

EPA Review of Standards for Uranium and Thorium Milling Facilities

PUBLIC INFORMATION MEETING

Tuba City Arizona

September 15, 2010

On September 15, 2010 EPA held a public information meeting in Tuba City, Arizona to provide the public an overview of the regulatory review and existing standards and to seek public input on the review of 40 CFR Part 192 and the revision of 40 CFR Part 61 (Subpart W).

MEETING STRUCTURE

The meeting began with opening remarks and introductions. Loren Setlow and Reid Rosnick of EPA's Radiation Protection Division (RPD) opened the meeting by giving a presentation on the EPA's review of 40 CFR Part 192 and 40 CFR Part 61 (Subpart W). The presentation was followed by a question and answer session. Participants were invited to submit their questions on an index card so that they could be read aloud for the benefit of all. After the question and answer session, the public was invited to provide input by signing up for five-minute presentations. In the remaining time, the floor was opened up for additional audience questions and input. Linda Reeves of EPA Region 9 served as facilitator. Tony Nesky of RPD took notes. Loren Setlow, Reid Rosnick and Linda Reeves closed the meeting by thanking the group for their participation, and sharing parts of their lives. Loren noted that the many comments on water usage had been loudly heard, and that EPA's review of the rule will examine water usage and constituents for which MCLs have not been determined.

There was one question about the purpose of the meeting. Lillie Lane of the Navajo EPA asked if this meeting was informational only or a hearing as part of a rulemaking. She expressed concern that the U.S. EPA could go back to Washington saying that they held a hearing in Tuba City and that everyone agreed. Loren Setlow replied that the purpose of the meeting was informational and that the U.S. EPA wanted to know what was on everyone's mind as it reviewed the uranium and thorium rules. Loren reminded participants that they could sign up to speak or sign up for questions at any time.

ATTENDANCE

Thirty people signed up to attend the meeting, though attendance was probably higher as people continued to join the meeting after the registration desk closed. Facilitator Linda Reeves asked participants about their affiliations. Seven people indicated affiliation with the Navajo Nation, and one person indicated affiliation with the Hopi Nation. Three persons indicated that they were attending for a government agency, and one person was attending for a mining company. Linda also asked participants to indicate how far they had travelled to attend the meeting. Three people only had to travel a short distance—5 miles or less. Four persons travelled up to 100 miles to reach the meeting, and the rest—25 people—had to travel more than 500 miles.

AUDIENCE QUESTIONS TO EPA

QUESTION	EPA RESPONSE
What are the methods to protect surface soils?	Loren answered that the only protection standards currently in the rule are for uranium and radium. The rule is silent on other heavy metals in soil.
Can RCRA be changed to include radioactive materials as hazardous, either specific properties like flammable corrosive items, or numerical levels?	Loren noted that the rule review is not part of the RCRA program, and any revision of the rule would be under UMTRCA authority. Reid noted that RCRA does not specifically include radionuclides, which have historically been regulated under the Atomic Energy Act (AEA). He acknowledged that the regulatory scheme can be complicated, and that radionuclides are covered under various statutes such as the AEA, Clean Air Act (CAA), and Resource Conservation and Recovery Act (RCRA) standards for surface impoundments were used in Subpart W because they were the best designs at the time. When regulating radionuclides, EPA “borrows” from the best practices from the various statutes. Reid completed his answer by noting that addition of radionuclides in RCRA would require reauthorization of RCRA. Loren added that the addition of radionuclides to RCRA had been considered years ago, but the determination was made not to include it.
What about airborne dust? What about the constituents attached to dust blowing in the wind?	At operating mill facilities, the NRC converts the levels that can be emitted in dust. They are covered in NRC licenses. Loren added that constituents in dusts are part of the consideration of impacts to surrounding communities in 40 CFR Part 192, but were not determined to be a sufficient hazard to require regulations. He said that EPA will examine this issue again.
Do you look at other countries’ rules, such as those of the European Union?	Yes, EPA does look at the rules of other countries.
Can you explain the standards applicable to Uranium Recovery and the role of the EPA, the NRC, and the Tribal Environmental Protection Agencies?	Loren answered that authority depends on who has the permits. He cited a hypothetical example of an ISL facility in Wyoming. In this case, the NRC grants the license, the State of Wyoming gives a mining permit. Each under their own authority inspects the facility, and checks for leaks and excursions. Each can independently undertake an

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enforcement action to make them clean up the facility. He continued that EPA's Superfund program has an interagency agreement with NRC, and that EPA has the authority under the Safe Drinking Water Act to issue Underground Injection Control permits for ISLs. He added that EPA tries to work with its sister agencies to provide oversight.

What about the tribal role?

Loren answered that if it facility has an excursion or contamination event—the roles depend on whether the facilities are operating or closed. The NRC has authority for operating facilities. If the facilities are on tribal land or there is an excursion on tribal land, the tribe has authority. The NRC also has some agreements with tribes. DOE is the regulator of closed facilities. The DOE will work with the tribes, and EPA will step in to provide the tribe with assistance under its Trust authority if asked.

Why does the U.S. continue to extract uranium on indigenous lands? What are the negative truths on how native land will be affected?

Loren said that he would try to address the first question. He began by noting that the U.S. needs uranium for its nuclear power plants and weapons. Currently the U.S. is an importer of uranium from countries such as Canada, Australia, and Kazakhstan. The demand for uranium is growing in China and India. Uranium mining has thus become a matter of national security. EPA's role in uranium milling is somewhat limited. We have a real responsibility to work with tribes, as government to government. EPA takes tribal issues into consideration when reviewing Environmental Impact Statements, which should identify areas of the land considered sacred.

Loren added that EPA has had a policy for protection of Native Americans since the 1980s and there is an Executive Order as well. EPA developed a database of the locations of uranium mines and mills, and found that 75% of the sites were on federal and tribal lands. EPA recognizes the disproportionate impacts.

Reid referred to the question about “negative truths,” noting that there is a “negative truth” one mile and a half up the road, and that EPA will try its best to prevent effects.

What is your timeline for issuing the draft regulations?

Loren answered that EPA will complete its UMTRCA review early next year, and that any revision would be issued in 2012. Reid answered that the review of Subpart W is

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Will these rules affect new ISL facilities that have permits approved, but are not producing uranium?

Loren answered that the facilities will be bound by the conditions in the existing regulations if licenses are issued before new EPA regulations are finalized.

Would current UMTRCA sites, including the four on the Navajo Nation, have to abide by these revised regulations?

Loren answered that it depends on how extensively the rule is revised. For example, if an old facility is not lined, they would have to dig up tailings and rebuild the impoundment.

Comment from the audience (Sarah Fields): It will cost \$1 billion to do that as a result of the failure of the existing Part 191 regulations.

Subpart W affects only ISR, right? Is there a proposal to regulate conventional mines, too?

Reid answered that Subpart W applies to conventional, ISL, and heap leach facilities and that any revision would apply to all three types.

What is the process to override an aquifer exemption, and why doesn't that decision go public?

Loren said that he would do his best to answer this question, but will refer the question to Region 9. He said that there is no provision to override it in the existing regulation. He cited the example of Crown Point, where the exemption was granted by a state agency. EPA disapproved but was overturned by the Circuit Court of Appeals. Loren brought up a hypothetical situation where EPA could ask a state to reconsider an aquifer exemption, but he asked the questioner to see him in person after the meeting.

What are the financial requirements of milling companies to protect the taxpayers from bankruptcies and fly by night operations?

Loren observed that there were not many fly-by-night milling facilities as these are extensive and expensive operations. NRC has its own regulations for bonding and surety. States also have financial requirements in their permits. EPA's UIC program also has a bonding requirement for ISL facilities. NRC has the strongest requirements. The expenses [of a bankrupt facility] would

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	<p>be great for the federal government, so the Superfund is reviewing this problem in a separate rulemaking to determine if they are adequate.</p>
<p>Does EPA have any compensation program like those under DOJ that are affected by mining operations?</p>	<p>Loren answered that the only ones he knew were here at the Navajo Nation for the rebuilding and relocation of homes. EPA does not have the authority to compensate individuals for radiation exposures.</p>
<p>How are background levels set for site reclamation? Give examples of radius, depth, and number of samples.</p>	<p>Loren and Reid answered that one way background levels for site reclamation may be set is using procedures explained in the MARSSIM Manual, which has been agreed to by EPA and several other federal agencies. It sets forward a set of principles about the surveys that have to be taken and how to determine background statistically. It can also look outside the boundaries of the contaminated sites The manual is available on our website at epa.gov/radiation. The EPA Superfund program, if it is involved, may establish their own methods for determining what constitutes "background".</p>
<p>What are the penalties for violation and how much wiggle room is there in the law?</p>	<p>Loren answered that the regulatory agencies--the states and NRC issue the penalties for pollution events at operating uranium processing facilities.</p>
<p>Are you reviewing them?</p>	<p>Loren replied that EPA does not have authority to issue bonding requirements under UMTRCA.</p>
<p>So its sounds like you don't have power to penalize except Superfund?</p>	<p>Loren explained that there are penalties for stormwater violations under the Clean Water Act, and penalties for ISL groundwater excursions under the Safe Water Drinking Act. Reid added that EPA's Office of Enforcement handles penalties. Each region has their office, and enforcement is usually done at the Regional level. Andy Bain of Region 9 answered that Region 9 was able to use CERCLA authority to clean up houses contaminated with mine wastes. He added that there is an exclusion to use monies to address Uranium Mills. There is no sunset provision to address soil contamination from after 1978.</p>
<p>What is the time frame to protect drinking water and adjacent areas?</p>	<p>Loren answered that that NRC-regulated facilities must respond within 90 days from the time of identifying an excursion has occurred. Under UMTRCA requirements they</p>

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	<p>have up to 18 months to respond after milling has stopped. At conventional mills the monitoring is done on an annual basis, so that it is possible that an excursion could be missed once it begins.</p>
<p>What are the methods for the public to monitor the testing and monitoring data? Will the data be kept back by corporate secrecy?</p>	<p>Loren replied that monitoring data is provided to the NRC. The NRC would have to be asked about access to this information.</p>
<p>Can the Navajo Nation request a workshop to be better understand the rulemaking and ISL implications? Can your office set this up?</p>	<p>Loren replied that EPA would be happy to help, and will speak with the Navajo Nation to set up a workshop.</p>
<p>What is EPA doing now to address health hazards of the present population including vegetation? Be specific.</p>	<p>Loren replied that the EPA-is looking at groundwater studies. In one previous instance for example in Wyoming, where the DOE wanted to allow an alternative concentration limit at milling facilities, EPA recognized that ranchers watered livestock just off the site so it asked the state and DOE to consider these impacts.</p>
<p>Why doesn't thorium have a drinking water MCL?</p>	<p>No one from EPA could answer this question, so EPA offered to get back to the questioner.</p>
<p>Can you gather information about the operations at the Rare Metals site in the 1970s?</p>	<p>Loren noted that there is data available about the site that was published in reports we published when we were last finalizing our regulations on 40 CFR 192. The data is on our website. Other information is available on the Rare Metals site is available at the DOE. Records may exist at the old AEC for abandoned and closed facilities. Loren didn't know how to retrieve these records so he asked the questioner to provide contact information.</p>
<p>We have a lot of people who are sick in the area south of rare metals. There is no vegetation, livestock are deformed from</p>	<p>Loren replied that the Regional Office would handle this complaint, and asked the questioner to provide contact information.</p>

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uranium contamination, and there are high rates of disease in our population; cleft palate, cancer, Bells Palsy, and no one ever talks about it.

Can the people who live nearby Rare Metals facility be compensated because they were relocated there to make way for a mine?

I'm confused by everyone's roles. Could I get a list of everyone's authorities and activities?

What are issues related to thorium?

Does your current risk assessment address restoration to baseline after uranium is extracted, and if so, how?

Follow-on question: What is baseline? What is the exact concentration of anions, cations? Will they be the same after the uranium is removed?

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The questioner replied: "That was 50 years ago, and we are still feeling the effects. All this is going on, and continues to go on--just leave us alone."

No one from EPA could answer this question.

Loren referred the questioner to the five-year plan for cleanup of uranium contamination on the Navajo Nation that lists what the agencies are doing and noted that there is also information on Region 9's websites.

Loren answered that the issues are how thorium will be milled, what the emissions are, and the natural decay of thoron. EPA does not have a model facility for thorium, so we will model on thoron outgassing, and from there look at risk assessment for radon gas impacts.

Comment from the floor: Radon from thorium has a shorter half life, and its decay products have a short half-life and are more active. I don't think it's an improvement on uranium.

Loren replied that this risk assessment has not been done yet. It will include impacts to those adjacent and all exposure pathways, groundwater use, housing on or adjacent to the facility, the length of exposure by ingestion versus inhalation, scenarios for operating versus non-operating. He also invited suggestions from the public.

Loren explained that the companies in their restoration for ISL facilities use a variant of pump and treat. They will inject things like sulfide to stop the leaching of uranium to change pH to neutral. There are so many other minerals in the ground; the process may not work for every mineral. They will replace certain volumes of waters several times and evaporate the sludge, or in some cases have gotten

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authority to pump into deep aquifers. They may do these four and five times, but some time up to 10 times the volume of the aquifer. The original baseline could possibly be met for some constituents, but historical data indicates this may not occur for all.

Does the Energy Policy Act of 2005 cover uranium extraction on tribal lands under the tribal energy agreements?

No one knew. EPA offered to get back to the questioner.

What process would one person need to do to get a well re-opened?

EPA will defer that question to the Water Resources Board.

Is there a timeframe for Subpart W under Consent Decree?

Reid answered that it was a Consent Agreement, not a decree. The consent agreement is on our website. There is no court ordered deadline, but I want it in place within 13 months.

PUBLIC PRESENTATIONS

Members of the public were invited to provide five-minute presentations on the following topics:

- Changes in uranium industry technologies (such as utilization of the In-Situ Leaching recovery process as the principal current technology for extracting uranium) and their potential environmental impacts
- Revisions in EPA drinking and groundwater protection standards
- Judicial decisions concerning the existing regulations
- Issues relating to children's health, Tribal impacts, and environmental justice
- Dose and risk factors and scenarios for assessing radiological and non-radiological risk
- Facilities proposed in states outside existing uranium mining and milling areas
- Costs and benefits of possible revisions.

Presentations are summarized as follows--

Sarah Fields

Uranium Watch, Moab Utah

Ms. Fields has a problem with 40 CFR Part 61 Subpart A, General Requirements. She sees a total breakdown in application approval process, believing it to be a "rubberstamp" process in Utah. Ms. Fields wants the process to be more than a rubberstamp; it should provide a great deal of information and the chance for public participation.

Ms. Fields believes that mine owners are not complying with requirements and suspects that mills are not either. Ms Fields thinks that approval of a new tailings cell under 40 CFR Part Subpart A should be for a set period of time, not for decades.

She said that the biggest problem in Subpart W and 192 is the time gap for radon release between operations and installation of a final barrier. Tailings blow around, and there is a lot of radioactive particulate matter.

Ms. Fields commented that there is supposed to be a tailings closure plan, and reclamation milestones with public notice, but there was none at Cotter. The tailings impoundment closed in 2005, and there were no milestones or notices.

Ms. Fields said that Colorado doesn't think it needs to measure the radon flux at the Cotter pile and that "apparently EPA gave them a pass". Everything looks good on paper, but you don't have the enforcement."

Allison Gibbon
Sierra Club

Ms. Gibbon said that the Sierra Club will stand behind the toughest regulations possible to protect our environmental, people and wildlife. She commented "It is great that you are here to talk to the people who have suffered the travesties of the past. There are many permits in the Grand Canyon areas, there are now mines proposed on the North Rim that affect the Hualapai and Havasupai, but it is hard for them to travel to Tuba City for this meeting. The Arizona One mine was approved in the eighties, sat idle for year, and reopened without needing reconsideration. They are on public lands, and when the mine opens they are fenced up and no longer public. There is no way to completely clean up the tailings. There should be total cost accounting on the cleanup. A Canadian company is running the mine and selling the uranium to Korea and Japan, so there are not national security issues. You should consider this in the rule. Thank you for listening."

EPA Response and Discussion:

Loren clarified the EPA is authorized under UMTRCA to regulate mills not mines, and regulates stormwater discharges, groundwater quality, and air emissions.

There was a follow-on question to this clarification: "Are the regulations on conventional mines being updated?" Reid answered that they were not, but that he was aware of the Arizona One Issues, and was working with Region 9, who has the lead on these issues.

Michelle Dinuyache
Community Member, Fort Defiance, Arizona

Ms. Dinuyache commented on risk assessment and recommended that EPA obtain information on inputs to models from tribal representatives to ensure the assessments were fully representative of lifestyles.

She also commented on dose and risk factor scenarios. For 40 CFR Part 192, she recommended a risk-based approach that based standards on the low end of the range.

EPA Response and Discussion:

Loren replied that the regional offices will be soon approaching the tribes for the tribal specific input to reflect lifestyles.

David L Neztosie
Shadow Mountain, AZ

“For 30 years, mining went on, mills were developed next to streams, near communities, and abandoned overnight. So it has spread by wind and other seasonal weather. It has been determined that this is a good location for wind farms. So how much of a down winder are we? There are sicknesses related to uranium in my hometown, respiratory and nervous disease, it is troubling my mom and dad. Two of my youngest sisters have died for it, aged 30 years. I can see that in the community. Authorities and the people’s government do not seem to agree how uranium can be related to health problems. Somebody’s windmill was taken down because of its high concentration of uranium [in the well water]. Abandoned mines collect water, sheep drink the water. You can go miles before you reach another water resource.

Although mines have been remediated, this is only a “band-aid” solution. Horses and livestock would step into holes and fall. People east of me have a high content of uranium in their only drinking water and give it to their livestock. “

EPA Response and Discussion:

Loren Setlow of EPA replied: A good piece of the meeting today dealt with water problems. EPA realizes that this is a very large problem, and that when a well is posted and shut down, it is a very large problem to find a replacement. EPA is doing the best it can to identify other water sources for these communities, and knows that the Navajo Nation has forbidden further mining on its lands.

Cassandra Bloedel
Navajo Nation EPA

“I was going to request EPA HQ continue to look at all the data for Tuba City Dump, Highway 160 because there is thorium in the groundwater, and BLA [the Bureau of Land Management] is ignoring that fact. It is important that EPA determine MCLs for all radionuclides. We have copper and arsenic in the groundwater. The former Rare Metals site had arsenic products, and we found them at Highway 160, and these facts are being pushed to the side. In any new development process, you have to recognize that it will generate radionuclides.

We had to go to the forensic analysis of the uranium isotopes to relate Highway 160 to the mill. You may have to establish MCLs for isotopes.

I missed the fact that water was being reinjected into the Navajo Aquifer. It is the main source of potable water. They are only publishing reports on certain constituents. What about the others—arsenic, molybdenum?

Crown Point is within a quarter mile of the community, and it is upgradient. The aquifer is fractured, and shallow groundwater contamination will contaminate deeper groundwater.

Look at data that have been released. Look at the Navajo reports presented to Congress. Thank you for your time and being here.”

EPA Response and Discussion:

Loren Setlow of EPA thanked Ms. Bloedel for the discussion of thorium and mentioned noted that the existing standards issued in 1995 did include a few substances that did not have drinking water MCLs, particularly silver and molybdenum, which are typically found with uranium. Loren said that EPA will look at thorium and vanadium in its review of 40 CFR 192.

Carl Holliday

Navajo Nation, Monument Valley, AZ

Mr. Holliday expressed appreciation what Sandra said, commenting “Our concerns seem to fall on deaf ears.” He expressed concern about the application of uranium limits to thorium, questioning whether the dose equivalents were high compared to uranium or gamma radiation. He asked for clarification.

He also had a question about exposure rates: “If you have 600 or 700 lbs of uranium in a pond, how does it not show up somewhere else?”

Loren Setlow replied by giving a history of the radiation dose to the public. The dose limit in the current rule is an annual 25 milirems to a member of the public, and 75 millirems to any organ. EPA is giving the radiation dose a hard look in this review. He also said that EPA would be looking at thorium in groundwater.

Esther Honyestewa

Hotevilla, AZ

Thanks to the people coming from the U.S government. We have a lot of issues on the reservation. We have a lot of issues concerning our water here. We have an issue on the Peaks, and not one member came out, so it is not that important, but springs are being contaminated. You came out.

I’m from Hopi, and I am concerned about water. Our water is sacred here, and we do not waste water. It looks like this is another project to take water away. The uranium a mile away has really affected our land. If our water goes away, we will go away. Our pure water is becoming contaminated. Our people are dying from all the things the government is doing to the land. We cannot mess with Mother Earth.

Our farmers work hard for the families. My family was one of the ones shipped to Rare Metals when the hospital was being built. My Dad planted right outside the Mill tailing, we ate it, and a lot of people in my family have cancers. Think about that when you write your rule. We don't have it easy—this is dry desert, and people want to take our water. All the water underneath is one body of water, and we need to respect that water.

Why do we want to make bombs? That is not right. We are here to help each other, not hurt each other. We are a spiritual people--we have prayers for everything. Our plants are not what they used to be. I'm a farmer and I'm proud of it, and I want my grandkids to be proud of it. Water is sacred. Do your mining somewhere else."

Harrilene Yazzie

Greasewood, AZ

Ms. Yazzie said she understood the Federal government's position where it had to balance public comments with national needs. She commented, "With all the contamination, as well as the water, it leaves little room for development—not just economic development, but also subsistence development. You need to find the balance between what is right from the nation, as well as what is respectful for the indigenous peoples. There is no wiggle room. You are forced to make decisions that keep you up at night. The fundamental reasons we are facing these issues are due to violence—it was all for greed or gain. There are a few things—I've learned when you listen to numbers. The use of water on Navajo is 10 to 15 gallons per person per day, but we pay more per capita. Phoenix, Arizona has more boats per capita than the state of Minnesota. The mindset is to pay \$5 for 7400 gallons, 170 gallons per day per person.

So when you re-inject thorium into the Navajo Aquifer, children die in infancy. When a child laughs, we Navajo have a celebration, because it means that the child is a person. That will be denied someone, because you can't determine background, because you can't determine MCLs?"

David Assisi

"I wish all the agencies involved could learn how to work as a team. Is it in the 5 year plan? It seems that everyone is pursuing this individually. The aquifer could be a precious resource. In 1996 we had the worst drought, springs weren't putting out, but some other ones did. The Navajo EPA was surprised—50 to 100 gallons per minute. The water—anything we can do to save it, that's what I'm interested in. Thank you for the chance to speak."