

And I would argue, and I think it's pretty defensible that at the levels of radon from uranium mill tailings, we see it in the United States or evaporation ponds, there is no current technology that would enable you to identify a signal from the incremental radon from tailings in the light of a variable background that is typically much higher.

So I think the comments you want to make, just to repeat, is that water is very effective at reducing radon flux, number one. Number two, radon is variable and everywhere.

And I have just one or two more quick

comments, if I may. I'm not sure what the time line is from this document.

MS. SUTIN: You have one-and-a-half minutes.

MR. CHAMBERS: Perfect, almost totally unrehearsed impromptu, I might add. So I do plan to submit short written comments with a few citations.

And one of the things I wanted to take the opportunity is -- if I can find it -- there is a reference here, I thought I had it marked, to risk from radon. I apologize, I'm thumbing through the document -- here we go.

Yeah, it is on page 25396 of the Federal Register, there is reference made to estimating the total cancer risk to populations surrounding all ten modeled uranium facilities, approximately 4 million people living within 80 kilometers. The total risk to all 4 is between .0015 and .0026 cancers per year. I'm not exactly sure what the average lifetime is but it is probably in the order of 75 years. To make it easy, make it 80 years and you come up with a .3 to .4

cancers, which are essentially lung cancers of the bronchial epithelial tissues in that 4 million people.

The reality is that if you look at 2014 National Cancer Statistics from the National Cancer Association of the United States, one in four of us will develop a cancer -- pardon, one in two of us will develop a cancer -- I'm almost done -- and one in four of us will unfortunately die from cancer.

For the case of lung cancer, approximately 6 percent in women and 7 percent in men will develop lung cancer, which has a high mortality rate. So that is 7 in a 100 from natural background.

Okay. So you multiply 7 times 4 million people, but what you're adding from the risk that we see in the Federal Register, which I agree with is tiny, it's about 5 decimal points smaller than the variability in natural background. It's not --

MS. SUTIN: I need you to wrap up, Mr.

Chambers.

MR. CHAMBERS: I'm done. I think basically water attenuates radon, radon levels are variable, and I agree with EPA that -- in terms of the reduced monitoring.

Thank you.

MS. SUTIN: Thank you.

Next if we can have Kimberly Morrison.

MS. MORRISON: Hi, my name is Kim Morrison, last name is spelled M-o-r-r-i-s-o-n. And I am a consulting geotechnical engineer representing Energy Fuels. And I am the environmental manager for the proposed Sheep Mountain Project in Wyoming.

The Sheep Mountain Project, which includes a proposed uranium heap leach facility, was heavily referenced by the EPA in the background information for the proposed rules.

However, there is a clear misunderstanding by the EPA on the concepts of heap leaching, the reduced level of radium in a uranium heap leach facility as compared to a

uranium tailings impoundment, and a fundamental misunderstanding of the difference between moisture saturation and moisture content.

When uranium ore is being leached on heap leach facility, it is actively recovering uranium and is neither “tailings” nor 11.e(2) byproduct material as defined by the Atomic Energy Act. When uranium recovery is complete, however, the spent ore then becomes 11.e(2) byproduct material.

But at that time the facility is no longer active nor operational. As such, a heap leach facility, by definition, is not applicable to the Subpart W rules that by title are applicable to mill tailings in operating facilities.

If the position that heap leach facilities are applicable to Subpart W is maintained, then the EPA needs to understand the various types of heap leach facilities proposed for uranium recovery. The revised rules focus merely on regulating in-place permanent

conventional heap leach facilities, but make no mention of other facilities, such as on-off heap leach facilities where material is leached on an engineered pad after which the leached ore is removed and placed in a permanent disposal facility.

The EPA has proposed that heap leach facilities maintain a minimum moisture content of 30 percent. Based on a review of the background information, it appears that the EPA are referring to the moisture content as a percentage of the weight.

The proposed 30 percent water content is neither practical nor achievable if the heap leach facility is operated as intended. To put the proposed 30 percent moisture content into perspective, this would correspond to 185 percent ore saturation for the proposed Sheep Mountain Project.

As such, this proposed rule would require that the ore be not only fully saturated but submerged at all times. We have reviewed the

background information that EPA used to support the 30 percent moisture content proposal and found a number of invalid assumptions in their approach.

For instance, moisture saturation as a percent of available void space and moisture content as a percent of weight are not interchangeable parameters, nor is the relationship between the two parameters a constant.

Low grade ore is typically processed by heap leach methods, and a low grade ore contained within a heap leach facility emits less radon than a conventional tailings impoundment of a similar size assuming similar physical conditions.

For example, the proposed ore grade -- excuse me, the ore grade at the proposed Sheep Mountain Project is approximately 0.1 percent uranium, while ore grades of about 0.2 to 0.7 percent uranium have been processed at the White Mesa Mill over the past three years.

As such, EPA's one size fits all approach to setting moisture content requirements and area requirements for heap leach facilities is overly conservative and this should be determined instead based on data and analysis.

In summary, using liquid levels to control radon emissions from a heap leach facility conflicts with the overall operational concept of a heap leach facility. It would significantly dilute the leaching solution, it would have an adverse effect on the process, it would significantly increase the driving head on the underlying liner system. It would result in much greater construction and operating costs for the facilities. And lastly, it would result in the wasteful consumption of water.

Thank you for your time.

MS. SUTIN: Hold on, Ms. Morrison. We have a question.

MR. PEAKE: Will you be submitting the information in detail that you were discussing so that we will have that in our records?

MS. MORRISON: Yes. As Frank Filas mentioned this morning, Energy Fuels is in the process of preparing a very lengthy comment document. We are about at thirty pages currently. And it provides information on all of the various aspects, including several page discussion talking about the saturation versus the moisture content of heap leach facilities and why the 30 percent by weight moisture content is not an acceptable approach.

MR. PEAKE: And will you be -- you had mentioned that there are alternative heap leach approaches that we did not analyze. Would you be providing that? Since there aren't any heap leach facilities in operation.

MS. MORRISON: In the United States there are currently no heap leach facilities that recover uranium. However, there are a number of heap leach facilities worldwide that are constructed of various manners. There is Vat leaching, there is on-off heap leach facilities, there is valley filled leach facilities.

With regard to uranium, the only one that is currently being proposed in the United States is the Sheep Mountain Project, which is a conventional heap leach facility.

However, Strathmore Resources looked at doing Vat leaching for the Gas Hills Project also in Wyoming. And with regard to other uranium heap leaches worldwide, I believe it's the Rossing facility in Africa that has an on-off heap leach facility constructed on top of an old tailings impoundment.

And so with the on-off heap leach facility, the spent ore is removed from the engineer pad, placed in a lined facility. So there are other facilities worldwide.

MR. PEAKE: Okay. Thank you. We will appreciate getting that information.

MS. MORRISON: Thank you.

MS. SUTIN: Next if we could have Steve Brown.

MR. BROWN: Thank you again. My name is Steve Brown, B-r-o-w-n, Consultant for SENES

Consultants of Englewood, Colorado. I'm certified by the American Board of Health Physics, a diplomate of the American Academy of Health Physics. I have been a practicing health physicist for almost forty years. A health physicist is a physical scientist who concerns oneself with the monitoring control of radioactive material and radiation so nuclear activities can be used for the benefit of mankind.

My remarks today are focused on a central theme of just comparing the then and the now, i.e., the then relative to why we needed controls for radon emissions from these types of facilities way back when versus the circumstances today at licensed sites under the Atomic Energy Act of the United States.

So first to start off with perspectives, origin of the need, under current Subpart W requirements and proposed revisions, EPA has assumed that to control public radiological risk limits must be placed at the source, at the

location of the tailing cells or the ponds. These limits are believed necessary to control the radon emission, which we call the source term, including numerical limits on radon emission flux as is in the current version of Subpart W, as well as limitations on the acreage of cells that can be used or the amount of acreage that can be open at any one time, variations of which appeared in both the current and the proposed revisions.

Historically, I'm talking thirty to thirty-five years ago now, such emission controls of the source were necessary. And direct outgrowth of the Uranium Mill Tailings Radiation Control Act of 1978, particularly given the circumstances of the UMTRCA Title 1 sites, which were literally abandoned sites when -- which the public had direct access to the sites and the tailings themselves. It was reported at that time, I was there way back when, that children are playing on them. And of course there was a lot of misuse of the materials at that time for

construction, for roads, for driveways and so forth.

So back in the context of these Title 1 sites of the past, there needed to be control of radon emission at the source because the public had direct access to the source.

However, moving thirty -- thirty-five years to the current circumstances, at sites and facilities licensed under the United States Atomic Energy Act or the Agreement State Regulations by NRC, the monitoring and control of public radiation exposure and dose and related radiological risk must occur at the closest location of public access to the licensed material, i.e., what we refer to as the boundary of the restricted/unrestricted area.

Quantitative limits are articulated in the current federal regulations, Title 10, Part 20 Standards for Protection Against Radiation, and its Appendix B and equivalent sections of Agreement State regulations.

Examples of specific requirements are

listed in my reference section following.

Premise, my premise, accordingly it is suggested that the application of Subpart W to uranium mill tailings and other uranium recovery facilities licensed under the United States Atomic Energy Act is dual and duplicative of federal regulations that to me, a physical scientist, does not appear to provide any additional radiological risk reduction to the public.

Now I will not speak to the authorities, the definitions, the intentions of regulatory or statutory circumstances, I leave that to my lawyer colleagues. And as I have said to my lawyer colleagues, I won't practice law if you don't practice health physics. And I will just leave it as that.

Argument as follows, the radiological doses that are risk to the public at the site boundary from licensed radioactive material contained within the site are functions of several important factors, the meteorology, the

distance, the exposure circumstances, as well as the emission rate at the source.

However, unlike the legacy of abandoned uranium tailing sites of the past, i.e., the UMTRCA Title 1 site for example, the public has no access to the exposure conditions of the source of the no restricted area boundary of the licensed site.

The dose risk only needs to be monitored and controlled at locations to which the public has access. The traditional parameters of concern in Subpart W in regards to public radiological risk, i.e., the radon emission rate, maximum per acreage, general acreage exposed at any time and so forth is not in a direct way related to public exposure conditions some distance away, and controlled and monitored at the licensed boundary locations.

Conclusion, existing federal regulations, both those of NRC and EPA, establish controls and limits to the maximum exposed member of the public, quote, end quote -- for example, 10 CFR

20.1301.

Accordingly, applications of Subpart W to uranium recovery related sites and facilities licensed under the United States Atomic Energy Act appears to me to be redundant and not necessary. And my references again include 10 CFR 20 standards for protection against radiation, 20.1301 dose limits for individual members of the public limited to 100 millirem per year to the maximum exposed member of the public above natural background.

The U.S. NRC 10 CFR 20, Appendix B, Table 2, Column 1, the concentrations of radioactive materials, including radon on a nuclides specific basis that can be released to unrestricted areas.

In the case of a licensed facility, that is where the public has a maximum opportunity to reside. These concentration limits represent the average annual concentrations at which if an individual were exposed continuously at that concentration would receive a total effective dose equivalent of 50 millirem per year.

Now, as a frame of reference, if I have got another minute or two, in regards to what do these numbers mean in terms of exposure limits, I'm quoting here an EPA quote used in Subpart B of Part 61 in regards to radon emissions from uranium mines, that's 10 millirem per year. Closure under 40 CFR 192, 5 millirem per year. A closure of abandoned CERCLA sites of 15 millirem per year.

Honestly people, I don't know how the tissues of my body know the difference between those where they come from, but that's another matter.

The point is, as a resident of Colorado I'm going to get 4 to 500 millirem per year because I live on this planet Earth in this state. For you folks that live in Washington, D.C., maybe your annual exposure is 200 to 300 millirem per year. So that difference, depending on where one chooses to live, is an order of magnitude greater than what we are suggesting we need to regulate to.

If I decide to leave my home in Colorado and go lay on a beach in North Carolina for a couple of weeks, I would save 15 to 20 millirem just because of where I choose to take my vacation. And I can tell you maybe risks at that level do not need to be controlled.

And I have quoted 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operations, USEPA, limiting exposure from any operation of the fuel cycle to 25 millirem dose equivalent to the whole line.

40 CFR 192, Health and Environmental Protection Standards for Uranium Mill Tailings, Subpart D, standards from matters of uranium byproduct material, both of which is a reference regards to closure as opposed to operations that -- that time frame. But nonetheless, again establishes the 20 picocuries per meter squared per second flux limit for the closure of tailings.

USNRC 10 CFR 40, Appendix A, Criterion 6 also similarly defines and limits exposure of

that -- exposure to and the radon emissions.

So in conclusion, I believe that there are adequate protections in existing law for the public in regards to these sites. And maybe all Subpart W needs to do for licensed sites is make reference to existing regulations and established law.

Thank you very much. And I will take any questions.

MS. SUTIN: Up next we have Sarah Fields.

MS. FIELDS: My name is Sarah Fields, S-a-r-a-h, F-i-e-l-d-s. And I am with Uranium Watch from Moab, Utah.

I think one of the problems that a lot of us have had who have reviewed this proposed regulation and the very lengthy Federal Register Notice is a disconnect between what is in the Federal Register Notice in the proposed rule and the reality at conventional mills, ISL, and even proposed heap leach operations.

I agree with the National Mining Association that definitions do count. When you

look at Subpart W, it has two important definitions, the definition of an existing impoundment and the definition of operation.

It says that operation of uranium mill impoundment ends the day the closure begins, but it doesn't contain any information about, well, what must take place for closure to begin.

I think under the definition of an existing -- an existing impoundment is one that was constructed before December 1989 and is licensed to receive waste in the tailings impoundment.

So let's see how this is played out at the White Mesa Mill, particularly Cell 2. Cell 2 is an existing impoundment. It is not mentioned in the Federal Register notice. So the Cells 2 and 3 were the original existing tailings impoundment. They are between 60 and 70 acres and they are lined. Up until July 23rd of this year, July 23rd, 2014, that tailings cell was licensed to receive tailings and waste, 11.e(2) byproduct material.

Actually, according to Energy Fuels, it had not received -- no material had been disposed of in the tailings impoundments -- I mean, no waste since 2008. So from 2008 to 2014, that impoundment was still licensed to receive waste. It has an interim cover. Every year the licensee measured the radon in that impoundment. They submitted the annual reports to first the EPA and then the Division of Air Quality, Utah Division of Air Quality, which took over regulation in 1995.

So even though you might say it was closed, it was still licensed to receive material and it still submitted those annual reports. And in fact in 2012, it -- the radon, the annual radon flux was more than 20 picocuries.

Therefore, they started monitoring on a monthly basis. They must start monitoring in 2013 because that's when they submit the annual reports, in March. They are due at the end of March.

So under Subpart W, they are required to

bring the radon flux back into compliance. And they determined the reason for the increase in the radon was because of an accelerated dewatering program. They are talking about the importance of water to attenuate the radon flux.

So there is no longer a pond on top. But as the water in the pores is diminished because of the accelerated dewatering program, the radon flux increased. Also there was windblown tailings from over in Cell 3.

So they cleaned up those windblown tailings and put a barrier between Cell 2 and Cell 3. And they put additional material on top of the interim cover. Thereby they brought the radon flux back into compliance.

Now, what happened on June -- July 23rd, July 23rd the State Utah Division of Radiation Control issued an order saying that they no longer had to submit monthly reports because they were ordering that 11.e(2) byproduct material and waste could no longer be disposed of in the tailings impoundment and that closure had begun.

So there was an official action. One of the problems however with this official action is that now under NRC regulation, which the Utah Division of Radiation Control implements, is that 6(a) says for a tailings impoundment under closure, you're supposed to have a radon closure plan and you're supposed to have reclamation milestones.

The whole assumption of the rescission of Subpart T and the new EPA regulations in 192 and the new NRC regulations at Criterion 6(a), there would be a radon closure plan and there would be reclamation milestones.

So let's take a look at Cell 2. At this time there is no longer -- there is no radon closure plan incorporated into the White Mesa Mill license and there are no reclamation milestones.

So I think that the EPA, if they are going to take -- allow tailings impoundments to come out from under Subpart W, that they have to say there has to be a radon closure plan and

there have to be reclamation milestones. And there has to be a license amendment which says the licensee is no longer permitted to dispose of any 11.e(2) byproduct material, waste, alternate -- whatever processing -- additional processing fluids or anything else in that tailings impoundment.

And so another aspect of this Subpart T, that rescission, is that the assumption is that as soon as reasonably feasible, a final radon barrier will be placed on that impoundment.

However, if you look at the reclamation plan from Energy Fuels, Energy Fuels has no intention of putting a final radon barrier on Cell 2 until all four of those tailings impoundments, 2, 3, 4A and 4B, are filled with tailings so that there will be only one radon barrier over all of those impoundments.

So Cell 2 will sit there for maybe the next three, four or five decades without a final radon barrier. But now they are not going to be regulated under Subpart W so there is this gap.

So the gap is in the regulation of radon from at a conventional mill tailings impoundment, is that once it goes into closure -- and that's the time when there is -- the tailings impoundment is drying out. The EPA has recognized that.

And you look back at the 1989 Federal Register Notice that promulgated Subpart W, that when it dries out the radon emissions increase significantly. So what happens, it is no longer under Subpart W, it is going through dewatering, but there is no requirement to monitor the radon. That means there is -- no one knows if throughout this dewatering process that the -- if the radon emissions are increasing.

Well, they kept monitoring at Cell 2 so they knew the radon emissions were increasing and they took corrective action.

So it's feasible throughout this dewatering period with an interim cover to maintain radon emissions that are less than 20 picocuries. But still, this tailings impoundment doesn't have a -- there are no milestones.

So the gap occurs between the end of Subpart W and a time when if you have a milestone, and you request an extension of the milestone, which has happened at many uranium mill tailings impoundments, you have to show -- to get an extension you have to show 20 picocuries.

MS. SUTIN: I need you to wrap up.

MS. FIELDS: The EPA has created this gap. And I don't think that it is really recognized in the EPA and I don't think the EPA has made -- is really taking efforts to fill that gap.

Thank you.

MS. SUTIN: Thank you, Ms. Fields.

Hold on, Ms. Fields.

MS. FIELDS: Sorry.

MR. PEAKE: In your comments, will you be proposing definitions?

You had said, you know, you agree the definitions are important. Are you going to in your comments be providing alternative definitions for us to consider?

MS. FIELDS: Yes. And I also feel that there shouldn't be any time in any phase of a conventional mill's life where there is a lack of regulation of the radon emissions, that there shouldn't be this gap.

And the problem is with Subpart T. Subpart T was basically -- I mean, the rescission of Subpart T, it was rescinded to take care of some issues with uranium mills that had already ceased operation. It wasn't really rescinded taking into consideration the issues at existing uranium conventional mills either in Colorado -- Cañon City or White Mesa.

MS. SUTIN: Thank you. We don't have any other registered speakers at this time so we will pause the hearing until someone else shows up to speak.

Thank you.

(Whereupon, a recess was taken.)

MS. SUTIN: It is 4:30 and we have had no further speakers today so we are officially closing this afternoon session of the hearing on

September 3rd, 2014. The hearing is officially closed.

(Whereupon, the hearing was concluded at 4:30 p.m.)

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:03 AM
To: Thornton, Marisa
Subject: Fw: Transcripts
Attachments: SupbartWHearing-Transcript-9-4-2014-Session.pdf; SupbartWHearing-Transcript-9-3-2014-Session.pdf

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From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:22 PM
To: Collections.SubW
Subject: FW: Transcripts

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Wednesday, November 05, 2014 2:31 PM
To: Rosnick, Reid
Subject: FW: Transcripts

Here you go!

Tony Nesky
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Tel: 202-343-9597
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From: Nesky, Anthony
Sent: Thursday, October 30, 2014 9:07 AM
To: Rosnick, Reid
Subject: RE: Transcripts

I got the last one yesterday, and uploaded them into the Docket. They are attached. I'm teleworking this morning, out this PM. My phone number is 703-329-6272.

Tony Nesky
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Tel: 202-343-9597
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From: Rosnick, Reid
Sent: Thursday, October 30, 2014 7:10 AM

To: Nesky, Anthony
Subject: Transcripts

HI Tony,

When do you expect the final transcripts from the Subpart W hearings? Thanks

Reid

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Reid J. Rosnick
US Environmental Protection Agency
Radiation Protection Division
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Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:03 AM
To: Thornton, Marisa
Subject: Fw: Nine docs to be uploaded to Docket

From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:23 PM
To: Collections.SubW
Subject: FW: Nine docs to be uploaded to Docket

Tony Nesky
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Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Thursday, November 13, 2014 7:50 PM
To: Lee, Raymond
Subject: FW: Nine docs to be uploaded to Docket

Dear Ray:

Here's the list of files from 8/25. Could you look into it, and see if these are really missing from the Docket? Thanks!

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Monday, August 25, 2014 4:15 PM
To: Lee, Raymond
Subject: Nine docs to be uploaded to Docket

Dear Ray:

Thanks for your offer to upload some of the EIA references to the Docket. Here's your half. The files are located at:

G:\CRIO\Web\RPD_Internet\RPD New Web\docs\neshaps\subpart-w

FR (Federal Register) 1989b. National Emission Standards for Hazardous Air Pollutants; Radionuclides, Volume 54, p. 51654, December 15, 1989.
File Name: FR51654.pdf

FR (Federal Register) 1986. 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants, Standards for Radon-222 Emissions from Licensed Uranium Mill Tailings; Final Rule, Volume 51, p. 34056, September 24, 1986
File Name: FR34056.pdf

FR (Federal Register) 1994. National Emission Standards for Hazardous Air Pollutants; Final Rule, Volume 59, p. 36280, July 15, 1994.(23 pp, 13.36 MB) About PDF
File Name: FR36280.pdf

Golder Associates Inc. 2008, "Evaporation Pond Design Report, Piñon Ridge Project, Montrose County, Colorado," submitted to Energy Fuels Resources Corporation, October 2008.
http://www.epa.gov/rpdweb00/docs/neshaps/subpart-w/evaporationponddesignreport100708.pdf

SC&A (S. Cohen & Associates) 2008. "Report on the Review of Method 115 to Monitor Radon Emissions from Uranium Tailings," Contract Number EP-D-05-002, Work Assignment No. 4-11, Task 6, SC&A, Inc., Vienna, Virginia, September 25, 2008
File Name: method-115-compliance.pdf

SC&A (S. Cohen and Associates) 2010. "Risk Assessment Revision for 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings, Task 5 – Radon Emission from Evaporation Ponds," Contract Number EP-D-10-042, Work Assignment No. 1-04, Task 5, SC&A, Inc., Vienna, Virginia, November 2010.
File Name: riskassessmentrevision.pdf

SC&A (S. Cohen and Associates) 2011. "Risk Assessment Revision for 40 CFR Part 61 Subpart W – Radon Emissions from Operating Mill Tailings, Task 4 – Detailed Risk Estimates," Contract Number EP-D-10-042, Work Assignment No. 1-04, Task 4, SC&A, Inc., Vienna, Virginia, March 25, 2011.
File Name: SubpartWHist&Basis-final.pdf

Titan Uranium 2011 "Sheep Mountain Uranium Project Crooks Gap, Wyoming," presentation to U.S. Nuclear Regulatory Commission, ML111740073, May 24, 2011
File Name: sheepmountainproject.pdf

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:03 AM
To: Thornton, Marisa
Subject: Fw: OAR-2008-0218 Supports missing attachment/s

From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:23 PM
To: Collections.SubW
Subject: FW: OAR-2008-0218 Supports missing attachment/s

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Thursday, November 13, 2014 7:48 PM
To: Lee, Raymond
Subject: FW: OAR-2008-0218 Supports missing attachment/s

Dear Ray:

See the email chain below. The Subpart W Docket says that these files are missing the attachments. I sent you the info and file location on 8/25—I'll send you the email again so that you don't have to dig for it.

Let me know if you need anything from me on this. Thanks!

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Miller, Beth
Sent: Thursday, November 06, 2014 8:45 AM
To: Nesky, Anthony
Subject: FW: OAR-2008-0218 Supports missing attachment/s

Tony,

Did you enter these into the docket?

Beth Miller
202-343-9223

From: Akram, Assem
Sent: Wednesday, October 29, 2014 2:26 PM
To: Miller, Beth
Cc: Peters, Shawnta
Subject: OAR-2008-0218 Supports missing attachment/s

Hi, Beth –
When you get a chance, could you take a look at these supports as they're missing attachments?
Many thanks!

EPA-HQ-OAR-2008-0218-DRAFT-0127	Metadata_Ready	SUPPORTING & RELATED MATERIALS	FR51654	Peters, Shawnta Dominique (EPA)	08/28/2
EPA-HQ-OAR-2008-0218-DRAFT-0128	Metadata_Ready	SUPPORTING & RELATED MATERIALS	FR36280	Peters, Shawnta Dominique (EPA)	08/28/2
EPA-HQ-OAR-2008-0218-DRAFT-0129	Metadata_Ready	SUPPORTING & RELATED MATERIALS	FR34056	Peters, Shawnta Dominique (EPA)	08/28/2
EPA-HQ-OAR-2008-0218-DRAFT-0130	Metadata_Ready	SUPPORTING & RELATED MATERIALS	method-115-compliance	Peters, Shawnta Dominique (EPA)	08/28/2
EPA-HQ-OAR-2008-0218-DRAFT-0131	Metadata_Ready	SUPPORTING & RELATED MATERIALS	evaporationponddesignreport100708	Peters, Shawnta Dominique (EPA)	08/28/2

EPA-HQ-OAR-2008-0218-DRAFT-0132	Metadata_Ready	SUPPORTING & RELATED MATERIALS	riskassessmentrevision	Peters, Shawnta Dominique (EPA)	08/28/2
EPA-HQ-OAR-2008-0218-DRAFT-0133	Metadata_Ready	SUPPORTING & RELATED MATERIALS	SubpartWHist&Basis-final	Peters, Shawnta Dominique (EPA)	08/28/2
EPA-HQ-OAR-2008-0218-DRAFT-0134	Metadata_Ready	SUPPORTING & RELATED MATERIALS	sheepmountainproject	Peters, Shawnta Dominique (EPA)	08/28/2

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Assem Akram
Docket Manager
USEPA Docket Center
Operated by ASRC Primus
(202) 566-0226
akram.assem@epa.gov

Thornton, Marisa

From: Thornton, Marisa on behalf of Collections.SubW
Sent: Friday, December 19, 2014 8:03 AM
To: Thornton, Marisa
Subject: Fw: OAR-2008-0218 Supports missing attachment/s

From: Nesky, Anthony
Sent: Wednesday, December 3, 2014 5:23 PM
To: Collections.SubW
Subject: FW: OAR-2008-0218 Supports missing attachment/s

Tony Nesky
Center for Radiation Information and Outreach
Tel: 202-343-9597
nesky.tony@epa.gov

From: Nesky, Anthony
Sent: Thursday, November 06, 2014 9:18 AM
To: Miller, Beth
Subject: Re: OAR-2008-0218 Supports missing attachment/s

A couple of us did, but the method one looks familar to me. I'll check these and upload the attachments.

Tony

From: Miller, Beth
Sent: Thursday, November 06, 2014 8:45 AM
To: Nesky, Anthony
Subject: FW: OAR-2008-0218 Supports missing attachment/s

Tony,

Did you enter these into the docket?

Beth Miller
202-343-9223

From: Akram, Assem
Sent: Wednesday, October 29, 2014 2:26 PM
To: Miller, Beth

Cc: Peters, Shawnta
Subject: OAR-2008-0218 Supports missing attachment/s

Hi, Beth –
When you get a chance, could you take a look at these supports as they're missing attachments?
Many thanks!

EPA-HQ-OAR-2008-0218-DRAFT-0127	Metadata_Ready	SUPPORTING & RELATED MATERIALS	FR51654	Peters, Shawnta Dominique (EPA)	08/28/2
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