U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

NOTE TO FILE: Document Date

DATE: December 9, 2009

Name : Priya Yadav, Project Manager **/RA/**
Department: Materials Decommissions Branch
Division: DWMEP

Summary: The following documents are already in ADAMS as 33 different MLs and can be found under reference number 74FR30175 through an ADAMS search. This document should be added to ADAMS with a date of 12/09/2009.

PUBLIC SUBMISSION

As of: July 01, 2009
Received: June 24, 2009
Status: Pending_Post
Tracking No. 809d905d
Comments Due: August 01, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshopon a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0001
Comment on FR Doc # E9-14820

Submitter Information

6/24/09
74FR30175
(1)

Name: John Stanford
Address:
698 Marquette Drive
Apartment 5
Kewaunee, WI, 54216
Submitter's Representative: none
Organization: retired
Government Agency Type: Federal
Government Agency: NRC

General Comment

Depleted uranium disposal meetings to be conducted in two locations this year by the NRC are my issue. I know that enrichment facilities process natural occurring uranium to extract the valuable uranium 235 from the very predominant (99.3 %) uranium 238 as the latter of the two is not a useful fissile isotope. The waste stream is all that uranium 238, commonly referred to as tailings, but in this case, as depleted uranium. Now all that uranium came from the ground or from a mine, so why can't it go back to where it came from? There is a lot of uranium world wide, just as there is a lot of thorium 232. Thorium 232 was everywhere when I lived in Colorado. Shovel some dirt, and the shovel will include thorium 232. Half lives: U-238 - 4.46 E9 years; U235 - 703.8 E6 years; Th-232 - 1.404 E 10 years. We have had a fair amount of decay of U-235, but very little decay of the other two, thus the uranium isotope percentage difference. They are all but stable, in fact. Now they all finally decay to elements like radium and it is not only an alpha emitter, like uranium and thorium are. If an organization tried to license a coal fired plant as a nuclear plant, they couldn't, due to the 10CFR20 limits on radium releases. Now how many people know that?

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = P. Yadav (PPY)
B. Traynham (BNT1)
C. Grossman (CJG2)

PUBLIC SUBMISSION

As of: September 25, 2009
Received: September 24, 2009
Status: Pending_Post
Tracking No. 80a2ab7c
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0002
Comment on FR Doc # E9-14820

Submitter Information

6/24/09
74FR 30175
(2)

Name: Chuck McCown
Address:
2000 E Sunset Road
Lake Point, UT, 84074
Organization: Private Citizen

General Comment

I have absolutely no problem in storing DU at ANY location. I would hope that we can use DU for uses such as forklift counterweights and other high mass uses. DU poses almost an undetectable risk. It is always amusing to note that many of the detractors of low level waste such as HEAL in Utah, use CFL and florescent lamps as well as mercury thermometers. It seems that the emotional reaction to all things radioactive blinds those affected to rational, relative risk assesment.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = C. Grossman (CJG2)
B. Traynham (BNT1)
P. Yadav (PPY)

6/24/09
74 FR 30175
(3)

PUBLIC SUBMISSION

As of: October 19, 2009
Received: October 18, 2009
Status: Pending_Post
Tracking No. 80a44998
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0005
Comment on FR Doc # N/A

Submitter Information

Name: phillip barr
Organization: private citizen

General Comment

i dont think the andrews county texas nuclear waste dump should be used for disposal of any kind of nuclear or hazardous waste.
because of the earthquake history and sinkhole history the area has. and its over the aquifer as well

All information below has been placed in public domain

Attachments

NRC-2009-0257-DRAFT-0005.1: Comment on FR Doc # N/A
NRC-2009-0257-DRAFT-0005.2: Comment on FR Doc # N/A

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grassman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

----- Original Message -----
From: pharb2@msn.com
To: David.levenstein@em.doe.gov ; Gilrein.Stephen@epamail.epa.gov
Cc: JEFF BINGAMAN ; president@messages.whitehouse.gov ; jackson.lisa@epa.gov ; Brozowski.George@epamail.epa.gov ; Miller.Gary@epamail.epa.gov ; Scott.Burnell@nrc.gov ; Starfield.Lawrence@epamail.epa.gov ; The.Secretary@hq.doe.gov ; James Park ; wright.larry@epa.gov ; breen.barry@epa.gov
Sent: Thursday, August 20, 2009 6:18 PM
Subject: consolidated comment on storage safety at andrews county Texas waste site nb1

Its my belief that the geology at the Andrews county TX waste site area is not stable enough for a nuclear/pcb/Mercury storage site.
1. I submit these news reports on the sinkhole activity in the area..
Sinkholes north and south of the nuclear waste site at Andrews county Texas and the waste site area itself has an earthquake history that's on record.
2. Earthquake study 12a,12b, 12w-a on record.

The state of Texas and federal government's safety analysis on the andrews county dump is hypothetical at best because :
The State of Texas and the Nrc, EPA and Doe can not guarantee there will not be another earthquake at the Andrews county Texas waste site which would endanger the aquifer which is under the site as determined by the epa:
==========
News quote "But David Barry, spokesperson for the Environmental Protection Agency for Region 6 says, "Yes, the facility does sit above the Ogallala aquifer. It sits on the southern end of the aquifer."
==========
The state of Texas, EPA,NRC,DOE also cannot guarantee that in an area with sinkholes, one would not form under the waste site.
High winds and sandstorms blowing toxic particles offsite and over Eunice and Hobbs. There is no way to prevent this and at no time has any government agency demonstrated to the public how to do so.

I believe for the Federal Government and the State of Texas to open up a waste dump for anything toxic at the andrews county nuclear waste site with this sinkhole and earthquake history is highly irresponsible and a disaster waiting to happen.

Phillip Barr
Lea county, New Mexico

Yoakum county north of the site
http://www.newswest9.com/Global/story.asp?S=10811930

Giant Sinkhole Opens Near Denver City

Posted: July 29, 2009 11:43 AM MDT

DENVER CITY - Investigators from the Texas Railroad Commission spent Tuesday trying to figure out why land at a Denver City oil company caved-in.

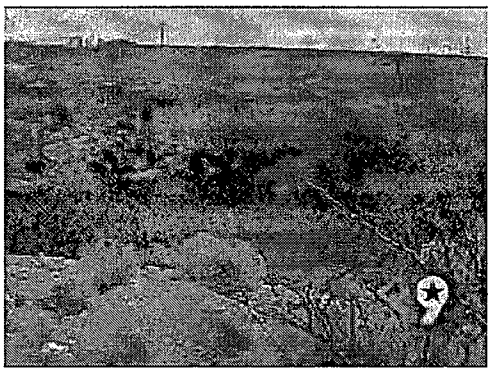
The sinkhole appeared just on the edge of Denver City on the Oxy site. Officials tell us no one was hurt and no water or power lines were damaged.

The hole drops 50 feet and is 60 feet around.

Winkler county south of the site

http://www.kwes.com/Global/story.asp?S=7936458
or www.kwes.com/Global/story.asp?S=7936458

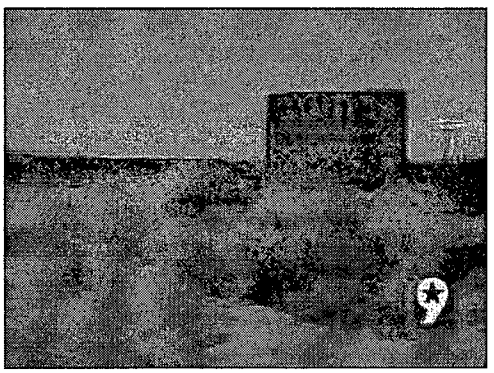
Wink Sink Study Needs Funding



by Victor Lopez
NewsWest 9

WINKLER CO.-Local oil and gas producer, John Bell believes, "We need to be cautious about where it is and the understanding on how much area it could affect."

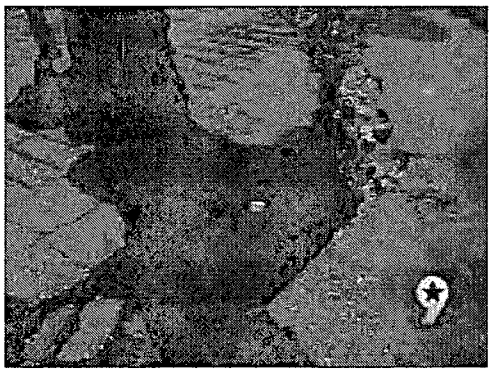
Whether you call it, the Kermit Crater or the Wink Sink, residents say it's all the same place.

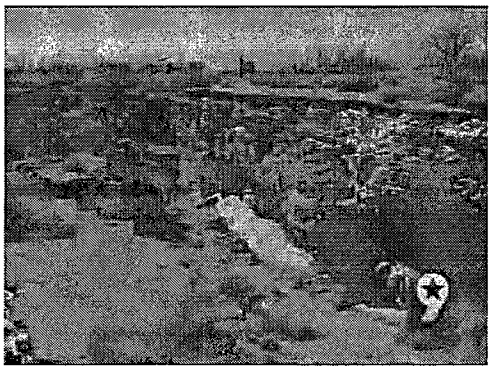


It measures approximately 300 feet across. Now, it appears to be multiplying. And the newest member of the family is getting bigger.

According to Bell, "There is a new sink hole that is six or seven times larger than this one, that has occurred in the last three years."

The area around what is being called "Wink Sink 2", is still very unstable. And it's the size of a 15 acre lake.





Random cracks in and around the sink holes are creating concern for safety and well being in Winkler County.

That's why John Bell is asking for support for "The Wink Sink Study", or as he calls it, a large scale science project, "Right now, anything we're doing is personal theories. We have to come up with some science. This is just a big science project to help us understand, how do we deal with it, and what do we to avoid somebody having a catastrophe that we don't see, and get somebody hurt or killed."

Phase one of the study calls for about $730 thousand dollars in funding, 200 thousand of which has already been raised. Leaving a balance of about 1/2 a million dollars left to collect.

Dr. Bob Trentham, Director of CEED, at UTPB, tells NewsWest 9, The money will help provide some pretty high tech study tools, "We are going to be using several state of the art techniques, various types of radar and arial photos."

Since the new cracks and sags are popping up pretty much all over, the images these study tools will provide, will be invaluable.

Trentham says, "We need to know where these are going to potentially develop in the future so that we can help both the oil companies and the public service people to know where the areas with lowest risks and the highest risks are."

The growing threat of these cracks not only affects Winkler County, but other parts of the Permian Basin and even New Mexico.

Bell added, "This thing is large enough in scope, it extends past Monahans on down towards Imperial. We know that this is going to get bigger than we are. There is one at Jal, between Jal and Eunice, New Mexico."

Thus increasing the urgency of the study.

From: <pharb2@msn.com>
To: <David.levenstein@em.doe.gov>,
<Gilrein.Stephen@epamail.epa.gov>
Cc: "JEFF BINGAMAN" <senator_bingaman@bingaman.senate.gov>,

<president@messages.whitehouse.gov>,
<jackson.lisa@epa.gov>,
<Brozowski.George@epamail.epa.gov>,
<Miller.Gary@epamail.epa.gov>,
<Scott.Burnell@nrc.gov>,
<Starfield.Lawrence@epamail.epa.gov>,
<The.Secretary@hq.doe.gov>,
"James Park" <James.Park@nrc.gov>,
<wright.larry@epa.gov>,
<breen.barry@epa.gov>
Subject: consolidated comment on storage safety at andrews county Texas waste site nb1
Date: Thu, 20 Aug 2009 18:18:50 -0600
MIME-Version: 1.0
Content-Type: multipart/mixed;
boundary="----=_NextPart_000_00A7_01CA21C3.37DF2270"
X-Priority: 3
X-MSMail-Priority: Normal
X-Mailer: MSN 9
X-SEAL-VirusCheck: FullClean
X-MimeOLE: Produced By MSN MimeOLE V9.60.0053.2200
Seal-Send-Time: Thu, 20 Aug 2009 18:18:50 -0600

EARTHQUAKE SEISMOLOGY

EARTHQUAKES

Chapter 12 of, *State of Texas Hazards Analysis*, by the Governor's Division of Emergency Management, Department of Public Safety, Austin, Texas, 1998.

Introduction: Earthquakes in Texas

An earthquake is a motion or trembling that occurs when there is a sudden breaking or shifting of rock material beneath the earth's surface. This breaking or shifting produces elastic waves which travel at the speed of sound in rock. These waves may be felt or produce damage far away from the epicenter-the point on the earth's surface above where the breaking or shifting actually occurred.

For Texans, three essential facts about earthquakes are important to remember. First, earthquakes do occur in Texas (see Figure 12A). Within the twentieth century there have been more than 100 earthquakes large enough to be felt; their epicenters occur in 40 of Texas's 257 counties. Four of these earthquakes have had magnitudes between 5 and 6, making them large enough to be felt over a wide area and produce significant damage near their epicenters.

Second, in four regions within Texas there have been historical earthquakes which indicate potential earthquake hazard (Figure 12B). Two regions, near El Paso and in the Panhandle, should expect earthquakes with magnitudes of about 5.5-6.0 to occur every 50-100 years, and even larger earthquakes are possible. In northeastern Texas the greatest hazard is from very large earthquakes (magnitude 7 or above) which might occur outside of Texas, particularly in Oklahoma or Missouri-Tennessee. In south-central Texas the hazard is generally low, but residents should be aware that small earthquakes can occur there, including some which are triggered by oil or gas production. Elsewhere in Texas, earthquakes are exceedingly

-are. However, the hazard level is not zero anywhere in Texas; small earthquakes are possible almost anywhere, and all -egions face possible ill effects from very large, distant earthquakes

Third, while Texas does face some earthquake hazard, this hazard is very small in comparison to that in many other states, ncluding California, Missouri, Montana, South Carolina, and Washington (Figure 12C). In most parts of Texas earthquake nazard is also small compared to the hazard attributable from other natural phenomena, such as hurricanes, tornadoes, and floods. Thus there is no need for Texas to enact sweeping changes in construction practices, or take other drastic measures to mitigate earthquake hazard.

However, Texans need to begin learning about earthquakes. Over the past 70 years Texas has changed from a sparsely populated state with an economy dominated by agriculture to an economically diverse state with various large, technical manufacturing industries centered in a few densely populated urban regions. For reasons of safety, economy, and (in some cases) law, Texans need to consider earthquake hazard when designing or siting various structures which are essential for providing medical or emergency management services, which house sensitive manufacturing processes, or which store hazardous wastes.

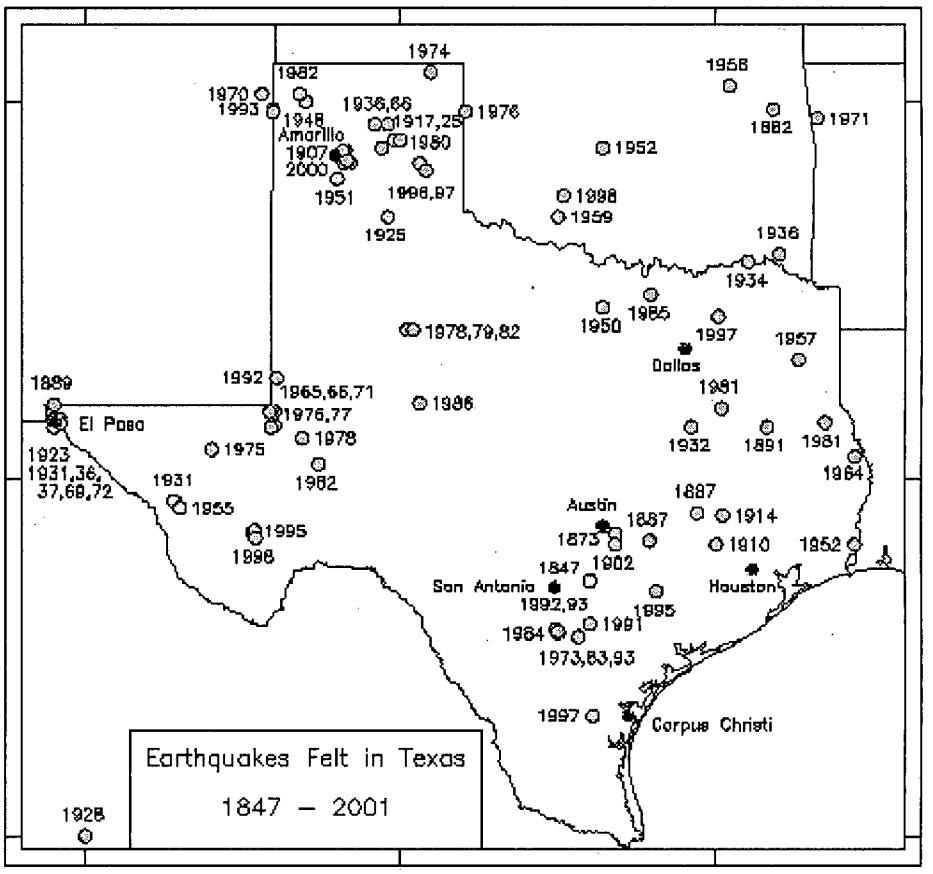


Figure 12A Locations of earthquakes and earthquake sequences that have occurred in Texas, or that were felt by Texas residents. Numbers are the year of occurrence. (See a larger version of this figure.)

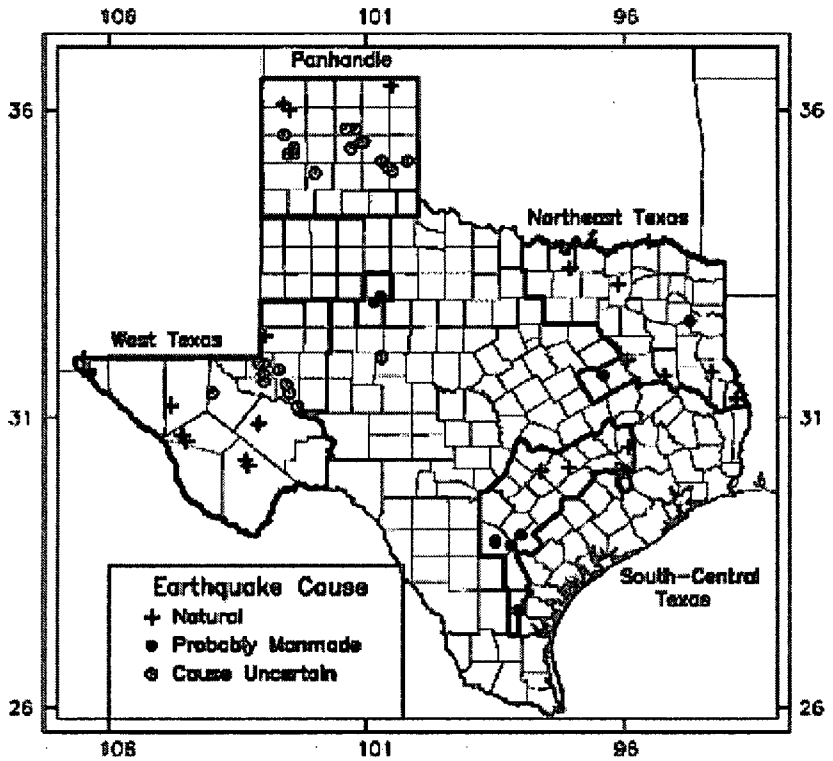


Figure 12B Map indicating probable causes of eartthquakes occurring in Texas. Solid lines show the four regions of Texas where historical earthquake activity indicates there is earthquake hazard. Light lines are county boundaries.

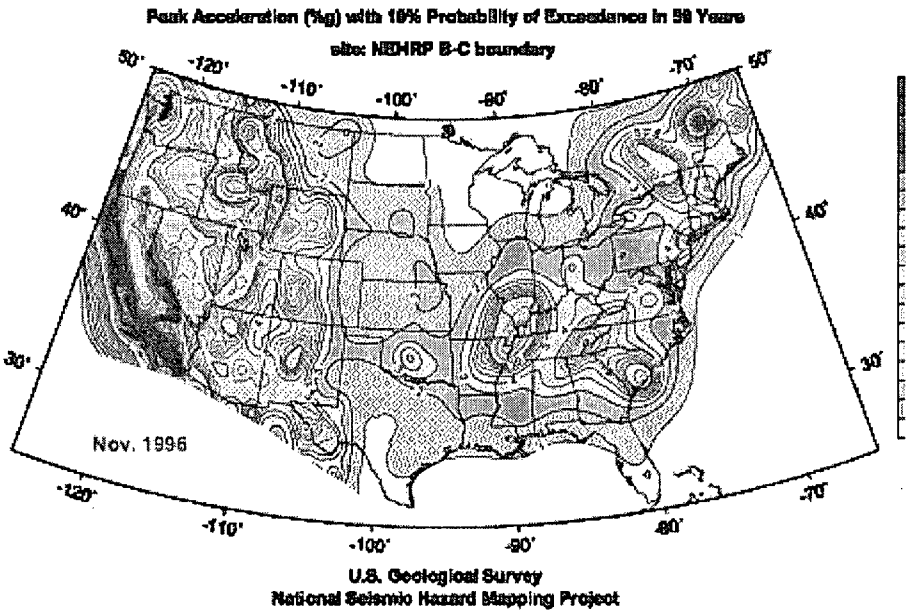


Figure 12C Earthquake hazard map for the continental United States as prepared by the U. S. Geological Survey. In the central and eastern U. S., the regions expecting the highest accelerations all correspond to the sites of known historical earthquakes. These include: Montana, 1959; West Texas, 1931; Oklahoma, 1952; Missouri-Tennessee, 1811-1812; and South Carolina, 1886. In many places such as Texas, the absence of detailed historical information means that earthquake hazard may be higher than indicated in this figure.

Earthquake Magnitude, Intensity, and Damage

The nature and geographical extent of earthquake hazard depends strongly on the quake's size or magnitude. Because earthquakes are rare, people are often confused about how risk depends on magnitude. Imagine that you were about to return from a vacation, and someone told you that animals had infested your property. Naturally, you would ask whether these animal were mice, armadillos, or cattle, because each might cause a different kind and amount of damage. Similarly, if your neighborhood has an earthquake, the kind and amount of damage depends on the earthquake's size. A quake with magnitude 3 may do no more than startle people and rattle dishes within a one-square-mile region. However, a magnitude 7

would be felt by people over the entire state of Texas, and could do significant damage to buildings, bridges, and dams over a considerable region.

Scientists determine an earthquake's magnitude by measuring the amplitude of ground motion as recorded on a seismograph, and then correcting the measurement to account for the effects of distance from the epicenter. The magnitude scale is a power of ten' scale; thus if a magnitude 3.8 caused ground motion of 1/10 inch at a particular location, a 4.8 at the same epicenter would cause ground motion of 1 inch, and a 5.8 would cause ground motion of 10 inches. This means that magnitude 3 and magnitude 7 earthquakes are enormously different with respect to their ground motion and the size of and slip on the faults that produce them.

Scientists use the Modified Mercalli intensity (MMI) to describe how strong the motion is at a particular location. The MMI is a number between one and twelve, expressed as a Roman numeral such as MMI IV or MMI IX so that the number won't be confused with magnitude (see Figures 12D and 12E). While each earthquake has only one magnitude, it has many different intensities, since earthquake damage becomes less severe as one moves away from the epicenter. Usually, most of the damage done by an earthquake occurs in the regions nearest the epicenter which have the highest intensities. While intensity depends strongly on factors such as soil properties, in most cases earthquakes with larger magnitudes have higher maximum intensities (see Figure 12F).

Because damaging earthquakes are rare in Texas, it is tempting to ignore them. A more responsible approach is to be selective about mitigation efforts, focusing attention on structures or areas where potential hazard is greatest. The argument for earthquake mitigation is analogous to the argument for having seatbelts and airbags in automobiles-although any one driver is unlikely to have an accident in any given day or year, over a person's lifetime there is a significant chance of having a serious accident. Even in West Texas and the Panhandle, at any particular place damaging earthquakes probably occur only once per century, or less. However, with a little prior planning it is possible to ensure that their damage is minimal.

Earthquake felt intensity - the Modified Mercalli Intensity Scale

MMI	What people feel, or what damage occurs.
I	Not felt except by a very few people under special conditions. Detected mostly by instruments.
II.	Felt by a few people, especially those on the upper floors of buildings. Suspended objects may swing.
III.	Felt noticeably indoors. Standing automobiles may rock slightly.
IV.	Felt by many people indoors, by a few outdoors. At night, some people are awakened. Dishes, windows, and doors rattle.
V.	Felt by nearly everyone. Many people are awakened. Some dishes and windows are broken. Unstable objects are overturned.
VI.	Felt by everyone. Many people become frightened and run outdoors. Some heavy furniture is moved. Some plaster falls.
VII.	Most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable in buildings of poor construction.
VIII.	Damage is slight in specially designed structures, considerable in ordinary buildings, great in poorly built structures. Heavy furniture is overturned.
IX.	Damage is considerable in specially designed buildings. Buildings shift from their foundations and partly collapse. Underground pipes are broken.
X.	Some well-built wooden structures are destroyed. Most masonry structures are destroyed. The ground is badly cracked. Considerable landslides occur on steep slopes.

XI. Few, if any, masonry structures remain standing. Rails are bent. Broad fissures appear in the ground.

XII. Virtually total destruction. Waves are seen on the ground surface. Objects are thrown into the air.

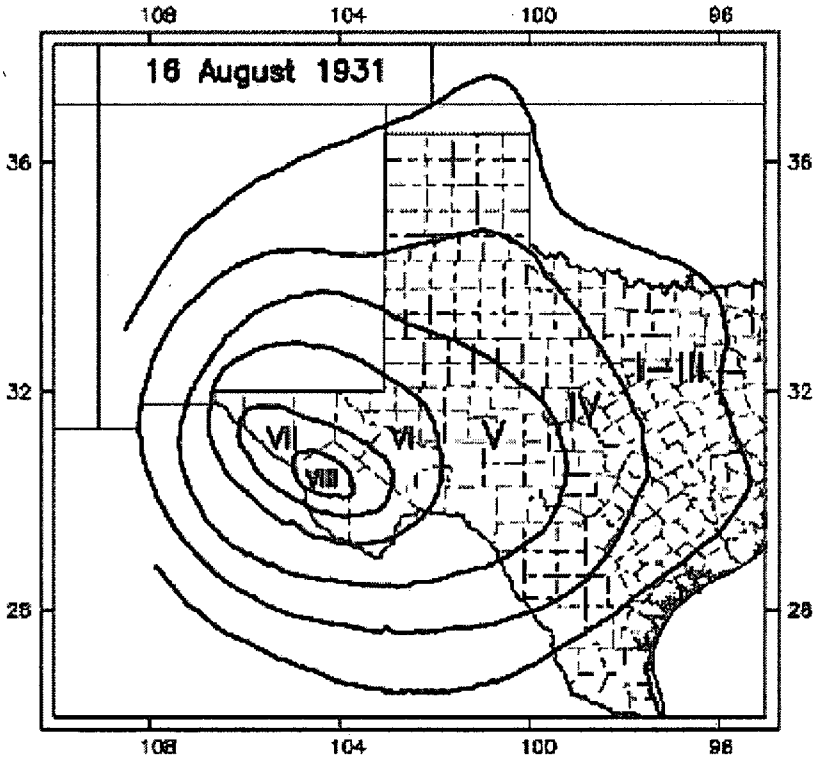


Figure 12D Felt area and Modified Mercalli Intensities experienced by Texans from the magnitude 6.0 Valentine, Texas, earthquake of 16 August, 1931. Dashed lines are county boundaries; small square in south-central Texas indicates region mapped in next figure.

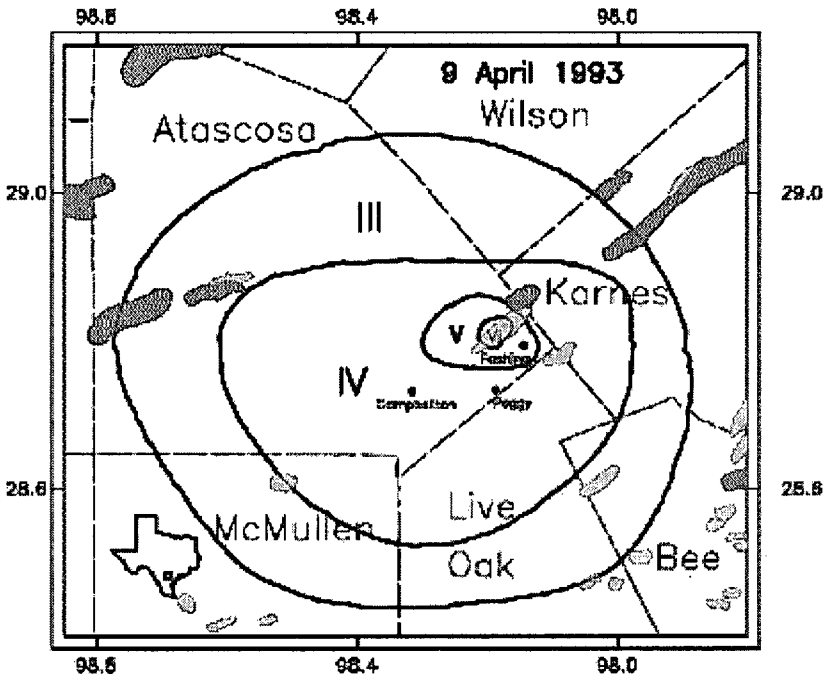


Figure 12E: Felt area and Modified Mercallli Intensities experienced by Texans from the magnitude 4.3 Fashing, Texas, earthquake of 9 April 1993. Dashed lines are county boundaries; shaded regions indicate major oil (dark shading) and gas (light shading) fields. Note how this small earthquake is felt over a much smaller area than the 1931 magnitude 6.0 Valentine earthquake.

Figure 12F

Relationship Between Earthquake Magnitude and Maximum Observed Modified Mercalli Intensity (MMI).

Magnitude	Maximum MMI
3.0	III-IV
3.5	IV-V
4.0	V-VI
4.5	V-VI
5.0	VI
5.5	VI-VII
6.0	VIII

Note that the table values are only approximate, as there is great variation for individual Texas earthquakes.

Approximate Relationship Between Earthquake's Magnitude and the Diameter of and Slip Along the Fault that Produces It.

Magnitude	Fault Diameter	Fault Slip
8	45 miles	20 feet
7	15 miles	7 feet
6	4.5 miles	2 feet
5	1.5 miles	8 inches
4	800 yards	2.5 inches
3	800 feet	1 inch
2	240 feet	.25 inch
1	80 feet	.1 inch

The Cause of Earthquakes

Just as changes in temperature or moisture content can produce cracks in the ground, various ongoing natural processes produce stresses that occasionally cause the underlying rock material to break or shift in an earthquake. Rock material is most likely to break where it is highly stressed or where it has broken before, as along a preexisting fault. Earthquakes are most common along very large, well-developed faults (such as the San Andreas Fault in California) which divide the Earth into huge, country-sized, relatively stable regions, called tectonic plates. The majority of the world's earthquakes, such as most reported in Mexico, California, Alaska, and Japan, occur along plate boundaries.

However, not all earthquakes occur at plate boundaries; in regions like Texas many also occur far away from plate boundary faults. Sometimes these 'plate interior' earthquakes are quite large; for example, in 1811-1812 three earthquakes with magnitude above 8 occurred near the Missouri-Tennessee boundary (see Figure 12G). These quakes were as large as any historic earthquakes that have occurred in California, or anywhere else in the U. S. outside of Alaska. While Texans haven't experienced such large quakes in historic times, smaller quakes do occur naturally along faults in several regions of Texas.

While all earthquakes occur on faults, not all faults have earthquakes. A fault is simply a fracture in rock material accompanied by displacement along the two sides of the fracture. If the displacement occurs slowly enough, no earthquake waves are generated. And, often the displacement may have occurred millions of years ago, so that the fault remains but there is no present earthquake threat. Finally, many faults go undiscovered because they lie far beneath the surface, covered by soil. It is no accident that fault maps show the most faults in regions where bedrock is exposed at the surface (see Figure 12H).

Finally, some human activities are known to cause or trigger earthquakes. These include the injection of fluids into the earth for waste disposal or petroleum production, and the filling of deep lakes or reservoirs. In Texas, there have been earthquakes

associated with oil and gas production at a number of fields. These include the Wortham field in Freestone County, the East Texas and Longview fields in Upshur and Gregg Counties, the Cogdell field in Scurry and Kent Counties, and the Fashing and Lourdanton fields in Atascosa County. None of these quakes have been very damaging or very large; the largest had magnitude 4.7. And, usually petroleum production does not cause earthquakes; in Texas there are more than two thousand oil and gas fields but only about five seem to have generated earthquakes. Nevertheless, wherever there is considerable petroleum production, and especially when there is fluid injection to enhance recovery of to dispose of waste, people should be aware that induced earthquakes are possible.

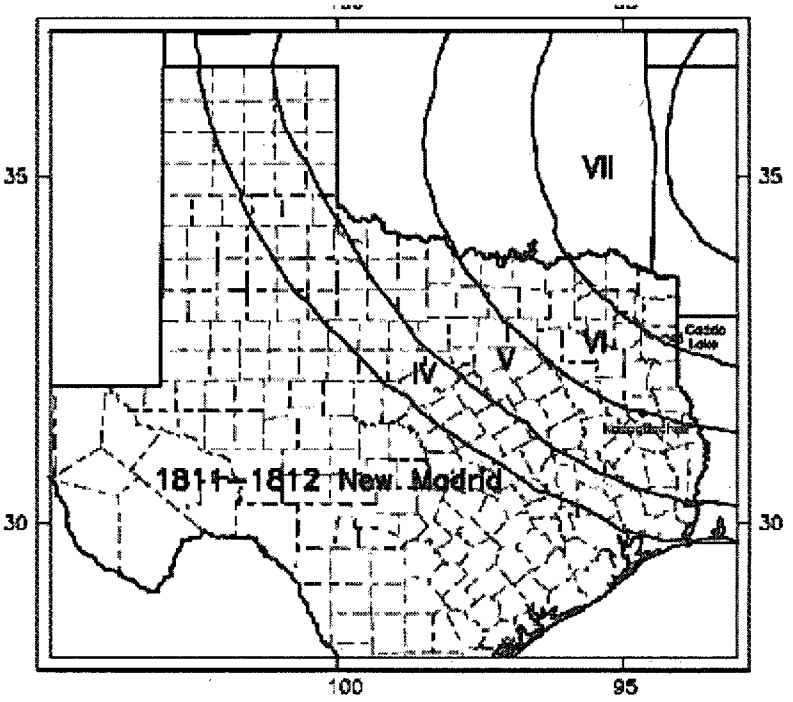


Figure 12G Estimated felt area and Modified Mercalli Intensities for the magnitude 8 Missouri-Tennessee earthquakes of 1811-1812. In much of Texas there is greater earthquake hazard from rare, distant earthquakes such as these than from any quakes with epicenters within Texas.

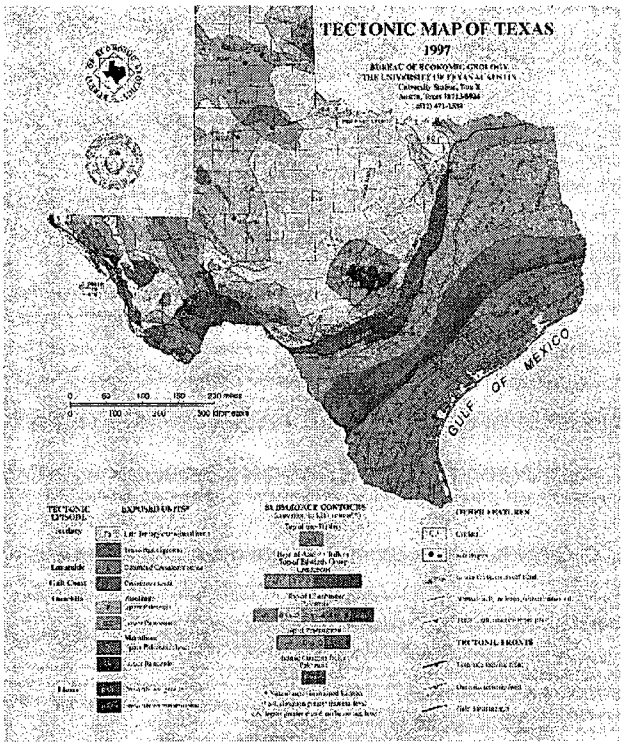


Figure 12H. (Click on image to see full-size version.)

Assessing Earthquake Hazard

In any particular region, the level of earthquake hazard depends on many different factors. These include the size, location, and frequency of earthquakes that may occur, as well as the population density, the topography, and the nature of manmade improvements. In very steep, mountainous areas earthquakes might trigger landslides, for example. And, a nuclear power plant or waste disposal site might pose more potential hazard than a feed lot. For any particular earthquake the expected intensity also depends on the type of construction and the thickness and type of soil.

Nevertheless, for any region the most important factor affecting scientific hazard estimation is the historical record of earthquake activity; regions which have had large earthquakes in the past will probably experience them again. Although hazard estimates also include information about mapped faults, in practice this information isn't very influential since many known faults are not seismically active, and since many damaging earthquakes have occurred on unmapped, unknown faults.

Thus, it is no accident that the regions of highest hazard in United States Geological Survey's (USGS) hazard analysis correspond to the locations of known, large, historical earthquakes. In the central U. S., the USGS assesses the greatest hazard in the Missouri-Tennessee area, where three earthquakes with magnitude of 8 or greater occurred in 1811 and 1812. Unfortunately, the very rarity of large earthquakes makes hazard analysis an inexact science. In the twentieth century, the largest earthquake in the Missouri-Tennessee area only had a magnitude of about 5.5. If quakes like the 1811-1812 events had occurred in Texas a few hundred years ago, would scientists know that such large and damaging earthquakes were possible here? Almost certainly not.

In Texas the regions at greatest risk are in West Texas, where earthquakes of magnitude about 6 occurred in 1931 and 1995, and in the Panhandle, where at least six earthquakes with magnitude above 4 have occurred since 1900. Clearly, such earthquakes will occur again. Unfortunately, what we cannot know is whether larger quakes--like the Missouri-Tennessee quakes of 1811-1812--might possibly occur there. Geologically, some features of the Panhandle are similar to the Missouri-Tennessee area. Fortunately, large continental quakes are extraordinarily rare (occurring less often than once per 500 years in any particular place), so for many Texans there is little reason to make special preparations for them. But, Texans should be aware that they are remotely possible.

Why is there concern about Texas earthquakes, given that historical events have done little damage? One reason is that the frequency of small and large earthquakes are related in a predictable way-a rule of thumb called the Gutenberg-Richter relation states that for every 1000 magnitude 4 earthquakes there will be approximately 100 magnitude 5 events, 10 magnitude 6 event, and one magnitude 7 event. Thus, the occurrence of two earthquakes with magnitude near 6 in the twentieth century suggests that a magnitude 7 may occur every few hundred years or so. Like many other rules of thumb, the predictions of the Gutenberg-Richter relation aren't always correct. For example, transportation experts use rules of thumb to predict the number of auto fatalities during a holiday weekend; these may be incorrect because of the influence of unpredictable factors such as weather, safety campaigns, etc. Similarly, the predictions of the Gutenberg-Richter relation may be incorrect because of factors that scientists don't understand or didn't consider. Yet, the record indicates that magnitude 6 quakes do happen in Texas, and suggests that larger earthquakes are possible. These could be especially serious if they occurred near a major population center.

Finally, there is some risk to Texans from earthquakes that may occur outside of Texas. If the 1811-1812 Missouri-Tennessee earthquakes were to occur today, in the Dallas-Fort Worth area they would probably damage some structures that weren't designed to withstand earthquakes. There is also possible hazard to Texans in the Panhandle from earthquakes which may occur in Oklahoma.

Certain earthquake-related phenomena which affect some parts of the U. S. do not pose a hazard for Texans. These include:

- Liquefaction: For large buildings constructed on certain poorly consolidated soils, strong earthquake tremors can cause the soil to 'liquefy', producing severe damage to large and apparently well-build structures. This is most common for structures built on landfill in lake or ocean regions. In Texas, the regions along the Gulf Coast where this conceivably might occur are not subject to strong earthquake tremors.
- Tsunamis: Tsunamis are tidal waves generated when undersea earthquakes displace the sea surface or when extraordinarily large landslides dump large volumes of material into the ocean. There is no historic record of any such events doing significant damage along the Gulf Coast.
- Volcanoes: Volcanic eruptions may produce ash falls over regions extending hundreds of miles from the eruption site. However, no active or dormant volcanoes occur near Texas, and Mexican volcanoes are too far away to be hazardous to Texans.

Where is the Hazard Greatest?

There is an old saying among seismologists: "Earthquakes don't kill people, buildings kill people." This is because the most serious damage caused by nearby earthquakes often comes when heavy, unreinforced structures collapse. Adobe and unreinforced masonry can be particularly dangerous, even in earthquakes with magnitudes as small as 5 or less. Ordinary wood-frame dwellings are surprisingly earthquake-resistant; in such structures the most serious damage often results from

the collapse of chimneys.

In the twentieth century hundreds of man-made lakes and reservoirs have been constructed in Texas; in some cases these pose a special hazard, particularly if there are population centers downstream. Large very distant earthquakes sometimes have surprising low-frequency effects. Seismic waves from the 1964 Alaskan earthquake, with a magnitude of 9.2, caused sloshing in canals and rivers in Texas which damaged boats and docks. Earthen or earth-filled dams are of special concern since intense shaking or sloshing could cause dam failure.

Monitoring Earthquakes as a Mitigation Strategy

It is important to remember that our knowledge of both past and present seismic activity in Texas is incomplete. Unlike states along the east and west coast, much of Texas is sparsely populated and/or was only settled about a century ago. And, even today Texas has only a few continuously recording seismograph stations (see Figure 12-I). This means that we have a much poorer knowledge of the earthquake hazard in Texas than in most other states. With the population of Texas expanding rapidly, the potential for injury to people and damage to structures increases proportionately. To be effective, attempts to assess potential risk must be based on long-term monitoring of seismic activity, so for accurate assessments we must take steps today to ensure that adequate monitoring is performed.

Over the past twenty years, there has been a revolution is the technology to monitor earthquakes. In the past, seismographs recorded on paper or film, and were designed specifically to measure earthquake waves from events of a particular size in a particular, narrow frequency band. The equipment at these 'narrowband' stations had to be selected to be optimum for measuring signals either from small nearby earthquakes (*e.g.*, magnitude 3.5 earthquakes occurring within a few hundred km) or from large distant earthquakes (*e.g.*, a magnitude 7.0 earthquake in Japan). Nowadays, so-called 'broadband' stations record digital information over a broad range of frequencies, and thus obtain information about both nearby and distant earthquakes. These broadband stations are advantageous because the data is useful both for regional hazard analysis as well for research by scientists throughout the world. For a state like Texas, a broadband network is desirable because it is useful for hazard assessment within Texas and for scientific researchers outside of Texas; over the long term this means that part of the support to run the network may come from science organizations outside of Texas.

Presently, Texas has only two modern, broadband seismograph stations, one near Houston, and one in Brewster County in West Texas (see Figure 12I). In addition, there are several narrowband stations in operation near El Paso. To properly monitor Texas earthquakes with magnitude of 3.5 and greater will require about ten additional stations. Currently various organizations within Texas-including university scientists, emergency management personnel, and people concerned with dam safety-have begun to work towards making such a network a reality; however, at present its future is still uncertain.

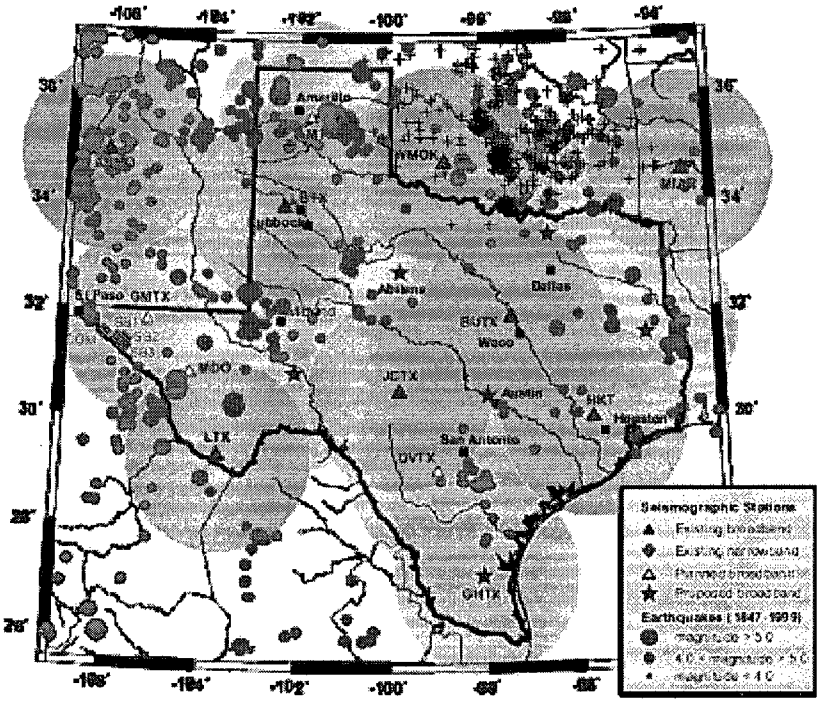


Figure 12I Nominal monitoring capability for magnitude 3.5 events for for existing stations (dark shading and proposed stations (light shading). Click on map to see full-size figure.

Regional Hazard Assessment

West Texas (Largest City - El Paso)

Counties Affected (22): Andrews, Brewster, Crane, Culberson, Dawson, Ector, El Paso, Gaines, Hudspeth, Jeff Davis, Kent, Loving, Martin, Midland, Pecos, Presidio, Reeves, Scurry, Terrell, Upton, Ward, Winkler.

Hazard Level: Within this region several earthquakes with magnitudes 5 to 6 will probably occur each century. Moreover, the historical earthquake record and regional geology suggest that even larger earthquakes are possible, with a probability of perhaps once per 500 years. In most of this region population density is low and earthquakes only pose a significant hazard for poorly built or very sensitive structures. However, an earthquake with magnitude of 5.5 or greater that occurred close to El Paso would cause personal injury and significant economic losses. Also, people who live, work, or plan to build in hilly or mountainous places should be aware that historical earthquakes have produced landslides in various parts of this region.

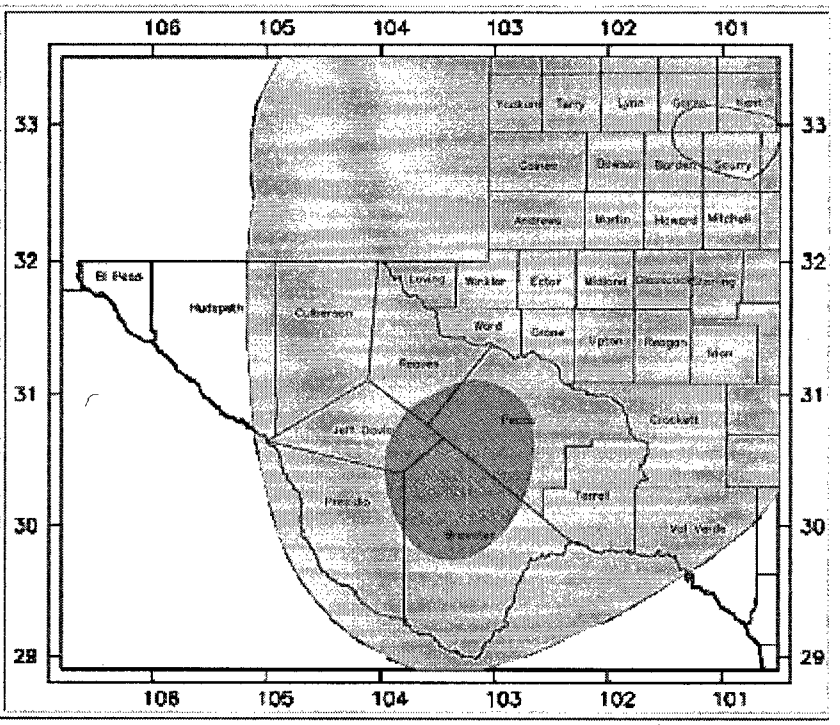
Justification: Historical earthquakes have produced Modified Mercalli Intensities of VI and higher throughout this region.

Significant Historic Earthquakes Affecting West Texas

- There have been three historic earthquakes which have each been felt over all or a significant part of West Texas.
- The first, which occurred on 16 August 1931 and was centered near Valentine, had a magnitude of 6.0. Even though many buildings in Valentine were constructed of adobe and brick and thus damaged severely, few were injured, probably because most people were sleeping outdoors because of the heat.
- The second, which occurred on 2 January 1992 along the Texas-New Mexico border near Andrews and Hobbs, had a magnitude of 4.6 (see Figure 12W-A).
- The third, which occurred on 14 April 1995 near Alpine, had a magnitude of 5.7. Both the 1931 and the 1995 earthquake produced landslides in mountainous areas. The amount of injury and damage from the 1931 and 1995 earthquakes was relatively small, mostly because of the relatively low population density in West Texas.
- In addition, earthquakes with magnitudes between 3 and 4.7 were felt by El Paso residents in 1889, 1923, 1936, 1937, 1969, and 1972. Finally, a magnitude 4.6 earthquake, probably induced by oil production, occurred in Scurry County near Snyder, Texas, in 1978.

Why is there such concern about earthquake hazard in West Texas? The occurrence of two magnitude 6 earthquakes in the twentieth century suggests that a magnitude 7 may occur every few hundred years or so. And, the record indicates that magnitude 6 quakes are likely to happen within the lifetime of ordinary citizens.

Figure 12W-A Areas in West Texas which experienced Modified Mercalli Intensities of IV or V (light gray) and VI (dark gray) during the earthquakes of 16 June 1978 (near Snyder in Scurry County - curved line indicates intensity V region for this quake), 2 January 1992 (near Andrews County - New Mexico border) or 14 April 1995 (near Alpine in Brewster County). Also, almost the entire area shown experienced intensities of VI during the earthquake of 16 August 1931.



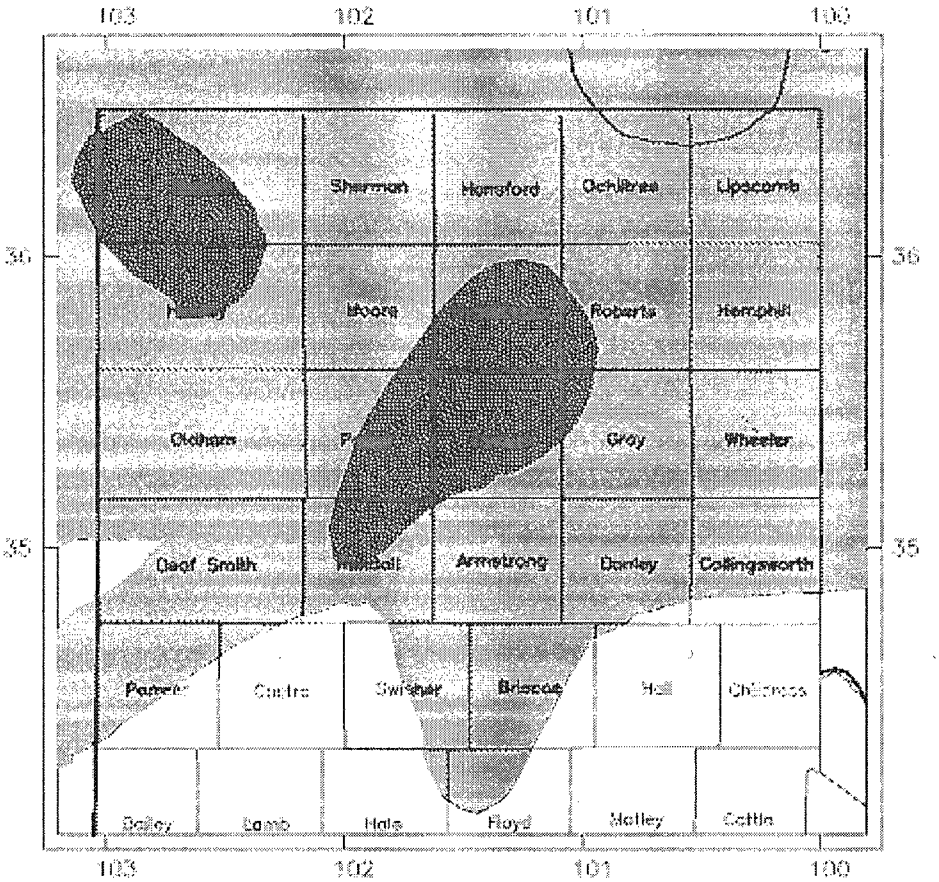


Figure 12P-A Areas in the Panhandle which experienced Modified Mercalli Intensities of V (light gray) and VI (dark gray) during the earthquakes of 1925 and 1936 (near Borger, in Hutchison County), 1948 (near Dalhart, in Dallam County), 1952 (in Oklahoma), or 1974 (near Perryton, in Ochiltree County - curved line indicates intensity V region for this quake).

Mitigation Strategy

- Architects and planners should be informed that damaging earthquakes can affect structures in the Panhandle. Sensitive structures-including dams, towers, very tall buildings, bridges, and highway overpasses-should be constructed with the possibility of earthquakes in mind. Institutions such as hospitals, schools, public meeting places, emergency management organizations, etc. should not be housed in poorly constructed, unreinforced masonry structures.
- Public officials and educators should inform Panhandle residents that earthquakes can and do occur in this region. Citizens should be encouraged to plan for earthquakes; this includes taking steps at home and in the office to mitigate possible injury caused by falling objects such as bookcases or chimneys.
- Citizens should be aware that it is possible that some Panhandle earthquakes are induced by petroleum production.

Table of Texas Panhandle Earthquakes of Magnitude 3 or Greater

---

Regional Hazard Assessment

Northeast Texas (Largest Cities - Dallas-Fort Worth)

Counties Affected (41): Anderson, Bowie, Camp, Cass, Cherokee, Collin, Cooke, Dallas, Delta, Denton, Fannin, Franklin, Freestone, Grayson, Gregg, Harrison, Henderson, Hopkins, Hunt, Kaufman, Lamar, Limestone, Marion, Montague, Morris, Nacogdoches, Panola, Rains, Red River, Rockwall, Rusk, Sabine, San Augustine, Shelby, Smith, Tarrant, Titus, Upshur, Van Zandt, Wood, Wise

Hazard Level: This region is at risk from very large, distant earthquakes which might occur in Missouri-Tennessee or Oklahoma; the earthquakes that pose such a hazard are rare, probably occurring only once per 500 years or less. Such distant earthquakes would be most likely to damage large buildings or poorly reinforced masonry structures. Earthquakes with epicenters within this region are rare and small (see **Figure 12N-A**); several earthquakes with magnitudes 3 to 4.5 will probably occur each century. These pose little or no risk unless their epicenters are extremely close to poorly built or very sensitive structures.

Justification: Throughout this region the 1811-1812 Missouri-Tennessee earthquakes, although distant, probably produced

Modified Mercalli Intensities of VI and higher.

Significant Historic Earthquakes Affecting Northeast Texas

Throughout most of this region, the most intense shaking experienced over the past two centuries originated from several earthquakes with magnitude about 8 which occurred in Missouri-Tennessee in 1811-1812, or an earthquake with magnitude 5.6 which occurred in eastern Oklahoma in 1882. Although such distant earthquakes are unlikely to produce severe damage they can cause failure in very large structures, or structures which are designed with absolutely no earthquake-resistant features.

Small earthquakes with epicenters in this region occasionally do occur-some of natural origin and some apparently induced by petroleum production. These include:

- A magnitude 4.0 earthquake with an epicenter near Mexia, probably induced by oil production, that occurred on 9 April 1932.
- A magnitude 4.2 earthquake centered in Lamar County north of Paris that occurred on 12 April 1934.
- A magnitude 3.0 earthquake that occurred in Gregg County near Gladewater on 19 March 1957. This quake may have been induced by petroleum production in the East Texas Field.
- A series of earthquakes in 1964 with magnitudes of 4.0 and higher near Hemphill-Pineland in Sabine County.

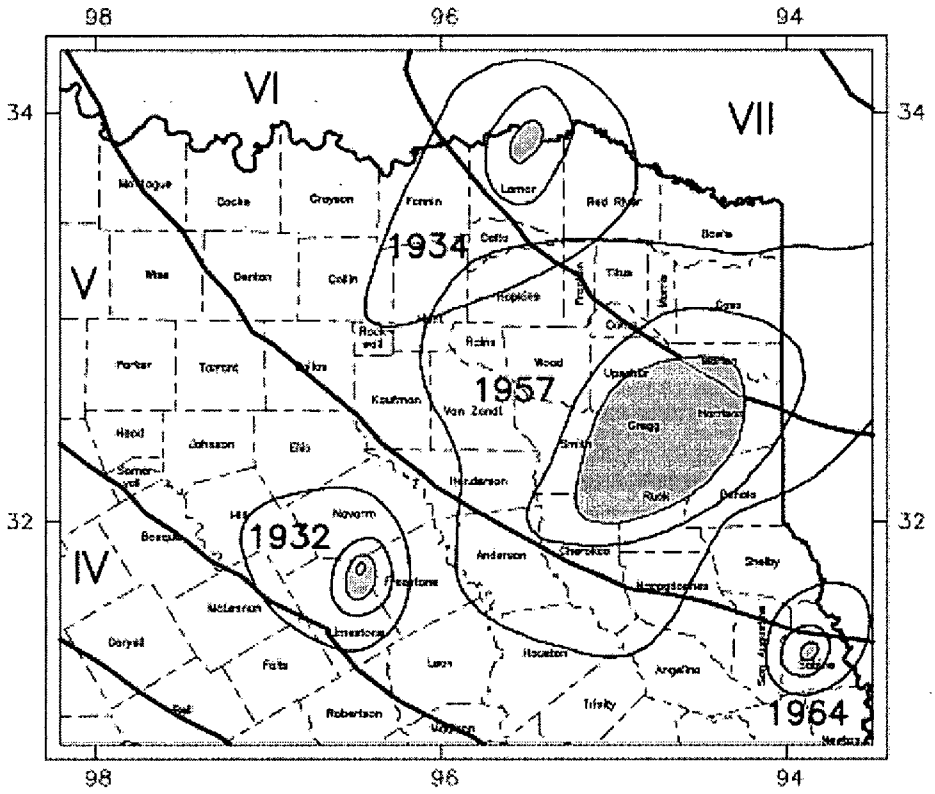


Figure 12N-A: Felt areas of representative historical earthquakes in northeastern Texas. Shaded regions indicate areas of intensity V and above for earthquakes of 1932 (Limestone County), 1934 (northern Lamar County), 1957 (Gregg County), and 1964 (Sabine County). Thick lines indicate estimated boundaries of Modified Mercalli Intensities for the 1811-1812 Missouri-Tennessee earthquakes.

- A magnitude 3.3 earthquake centered near Jacksonville in Cherokee County, which occurred on 6 November 1981.
- A magnitude 3.3 earthquake in Cooke and Denton County near Pilot Point an Valley View; this occurred on 18 September 1985.
- A magnitude 3.4 earthquake centered near Commerce in Hunt County; this occurred on 31 May 1997.

Events of these magnitudes seldom produce damage further than about a few miles from the epicenter.

Mitigation Strategy

- Architects and planners should be informed that distant earthquakes can affect large and sensitive structures in the northeastern Texas. Sensitive structures-including dams, towers, very tall buildings, bridges, and highway overpasses-should be constructed with the possibility of earthquakes in mind.
- Residents should understand that small earthquakes occasionally do occur in this region, including some induced by petroleum production. They should be informed that the principal hazard is from rare, distant, but very large earthquakes occurring outside of Texas.

Regional Hazard Assessment

South-Central Texas (Largest City - San Antonio)

Counties Included (19): Atascosa, Bastrop, Bexar, Brazos, Burleson, Caldwell, Comal, Gaudelupe, Grimes, Hayes, Jim Wells, Karnes, Lavaca, Lee, Live Oak, Travis, Waller, Washington, Wilson

Hazard Level: Earthquakes with epicenters within this region are rare and small; perhaps 10-20 earthquakes with magnitudes between 3 and 4.5 will occur each century. A significant fraction of these earthquakes are induced by human activities, notably petroleum production. These events pose little or no risk unless their foci are extremely close to poorly built or very sensitive structures.

Justification: Many small earthquakes, some of natural origin and others induced by man's activities, have occurred in these counties.

Significant Historic or Induced Earthquakes Affecting This Region

Small earthquakes with epicenters in this region occasionally do occur-some of natural origin and some apparently induced by petroleum production (see **Figure 12S-A**). These include:

- A magnitude 3.9 earthquake centered in Travis County south of Austin which occurred on 9 October 1902. This earthquake is clearly of natural origin.
- A magnitude 4.2 earthquake near Fashing in Atascosa County on 9 April 1993. This earthquake is one of several in this region which may have been induced by petroleum production.
- A magnitude 3.8 earthquake near Alice in Jim Wells County which occurred on 24 March 1997. This earthquake may have been induced by petroleum production.

Mitigation Strategy

- Residents of this region should understand that small natural earthquakes occasionally do occur in this region. However, the most numerous earthquakes are small events associated with petroleum production in some, but not all fields. These small earthquakes pose a hazard only in the immediate vicinity of their epicenter; the occurrence of significantly larger earthquakes is unlikely.

Figure 12S-A: Felt areas of representative historical earthquakes in South-Central Texas. Shaded regions indicate areas of intensity IV and above for earthquakes of 1887 (Bastrop County), 1902 (Travis County), 1910 (Waller County), 1993 (Atascosa County), and 1997 (Jim Wells County).

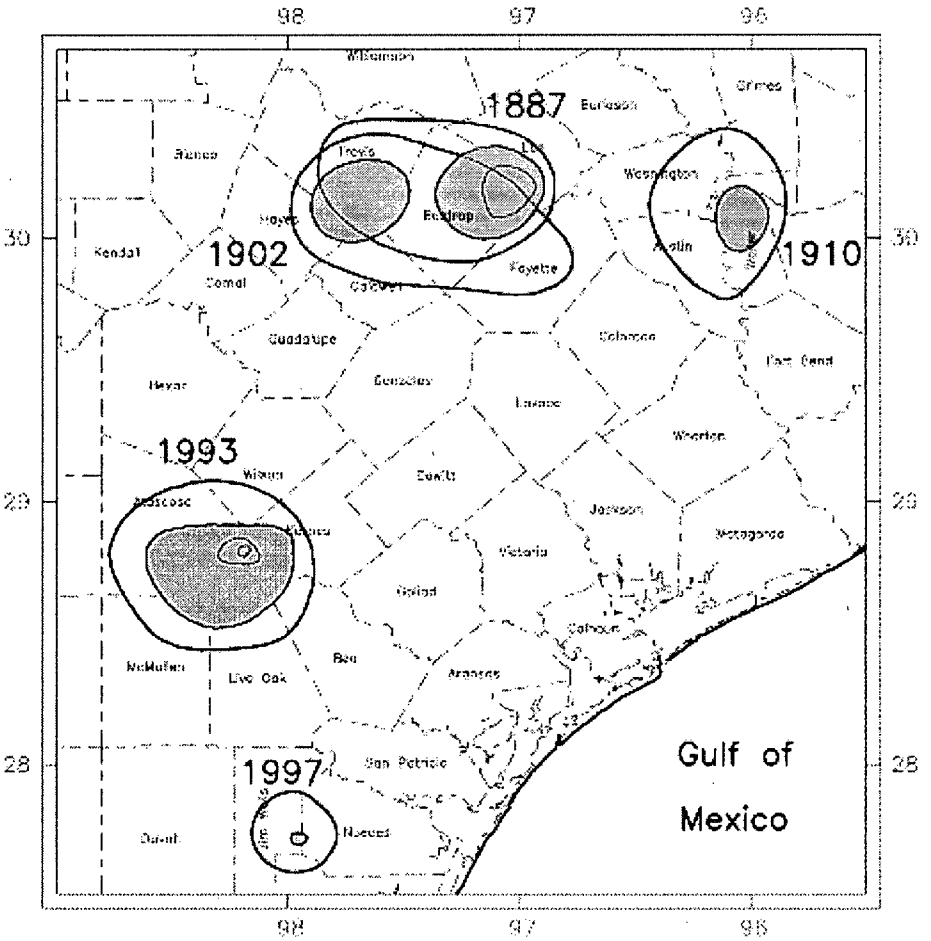


Table of South-Central Texas Earthquakes of Magnitude 3 or Greater

To TOP
To COMPENDIUM OF TEXAS EARTHQUAKES
To EARTHQUAKE SEISMOLOGY

Institute for Geophysics; J.J. Pickle Research Campus, Bldg. 196; 10100 Burnet Road (R2200); Austin TX 78758-4445

Phone: (512) 471-6156; FAX: (512) 471-8844

Last modified: 01 Feb 2002 15:53

ogin

----- Original Message -----
From: pharb2@msn.com
To: president@messages.whitehouse.gov ; jackson.lisa@epa.gov ; Roger Vaughan ; The.Secretary@hq.doe.gov ; radmat@tceq.state.tx.us ; Robert Beleckis ; greg.abbott@oag.state.tx.us ; rick.perry@governor.state.tx.us ; inspector.general@usdoj.gov ; LGloyste@tceq.state.tx.us ; Jackie Hardee ; augurson.shirley@epa.gov
Cc: SJABLONS@tceq.state.tx.us ; Gilrein.Stephen@epamail.epa.gov ; CKuharic@tceq.state.tx.us ; PShaver@tceq.state.tx.us ; SSimmons@tceq.state.tx.us ; GSmith@tceq.state.tx.us ; HWeger@tceq.state.tx.us ; Dateline@nbcuni.com ; Jessica.Farrar@house.state.tx.us ; 60m@cbsnews.com ; David.levenstein@em.doe.gov ; Kelly.Hancock@house.state.tx.us ; Jim.Dunnam@house.state.tx.us
Sent: Thursday, August 20, 2009 7:09 PM
Subject: consolidated comment on storage safety at andrews county Texas waste site nb2

Articles where EPA official says ogallala aquifer is under the Andrews county Texas, Waste site. Since the EPA says the water is under the site, nothing toxic should be stored over the aquifer, with the area of the waste site having a history of sinkholes and earthquakes.

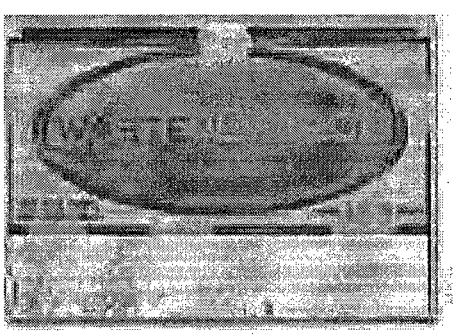
regards
Phillip Barr
nm

ps forwarded to Eunice new mexico to some worried citizens

<<Back

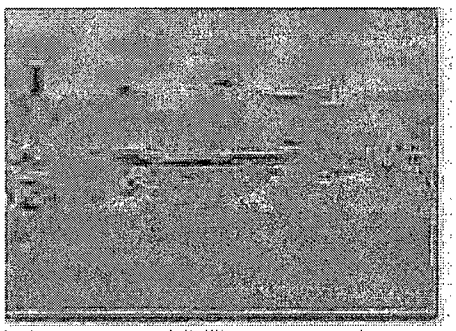
NEWSCHANNEL 11 kcbd.com

4/27/09
NewsChannel 11 Investigates: Toxic Waste Coming to West Texas, Part 1
Posted: April 27, 2009 04:21 PM MDT



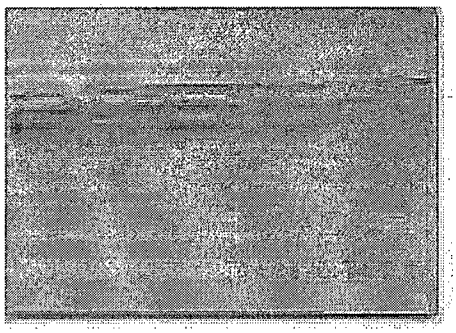
LUBBOCK, TX (KCBD) - It is the biggest clean-up effort in the nation, and contaminants from New York's Hudson River will soon make their way to West Texas to be buried for good. The toxic substance could come through Lubbock by railroad, but the bigger concern is your water supply. NewsChannel 11's Nicole Pesecky is investigating what has become a state-wide controversy.

More than a million pounds of PCB's, or poly chlorinated biphenyls, will be dumped in a landfill in Andrews, Texas. The carcinogen is linked to thyroid disease, learning, memory and

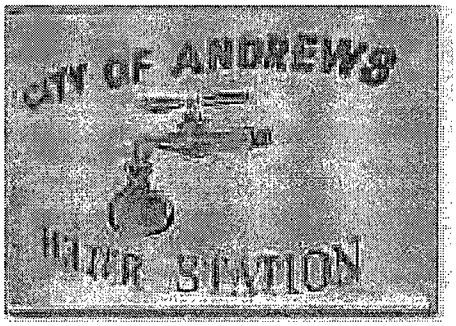


immune system disorders. For the last 30 years, high levels of PCB's were found in fish from the Hudson causing New York to ban their consumption.

It's critical to keep PCB's out of water sources all together, but during our investigation we found out, the landfill in Andrews is sitting on top of the Ogallala aquifer, which is where many West Texas cities get their water including Lubbock.



"It's really a foolish idea to want to ship all these massive amounts of waste 2,000 miles to West Texas," said Dr. Neil Carmen, the clean air director for the Lone Star Chapter of the Sierra Club. Carmen is not the only one who believes these contaminates are going to the wrong place - it is a highly disputed topic.



General Electric is responsible for cleaning up 1.3 million pounds of PCB's from the Hudson after they were dumped back in the 1950's, and GE is forking over $750 million to do it. In the long run, Carmen says Lubbock will be paying the price. "The Ogallala aquifer and other water formations are just a matter of feet away," says Carmen.

Linda Beach, Vice President and G. M. of Waste Control Specialists (WCS) in Andrews, disagrees. She claims there is at least 500 feet between the dump and the aquifer, and that's if there's even a water source there at all. "The aquifer below it is not really the OAG aquifer that everyone is familiar with - it's some water that is too salty to use for irrigation and is not drinkable," Linda explains.

Andrews City Manager Glen Hackler is convinced the aquifer is not under this landfill. "The community of Andrews did independent studies verified that the Ogallala aquifer does not extend into remote western regions of the county," Hackler says. But David Barry, spokesperson for the Environmental Protection Agency for Region 6 says, "Yes, the facility does sit above the Ogallala aquifer. It sits on the southern end of the aquifer."

We checked it out for ourselves, and it does cover part of the Andrews dump. So what are the chances of this toxic substance getting into Lubbock and other West Texas water sources? "In my opinion there's no chance," Beach states.

Waste specialists say the red bed clay is 100 times more resistant than concrete, so the odds of water draining into the aquifer are very slim. Carmen says clay is not leak proof, and it will inevitably become a problem. "It's just a bad idea to leave for future generations to deal with," Carmen says.

Even the citizens of Andrews are skeptical about what the future holds. "It will probably be after my lifetime, but I think it will eventually affect the water if they're not careful," explains one concerned Andrews resident. "If it's gonna bring jobs, great. If they're gonna

hurt our land then they need to find another way to do it," says another.

So why is Andrews so enthusiastic about getting dumped on? "They put a lot into our school system. They put a lot into the community. WCS is good for Andrews," says this Andrews resident.

"I think over time there's going to be tens of millions of dollars of economic impact to benefit our community," says Hackler. He's confident this project won't taint their city or any nearby, "We don't in any way feel like this is a danger to our water supply."

One man who spent four years investigating the WCS site says the danger is definitely there. "All of our time has been wasted. We've all been played for suckers. We've all been pointless impediments to a process that resulted in issuing this license from the first day," he says.

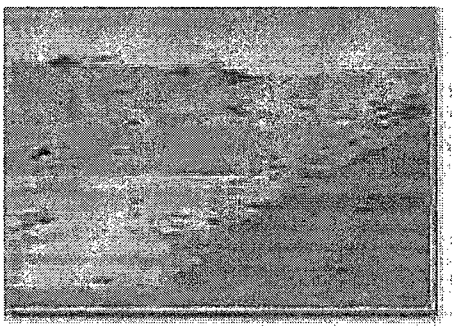
Coming up Tuesday night in Part 2 of our investigation, we will hear from a former employee for the Texas Commission on Environmental Quality. He says, after 16 years, he quit his job after permits were granted to Waste Control Specialists against his recommendation

<<Back

4/28/09

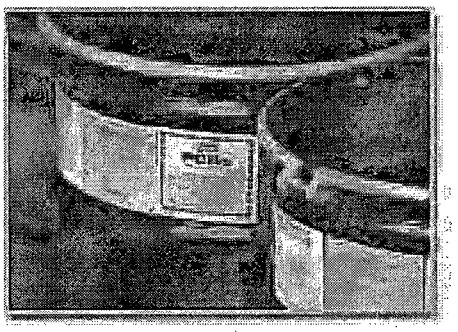
NewsChannel 11 Investigates: Toxic Waste Coming to West Texas, Part 2

Posted: April 28, 2009 07:20 PM MDT



LUBBOCK, TX (KCBD) - NewsChannel 11 told you Monday about a historical cleanup involving General Electric shipping millions of pounds of toxic waste from the Hudson River and burying it in West Texas. Tuesday we hear from a former employee of Texas Commission on Environmental Quality. He claims he quit his job after permits were granted to the landfill against his recommendation.

Glen Lewis says he threw in the towel after TCEQ granted these permits allowing hazardous waste to be buried at the landfill site in Andrews, Texas. He says his reasoning is that those toxic substances will inevitably contaminate the aquifer sitting underneath that dump, which is one way Lubbock gets its water.



Lewis has been with TCEQ for 16 years. He spent nearly four of those years investigating the Waste Control Specialists site in Andrews, Texas for approval of certain toxic wastes. Lewis says, "I resigned my position there, mainly because of decisions made regarding the application submitted by WCS for disposal of low level radioactive waste at a site in Andrews County."

Lewis wasn't the only TCEQ employee who strongly felt the WCS site was the wrong place for these contaminates. "There were two other people who quit specifically because of this," Lewis says.

The permit was just granted to WCS on January 28th, 2009. "All of our time has been wasted. We've all been played for suckers, we've all been pointless impediments to a process that resulted in issuing this license from the first day," Lewis explains.

During Lewis' review with TCEQ, he found that the landfill site is threatened by dump water draining into two water tables. One of those, the Ogallala aquifer which is water Lubbock drinks. "It may be as close as 14 feet from the bottom of the proposed trench. We found that those were unacceptable margins and were not the hundreds of feet of impermeable red bed clay that the applicant originally claimed," Lewis says.

That is what WCS still claims. "At least 500 feet of red bed clay on the bottom of the landfill between the nearest potential aquifer," Linda Beach, the Vice President with WSC says.

So why would TCEQ and the Environmental Protection Agency grant these permits to begin with? Lewis chalks it up to inexperience. Neither organization has ever had to get rid of 1.3 million pounds of toxic waste and transport it to one location. "Nobody has really dealt with this. We can't look into a crystal ball and say that this site is absolutely going to perform satisfactory for 50,000 years," Lewis explains.

Rod Baltzer, president of WCS, says Lewis is wrong - the landfill is not over the Ogallala. "I don't think they've got the latest information, and they don't understand what the facts are," says Baltzer.

Jim Conkwright with the High Plains Underground Water District says he didn't know at first if the aquifer extends under the landfill, but did some checking and says, "It depends on your definition of the aquifer," he continues to say, "Some say it is and some say it isn't."

WCS says according to maps by the Texas Water Development board in 2006, its disposal site does not sit above the Ogallala aquifer. WCS states that after Lewis left the agency, hundreds of additional wells were drilled to determine the subsurface properties at the site. The company has had several consultants analyzing the ground water results. Also, according to the company, as a result of meetings with TCEQ, they agreed to install long term monitoring of the water at the site. Its analysis says the water at the site is puddled and not connected to the aquifer.

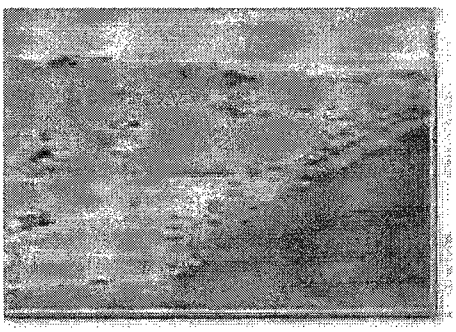
Wednesday night, we'll have more from the president of WCS, and why he says the Ogallala aquifer is not under his site.

NEWSCHANNEL 11 kcbd.com

4/29/09

NewsChannel 11 Investigates: Toxic Waste Coming to West Texas, Part 3

Posted: April 29, 2009 05:48 PM MDT



LUBBOCK, TX (KCBD) - On Monday, we first told you about millions of pounds of toxic waste being taken to the Waste Control Specialists landfill in Andrews, Texas. David Barry, with the Environmental Protection Agency says the Ogallala aquifer is under that dump, but the president of Waste Control Specialists says he can prove otherwise.

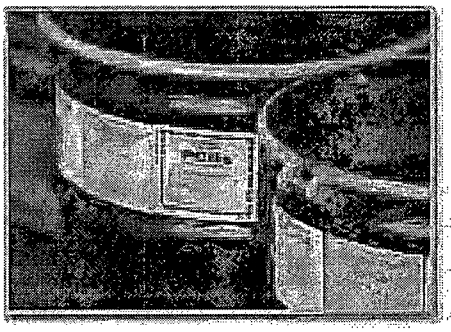
Rod Baltzer is the president of Waste Control Specialists, which is the landfill taking this toxic waste. Baltzer flew in for an interview with NewsChannel 11 after our first story aired. He says the site is not on top of the Ogallala aquifer and he can prove it. "The Ogallala aquifer is not under our site. But just to be safe, the way we design our landfill is to dig into the red bed clays and to ensure that nothing above it would interfere with that wastes," said Baltzer.

Baltzer claims the hundreds of feet of red bed clay isn't the only liner between the ground and these toxic contaminants. "We've then got a three foot clay liner, we've got a geomembrane plastic liner and then we've got a concrete liner," he said.

Baltzer explains that, according to maps by the Texas Water Development Board in 2006, the dump in Andrews does not sit above the Ogallala. He also says Texas Tech University did a study back in the 90's that found the same results. "This site is probably the most studied analyzed and modeled site in the history of the universe," Rod says. So why is this site so controversial?

We spoke with David Barry, the Environmental Protection Agency spokesperson for Region 6, who once again states, "It does appear that the Waste Control Specialist site is above the Ogallala aquifer."

"I would love to be able to talk with EPA and see what they were looking at. I don't know if they were looking at old maps that have changed," Baltzer states in response.



Jim Conkwright with the High Plains Underground Water District did some checking and says, "It depends on your definition of the aquifer. Some say it is and some say it isn't."

Glen Hackler, the city manager of Andrews, says they profit from WCS. "I think over time there's going to be tens of millions of dollars of economic impact to benefit our community," Hackler explains.

So we know the possible economic benefit for Andrews, but it's still unknown how much WCS will profit from this waste. Rod Baltzer says WCS is required to have financial insurance. They're insured for over $8 million.

WCS issued a statement saying, "State and federal governments have determined on 8 separate occasions that the WCS facility does not pose a threat to the drinking water of any person, city or entity in the Permian Basin or the South Plains, including Lubbock."

From: <pharb2@msn.com>
To: <president@messages.whitehouse.gov>,
<jackson.lisa@epa.gov>,
"Roger Vaughan" <RVaughan@tceq.state.tx.us>,
<The.Secretary@hq.doe.gov>,
<radmat@tceq.state.tx.us>,
"Robert Beleckis" <RBelecki@tceq.state.tx.us>,
<greg.abbott@oag.state.tx.us>,
<rick.perry@governor.state.tx.us>,
<inspector.general@usdoj.gov>,
<LGloyste@tceq.state.tx.us>,
"Jackie Hardee" <JHARDEE@tceq.state.tx.us>,
<augurson.shirley@epa.gov>
Cc: <SJABLONS@tceq.state.tx.us>,
<Gilrein.Stephen@epamail.epa.gov>,
<CKuharic@tceq.state.tx.us>,
<PShaver@tceq.state.tx.us>,
<SSimmons@tceq.state.tx.us>,
<GSmith@tceq.state.tx.us>,
<HWeger@tceq.state.tx.us>,
<Dateline@nbcuni.com>,
<Jessica.Farrar@house.state.tx.us>,
<60m@cbsnews.com>,
<David.levenstein@em.doe.gov>,
<Kelly.Hancock@house.state.tx.us>,
<Jim.Dunnam@house.state.tx.us>
Subject: consolidated comment on storage safety at andrews county Texas waste site nb2

Date: Thu, 20 Aug 2009 19:09:16 -0600
MIME-Version: 1.0
Content-Type: multipart/related;
 type="multipart/alternative";
 boundary="----=_NextPart_000_01AE_01CA21C9.B66F6FE0"
X-Priority: 3
X-MSMail-Priority: Normal
X-Mailer: MSN 9
X-MimeOLE: Produced By MSN MimeOLE V9.60.0053.2200
Seal-Send-Time: Thu, 20 Aug 2009 19:09:16 -0600

6/24/09
74 FR 30175
(4)

PUBLIC SUBMISSION

As of: October 20, 2009
Received: October 20, 2009
Status: Pending_Post
Tracking No. 80a45d12
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0006
Comment on FR Doc # E9-14820

Submitter Information

Name: Jason Ahmadi

General Comment

• The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

• The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

• It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

• Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal. Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

• The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of. Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: A. Grossman (ajg2)
B. Traynham (bnt1)
P. Yadav (ppy)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

6/24/09
74 FR 30175
(5)

PUBLIC SUBMISSION

As of: October 27, 2009
Received: October 27, 2009
Status: Pending_Post
Tracking No. 80a4c6ea
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0008
Comment on FR Doc # E9-14820

Submitter Information

Name: Charles Reyes
Address:
444 North Capitol Street, N.W.
Suite 315
Washington, DC, 20001
Organization: Association of State and Territorial Solid Waste Management Officials
Government Agency Type: State

General Comment

Members of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) Federal Facilities Research Subcommittee and Radiation Focus Group developed these comments regarding the Nuclear Regulatory Commission's (NRC's) "Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium" [NRC-2009-0257-0001]. The comments have not been reviewed or adopted by ASTSWMO's Board of Directors, and therefore, the word "States" throughout this document refers to the members of the ASTSWMO Radiation Focus Group. In addition, individual State programs may submit comments directly to you conveying their own perspectives.

Please see attachment for full comments.

Attachments

NRC-2009-0257-DRAFT-0008.1: Comment on FR Doc # E9-14820

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

SUNSI Review Complete
Template = ADM-013

Association of State and Territorial
ASTSWMO
Solid Waste Management Officials

444 North Capitol Street, N.W., Suite 315
Washington, DC 20001
tel: (202) 624-5828 fax: (202) 624-7875
www.astswmo.org

October 26, 2009

Chief, Rulemaking and Directives Branch
Division of Administrative Services, Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M
Washington, DC 20555–0001

RE: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium [NRC–2009–0257-0001]
Federal Register / Vol. 74, No. 120 / Wednesday, June 24, 2009 / Notices FR pg 30175

Dear Sir/Madam:

Members of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) Federal Facilities Research Subcommittee and Radiation Focus Group developed these comments regarding the Nuclear Regulatory Commission's (NRC's) "Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium" [NRC-2009-0257-0001]. The comments have not been reviewed or adopted by ASTSWMO's Board of Directors, and therefore, the word "States" throughout this document refers to the members of the ASTSWMO Radiation Focus Group. In addition, individual State programs may submit comments directly to you conveying their own perspectives.

We agree that depleted uranium (DU) is a unique waste and that, due to its characteristics, should have enhanced performance assessments as compared to typical low-level radiological solid wastes. Ideally the process should discriminate out unsuitable sites for uranium disposal and enhance environmental protection on remaining suitable sites. The in-growth of progeny and the "perpetual" half life of the uranium parents dictate this process.

The renal toxicity of uranium should be considered in performance assessments. The Toxicological Profile for Uranium states that "natural and depleted uranium are primarily chemical hazards" (ATSDR, 1999). Modeling done thus far for disposal of large quantities of DU appears to be radiation dose focused for all pathways modeled. The NRC's regulations in 10 CFR 20 Appendix B consider the chemical toxicity for soluble uranium in an occupational exposure scenario, and the EPA's relatively new regulation for community drinking water supplies limits uranium concentrations to 30 micrograms per liter (30 ug U/L). The Nuclear Regulatory Commission (NRC), or an Agreement State, needs to ensure that long-term migration of DU from a disposal cell and the potential impact of uranium on ground water are considered in light of chemical toxicity, as well as radiation dose. Performance assessments should also include air dispersion and chemical toxicity of uranium to intruders, as well as from groundwater ingestion. These are "out-year" considerations exceeding current 10CFR61 performance assessments.

Long-term replacement of covering caps and radon barriers on DU shallow land disposal sites dictates the need for perpetual care funding. Installation of radon barriers is needed only after significant in growth of radium with potential for radon inhalation. Under current rules, this occurs after the typical period of control for a low-level waste disposal facility. Economy would dictate a graded engineering approach for the protective cap since the radiological hazard from DU disposal is only magnified in "out years." Realize that, by mass, even the residual amounts of U-234 in DU can generate radon earlier than much greater concentrations of U-238.

The need for long-term replacement of covering caps and radon barriers on DU shallow land disposal sites dictates the need for perpetual care funding. The alternative is geologic disposal.

Some DU in the Department of Energy (DOE) system is the byproduct of recycled returns from reactors. These DU wastes are potentially contaminated with transuranics and fission products. Deconversion of UF6 tails may filter out any contaminates. Any performance assessment should include anomalous DU contaminants that remain. Thorough characterization of unique wastes for disposal is imperative.

If this progresses to rulemaking, the ASTSWMO Federal Facilities Research Subcommittee and Radiation Focus Group desire to participate in related forums and discussions. The workshop transcripts illustrate the complexity of related issues. We did not repeat the many substantive comments posted in the transcripts. If there are questions, please call Dale Rector, Tennessee Department of Environment and Conservation, ASTSWMO Radiation Focus Group Chair, at 865-483-4510 or dale.rector@tn.gov.

Sincerely,

Clarence L. Smith, Chair
ASTSWMO Federal Facilities Research Subcommittee

CC: ASTSWMO Radiation Focus Group
Priya Yadav, U.S. Nuclear Regulatory Commission
Dan Schultheisz, U.S. Environmental Protection Agency

6/24/09
74 FR 30175

(6)

PUBLIC SUBMISSION

As of: October 29, 2009
Received: October 29, 2009
Status: Pending_Post
Tracking No. 80a4da3f
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0015
Comment on FR Doc # E9-14820

Submitter Information

Name: Jim Sylva

General Comment

I urge you to not allow production of enriched uranium until a deep geological repository is built to store its waste. Your legacy regarding the disposal of high-level radioactive waste has been less than wise. Sixty-five years of producing high-level waste and still no deep geological repository exists to store it. Classifying depleted uranium as LLW does not make it so. It is one of most toxic heavy metals known to humankind and should be treated with the upmost respect. Don't repeat your error of putting the horse before the cart. You now claim to know better. Please be honest about the dangers of DU and build an appropriate (if possible) deep geological waste disposal site before allowing the production of such waste by uranium enrichment plants.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03

Add: C. Grossman (cjg2)
B. Ivaniman (bni1)
P. Yadav (ppy)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

2:25

RECEIVED

6/24/09
74FR 30175
(7)

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add =
A. [illegible] (C5G2)
B. Traynham (BNT1)
P. Yadav (PPY)

6/24/09
74 FR 30175

(7)

PUBLIC SUBMISSION

As of: October 19, 2009
Received: October 16, 2009
Status: Pending_Post
Tracking No. 80a42ca6
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0003
Comment on FR Doc # E9-14820

Submitter Information

Name: John Hurd
Address: Clinton,
Organization: Whidbey Enviornmental Action Network

General Comment

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.
Out of sight out of mind but not out of the environment. Who will be testing during the 4.5 BILLION years of DU's half life to measure the effects of this highly toxic form of particle radiation?

The fact that DU grows more radioactive over the many millennia prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Please read the attached document.

SUNSI Review Complete
Template = ADM013

Attachments

E-RIDS = ADM-03
Add: C. Grossman (cjg3)
B. Trageham (bnt1)
P. Yadav (ppy)

NRC-2009-0257-DRAFT-0003.1: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0003.2: Comment on FR Doc # E9-14820

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

The fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

HERE'S WHY

Epidemiological studies and toxicological tests on laboratory animals point to DU as being immunotoxic [65] teratogenic[66] [67] neurotoxic [68] with carcinogenic and leukemogenic potential. [69]. A 2005 report by epidemiologists concluded: "the...epidemiological evidence is consistent with increased risk of birth defects in offspring...exposed to DU." [11]

Uranium is a ... radioactive heavy metal... According to Hanson (1974), uranium is soluble in oxygen-rich water, such as those found in the surface of the ocean.... Where DU lodges in bottom sediments, the electro-chemical conditions common in such layers tends to change uranium to a form that has a **high affinity for organic material**. "

According to the International Atomic Energy Agency:

"Plants will ...uptake DU present in soil and in water... The DU in water and vegetation will be transferred to livestock through

ingestion of grass, soil, and water.

Depleted uranium in the soil will be in an oxidized, soluble chemical form and migrate...and be incorporated into the food chain. It is difficult to predict how long it would take for this to occur. As a result of chemical weathering, DU buried under the surface will corrode with time, slowly converting the metallic uranium of the DU into uranium oxides... The specific soil characteristics will determine the rate and chemical form of the oxidation and the rate of migration and solubility of the depleted uranium. This environmental pathway may result in the long term (in the order of several years) in enhanced levels of depleted uranium being dissolved in ground water and drinking water.

Consumption of water and food is a potential long term route of intake of DU." (from http://www.iaea.org/NewsCenter/Features/DU/du_qaa.shtml)

Out of sight out of mind but not out of the environment. Who will be testing during the 4.5 ***billion*** years of the DU's half life to measure the effects of this highly toxic form of particle radiation?

Although 60% "less radioactive" than naturally occurring U-238, DU, an alpha radiation particle emitter, compared to photo or beta radiation, is more effective at causing certain biological effects, notably either cancer or cell-death for equivalent radiation exposure. It follows the same radioactive decay chain of uranium-238. The daughter nuclide of a radioactive decay event may also be unstable (radioactive). In this case, it will also decay, producing radiation. The resulting second daughter nuclide may also be radioactive. This can lead to a sequence of several decay events. Eventually a stable nuclide is produced. This is called a decay chain, which for uranium 238 and DU is as follows:

DU decays, through alpha-emission, with a half life of 4.5 billion years to thorium-234

which decays, through beta-emission, with a half-life of 24 days to protactinium-234

which decays, through beta-emission, with a half-life of 1.2 minutes to uranium-234

which decays, through alpha-emission, with a half-life of 240 thousand years to thorium-230

which decays, through alpha-emission, with a half-life of 77 thousand years to radium-226

which decays, through alpha-emission, with a half-life of 1.6 thousand years to radon-222

which decays, through alpha-emission, with a half-life of 3.8 days to polonium-218

which decays, through alpha-emission, with a half-life of 3.1 minutes to lead-214

which decays, through beta-emission, with a half-life of 27 minutes to bismuth-214

which decays, through alpha-emission, with a half-life of 20 minutes to polonium-210

which decays, through beta-emission, with a half-life of 160 microseconds to lead-210

which decays, through beta-emission, with a half-life of 22 years to bismuth-210

which decays, through beta-emission, with a half-life of 5 days to polonium-210

which decays, through alpha-emission, with a half-life of 140 days to lead-206, which is a stable nuclide.

The alpha-particles emitted by DU consists of two protons and two neutrons bound together (the equivalent of a Helium nucleus with atomic mass of 4 amu) with a total energy of about 5 Million electron Volts (MeV). They are a highly ionizing form of particle radiation. They are relatively harmless until/unless ingested (moving through many organisms up the food chain) or inhaled. In contact with living tissue, the massive (compared to a beta particle or gamma ray) alpha particle smashes through cellular DNA like a wrecking ball through a building, inducing aberrant cell growth and cancers.

Being relatively heavy and positively charged, alpha particles quickly lose kinetic energy within a short distance of their source. This results in several MeV of destructive energy being deposited in a relatively small volume of material. This increases the chance of cellular damage in cases of internal contamination. In general, external alpha radiation is not harmful since alpha particles are effectively shielded by a few centimeters of air, a piece of paper, or the thin layer of dead skin cells. Even touching an alpha source is usually not harmful, though many alpha sources also are accompanied by beta-emitting radio daughters, and alpha emission is also accompanied by gamma photon emission which are harmful. If substances emitting alpha particles are ingested, inhaled, injected or introduced through the skin, then it could result in a measurable damaging dose.

The Relative Biological Effectiveness (RBE) is a measure of the fact that alpha radiation is more effective at causing certain biological effects, notably either cancer or cell-death, compared to photo or beta radiation, for equivalent radiation exposure. This is generally attributable to the high Linear Energy Transfer (LET), which is about one ionization of a chemical bond for every Angstrom of travel by the alpha particle. The RBE has been set at the value of 20 for alpha radiation (DU) by various government regulations. The RBE is set at 10 for neutron irradiation, and at 1 for beta and ionizing photon radiation.

However, another component of DU's alpha radiation is the recoil of the parent nucleus, due to the conservation of momentum requiring the parent nucleus to recoil, much like the 'kick' of a rifle butt when a bullet goes in the opposite direction. This gives a significant amount of energy to the recoil nucleus, which also causes ionization damage. The total energy of the recoil nucleus is readily calculable, and is roughly the weight of the alpha (4 amu) divided by the weight of the parent (typically about 200 amu) times the total energy of the alpha. By some estimates, this might account for most of the internal radiation damage, as the recoil nuclei are typically heavy metals which preferentially collect on the chromosomes. In some studies[2] this has resulted in a RBE approaching 1,000 instead of the value used in governmental regulations.

Normal functioning of mammalian kidney, brain, liver, heart, and numerous other systems can be affected by uranium exposure, because in addition to being radioactive, uranium is a toxic metal.[5]

The Institute of Nuclear Technology-Radiation Protection of Attiki Greece has noted that "depleted uranium munitions can potentially contaminate wide areas around the impact sites or can be inhaled..."[6]

Studies using cultured cells and laboratory rodents continue to suggest the possibility of leukeomgenic, genetic, reproductive, and neurological effects from chronic exposure.[53] In addition, the UK Pensions Appeal Tribunal Service in early 2004 attributed birth defect claims from a February 1991 Gulf War combat veteran to depleted uranium poisoning.[54] [55]

DU is considered both a toxic and radioactive hazard. Its use in incendiary ammunition is controversial because of potential adverse health effects and its release into the environment .[56] [57] [58] [59] [60 [61]

Besides it's residual radioactivity, DU is a heavy metal whose compounds are know from laboratory studies to be toxic to mammals.

THAT'S WHY

References:

(1) www.ehjournal.net/content/4/1/17

(2) Winters-TH, Franza-JR, Radioactivity in Cigarette Smoke, New England Journal of Medicine, 1982; 306(6): 364-365

(5) E. S. Craft, A. W. Abu-Qare, M. M. Flaherty, M. C. Garofolo, H. L. Rincavage, M. B. Abou-Donia (2004). "Depleted and natural uranium: chemistry and toxicological effects". *Journal of Toxicology and Environmental Health Part B: Critical Reviews* 7 (4): 297-317.

(6) Mitsakou C, Eleftheriadis K, Housiadas C, Lazaridis M Modeling of the dispersion of depleted uranium aerosol. <http://www.ncbi.nlm.nih.gov/pubmed/12705453> 2003 Apr, Retrieved January 15, 2009

(11) Hindin, R. *et al.* (2005) "Teratogenicity of depleted uranium aerosols: A review from an epidemiological perspective," <http://www.ehjournal.net/content/4/1/17> *Environmental Health,* vol. 4, pp. 17. at PubMed <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1242351>

(24) US Dept. of Energy Handbook, "Primer on Spontaneous Heating and Pyrophoricity" <http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1081/hbk1081.html>, Chapter "Uranium" <http://hss.energy.gov/NuclearSafety/techstds/standard/hdbk1081/hbk1081e.html>

(53) Miller AC, McClain D. (2007 Jan-Mar). "A review of depleted uranium biological effects: in vitro and in vivo studies". *Rev Environ Health* **22** (1): 75-89. PMID 17508699 <http://www.ncbi.nlm.nih.gov/pubmed/17508699>.

(54) Williams, M. (February 9, 2004) "First Award for Depleted Uranium Poisoning Claim," <http://vitw.org/archives/405> *The Herald Online,* (Edinburgh: Herald Newspapers, Ltd.)

(55) Campaign Against Depleted Uranium (Spring, 2004) "MoD Forced to Pay Pension for DU Contamination," <http://www.cadu.org.uk/news/17.htm> *CADU News 17*)

(65) Wan B, Fleming J, Schultz T, Sayler G (2006). "In vitro immune toxicity of depleted uranium: effects on murine macrophages, CD4+ T cells, and gene expression profiles". *Environ Health Perspect* **114** (1): 85-91. PMID 16393663 <http://www.ncbi.nlm.nih.gov/pubmed/16393663>.

(66) Arfsten D. P., Still K. R., Ritchie G. D. (2001). "A review of the effects of uranium and depleted uranium exposure on reproduction and fetal development.". *Toxicol Ind Health* **17** (5-10): 180-91. doi 10.1191/0748233701th111oa <http://dx.doi.org/10.1191%2F0748233701th111oa>. PMID 12539863 <http://www.ncbi.nlm.nih.gov/pubmed/12539863>.

(67) Domingo J. L. (2001). "Reproductive and developmental toxicity of natural and depleted uranium: a review". *Reprod Toxicol* **15** (6): 603-9 <http://www.ncbi.nlm.nih.gov/pubmed/11738513>.

(68) Briner W., Murray J. (2005). "Effects of short-term and long-term depleted uranium exposure on open-field behavior and brain lipid oxidation in rats.". *Neurotoxicolgy and Teratology* **27** (1): 135-44. <http://www.ncbi.nlm.nih.gov/pubmed/15681127>.

(69) A.C.Miller, D.Beltran, R.Rivas, M.Stewart, R.J.Merlot and P.B. Lison (June 2005) (PDF), *Radiation- and Depleted Uranium-Induced Carcinogenesis Studies: Characterization of the Carcinogenic Process and Development of*

Medical Countermeasures <*http://www.afrri.usuhs.mil/www/outreach/pdf/miller_NATO_2005.pdf*>, **CD 05-2**, Armed Forces Radiobiology Research Institute, NATO RTG-099 2005

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

6/24/09
74FR30175
(8)

SUNSI Review Complete
Template = ADM-013 E-RIDS = ADM-03
Add =
C. Grossman (CSG2)
B. Traynham (BWT2)
P. Kadambi (PBK)

6/24/09
74 FR 30175
(8)

PUBLIC SUBMISSION

As of: October 19, 2009
Received: October 16, 2009
Status: Pending_Post
Tracking No. 80a42cbd
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0004
Comment on FR Doc # E9-14820

Submitter Information

Name: John Hurd, D.C.
Address: WA

General Comment

Don't fool yourself about what you're dealing with in the context of this alpha emitting radioactive material (DU) with a half life of 4.5 BILLION YEARS. This is Thalidomide (remember thalidomide?) only FOREVER!

It will have profound genetic repercussions when (not if) it finds it's way into human habitat over the thousands of millennia it continues to emit alpha particles that smash through DNA like a wrecking ball through a brick wall creating genetic anomalies, and genetic monsters (teratogenic effect). If you have the stomach for it then view the attached photos of the effects of DU on the unborn.
Dr. John Hurd

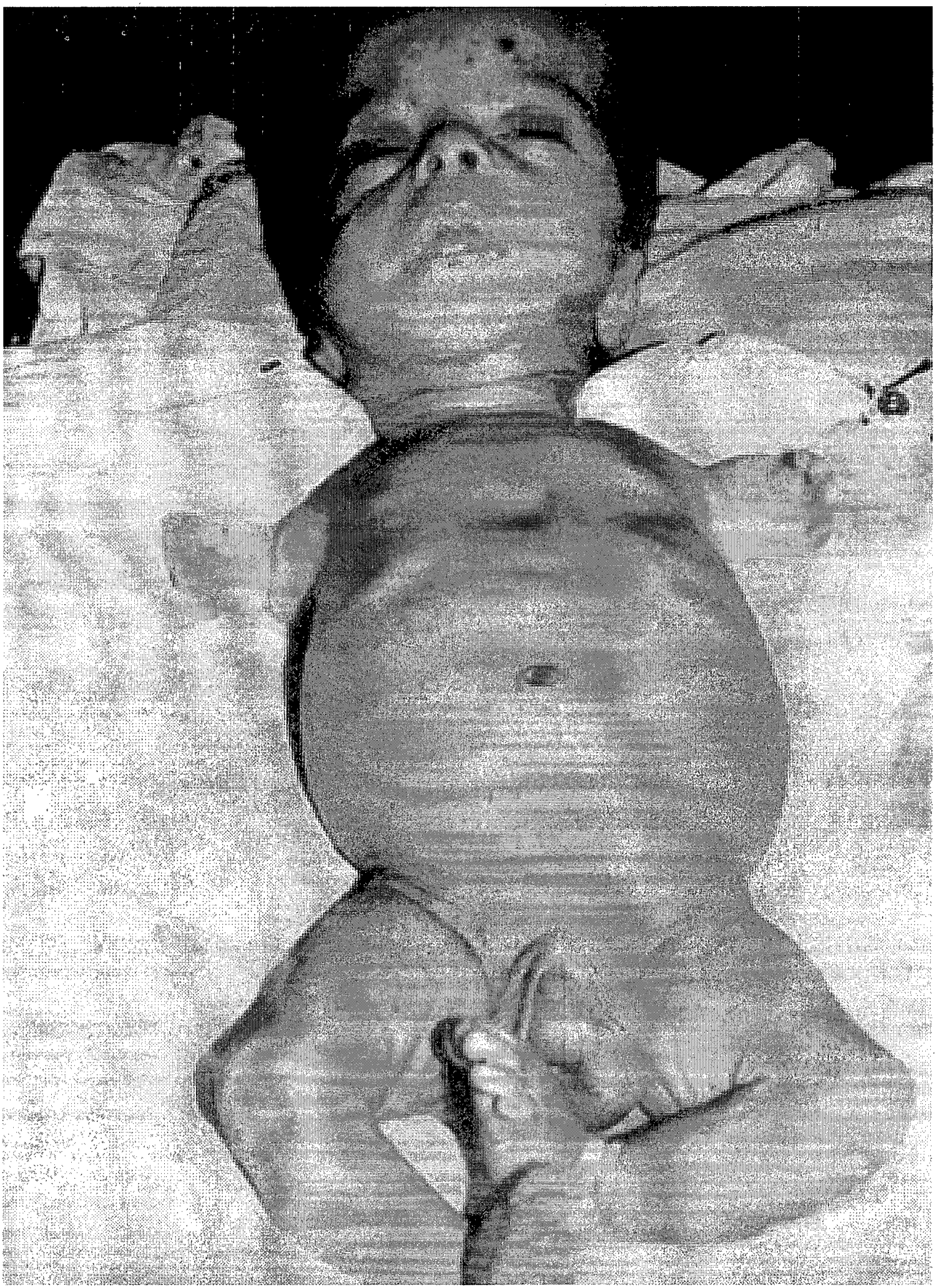
the following is a quote:
"In September 2009, Fallujah General Hospital, Iraq, had 170 new born babies, 24% of whom were dead within the first seven days, a staggering 75% of the dead babies were classified as deformed.
This can be compared with data from the month of August in 2002 where there were 530 new born babies of whom six were dead within the first seven days and only one birth defect was reported.
Doctors in Fallujah have specifically pointed out that not only are they witnessing unprecedented numbers of birth defects but what is more alarming is: "a significant number of babies that do survive begin to develop severe disabilities at a later stage."
from: http://www.thewe.cc/weplanet/news/depleted_uranium_iraq_afghanistan_balkans.html

Attachments

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

NRC-2009-0257-DRAFT-0004.1: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.2: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.3: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.4: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.5: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.6: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.7: Comment on FR Doc # E9-14820
NRC-2009-0257-DRAFT-0004.8: Comment on FR Doc # E9-14820



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

6/24/09
FR 30175
(9)

SUNSI Review Complete
Template = ADM-013

E-RIDI = ADM-03
Add! C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

1-

Dear, Sirs.

I read in the news-
paper this morning, that-
Energy Solutions wants to
Dump Bulky waste in Utah-
out By Clive I believe,
Energy solutions is there-
for the money + I don't think-
for much else.

I received an honorable discharge
in the Early 1950's when I +
was a Jumpmaster for several-
years.

I moved back to my home-
town in Garrard Utah.
the US government was-
testing Radioactive procedures
+ testing Bombs + such not
at the Nevada test sites.
as a result, there was a lot
of Radioactive junk that was
spread for long distances.
you could take a Geiger counter-
which was used to find uranium.
you could take it out a lot-
of Places + it would go-
wild.

Over

(2)

there were a lot of-
People in southern Utah
who had cancer as a-
result of the atomic-
testing.

I myself have had a couple
of cancer operations. +
I think that the time I-
spent in Southern Utah at
the time of this atomic testing
it didn't do me any good.
My first wife Lora Dalton
Died of cancer + I believe-
the Radioactive fallout in-
southern Utah in the Early-
1950's had it connection.
there were a lot of Utahns-
who passed away + this-
Atomic testing did not help.

I have listened to Different people from Energy Solutions say this waste wont hurt anything.

I Disagree, I believe the waste will hurt, it will get hoter + hotter + the wind + weather will scatter It.

It will not Be safe.

I am against It.

We do not need the worlds vast In Utah.

Sincerely.

Arnold L. Dalton

6/24/09
FR 30175

10-13-09

10

Dear Regulatory Commission,

I am a resident of Utah and I strongly oppose the disposal of radiation tainted waste in Oak Ridge, Tenn. to Energy Solutions Inc. Please for the sake of most of Utah, reconsider this plan.

Sincerely,

Judy M. Mallory-McCann

RECEIVED
2009 OCT 21 AM 8:28
RULES AND DIRECTIVES
BRANCH
USNRC

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

6/24/09
74 FR 30175
(11)

PUBLIC SUBMISSION

As of: October 28, 2009
Received: October 28, 2009
Status: Pending_Post
Tracking No. 80a4d4d9
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0014
Comment on FR Doc # E9-14820

Submitter Information

Name: Elise Lufkin
Address:
PO Box 2997
101 Greenhorn Loop
Ketchum, ID, 83340

General Comment

To the Nuclear Regulatory Commission:
Please do not license any new facilities for uranium enrichment until there is a clear and safe pathway for depleted uranium.
Thank you for your consideration of this important issue.

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

SUNSI Review Complete
Template = ADM-013

6/24/09
74 FR 30175
(12)

PUBLIC SUBMISSION

As of: October 28, 2009
Received: October 28, 2009
Status: Pending_Post
Tracking No. 80a4cabc
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0009
Comment on FR Doc # E9-14820

Submitter Information

Name: Che' Gilliland
Address:
128 Keystone Ave.
Coupeville, WA, 98239
Submitter's Representative: Rick Larsen

General Comment

To Whom It May Concern;

I have deep concerns about the proposed rule-making in regard to disposal of Depleted Uranium (DU). Since there is not a disposal pathway for depleted uranium, the NRC should not license any new enrichment facilities.

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.
The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of. Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.
The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repositor

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal. Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.
Thank you for your consideration. I hope that you will re-evaluate and cease the disposal and rule-making in regard to DU until the issue is fully studied.

SUNSI Review Complete
Template: ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Trayham (bnt1)
P. Yadav (ppy)

Sincerely,
Che' Gilliland, Coupeville, WA

Add: C. Grossman (cjgz)
B. Traynham (bnt1)
P. Yadav (ppy)

6/24/09
74 FR 30175

(13)

PUBLIC SUBMISSION

As of: October 28, 2009
Received: October 28, 2009
Status: Pending_Post
Tracking No. 80a4cac2
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0010
Comment on FR Doc # E9-14820

Submitter Information

Name: Sheila Plowman

General Comment

Please do not license any new enrichment facilities since there is not a disposal pathway for depleted uranium.
Please keep Idaho clean and free of any uranium contamination.
Sheila Plowman

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

SUNSI Review Complete
Template = ADM 013

6/24/09
74 FR 30175
(14)

PUBLIC SUBMISSION

As of: October 28, 2009
Received: October 28, 2009
Status: Pending_Post
Tracking No. 80a4cc05
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0011
Comment on FR Doc # E9-14820

Submitter Information

Name: Mark M Giese
Address:
1520 Bryn Mawr Ave
Racine, WI, 53403
Government Agency Type: Federal
Government Agency: NRC

General Comment

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal. Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of. Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

SUNSI Review Complete
Template: ADM 013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

6/24/09
74 FR 30175

15

PUBLIC SUBMISSION

As of: October 28, 2009
Received: October 28, 2009
Status: Pending_Post
Tracking No. 80a4d408
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0012
Comment on FR Doc # E9-14820

Submitter Information

General Comment

My first message got lost in space, so I'm making this short and sweet. Please do NOT set rules for depleted uranium that would weaken our present attempt to provide for safe waste disposal. Please do not license any new enrichment facilities until we have clear, safe ways of disposing of our waste, long term.
Thanks,
Dori Glennon and Bill Hogan, Pocatello, IDaho

E-RIDS= ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

SUNSI Review Complete
Template = ADM-013

6/24/09
74 FR 30175

16

PUBLIC SUBMISSION

As of: October 28, 2009
Received: October 28, 2009
Status: Pending_Post
Tracking No. 80a4cc59
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0013
Comment on FR Doc # E9-14820

Submitter Information

Name: Sara Cohn
Address:
P.O. Box 844
Boise, 83701
Organization: Idaho Conservation League

General Comment

See attached file for Idaho Conservation League comments. If there is any problem opening the file, please contact me at the address listed or at (208) 345-6942 or at scohn@idahoconservation.org.

Attachments

NRC-2009-0257-DRAFT-0013.1: Comment on FR Doc # E9-14820

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

SUNSI Review Complete
Template = ADM-013

www.wildidaho.org

Idaho Conservation League
PO Box 844, Boise, ID 83701
208.345.6933

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop TWB-05-B01M
Washington, DC 20555-0001

October 28, 2009

RE: Federal Register June 24, 2009, pgs 30175-30179 - Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

To Whom it May Concern;

Thank you for the opportunity to provide comments on the notice of public workshops and potential rulemaking activities for the safe disposal of unique waste steams including significant quantities of depleted uranium. Since 1973, the Idaho Conservation League (ICL) has been Idaho's voice for clean water, clean air, and wilderness—values that are the foundation to Idaho's extraordinary quality of life. As Idaho's largest state-based conservation organization we represent over 9,800 members, many of whom have a deep personal interest in protecting Idaho's natural resources and public health.

The ICL is aware the public workshops and proposed rulemaking will likely influence the storage of significant amounts of depleted uranium produced by the proposed AREVA Enrichment facility in Idaho Falls, Idaho (see Attachment A, *Scoping Comments for Proposed AREVA Enrichment Services, LLC Eagle Rock Enrichment, Idaho Falls, ID - Docket No. 70-7015, June 18, 2009*). Temporary or long-term storage of significant amounts of depleted uranium may result in the release of pollutants to Idaho's natural resources or may compromise public health. As the Nuclear Regulatory Commission (NRC) proceeds with the public workshops and the proposed rulemaking, further analysis and guidance must be provided to ensure that no adverse impacts occur to pollute Idaho's clean water and clean air, or endanger public health.

Specifically, we suggest the following:

- More clarity is needed with regard to the scope of the potential rulemaking.
- Until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations, it is inappropriate to license any new uranium enrichment facility.
- The NRC should coordinate with appropriate federal agencies, such as the U.S. Environmental Protection Agency (EPA) and others, to ensure comprehensive analysis of potential disposal sites and to protect natural resource, human health,

and national security.

We look forward to working with the NRC, additional federal agencies and interested parties to design rules that guide the storage of depleted uranium waste, preserve Idaho's natural resources, and provide adequate assurances that storage will not adversely impact public health. Please find my contact information below and keep us on the list to receive additional public notices with regard to the workshops and proposed rulemaking.

Sincerely,

Sara Cohn
Community Conservation Associate
Idaho Conservation League
P.O. Box 844
Boise, Idaho 83701
(208) 345-6942 ex 23

ICL Comment Regarding Public Workshops and Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Scope of Workshops and Potential Rulemaking

The Federal Register Notice provided limited guidance with regard to the scope of the proposed rulemaking. It is unclear what types of waste will be included in workshop discussions or the potential rule. Based on the information provided, it is not possible to conclude that is appropriate to combine the guidance for safe disposal of undefined "unique waste streams" and significant quantities of depleted uranium. NRC should provide a definition for "other unique waste streams" to further inform workshop discussions and ensure that any potential rule developed is appropriate for type of waste slated for disposal. It is also unclear what type of facility would be considered a disposal site. NRC should clarify whether workshops or potential rulemaking will address both the temporary and long term storage/disposal of depleted uranium and other waste streams. NRC should provide clarity regarding the definition of "disposal" in this context.

Permitting Enrichment Facilities

ICL has provided public comments on NEPA scoping analysis for the proposed AREVA Enrichment facility in Idaho Falls, Idaho (see Attachment A). As the current Federal Register announcement suggests, NRC does not currently provide adequate guidance for the type of waste streams that will be created by the proposed AREVA enrichment facility. Until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations, ICL believes it is inappropriate to license any new uranium enrichment facility. NRC should consider the creation of adequate rules to guide the safe disposal of depleted uranium as paramount to permitting individual facilities.

Coordination with Associated Federal Agencies

Depleted uranium and other unique waste streams pose as a threat to natural resources, public health, and national security. As such, the NRC should coordinate with relevant federal agencies during the workshop and potential rulemaking. Such agencies would include the EPA, the National Security Agency (NSA), the Department of Energy, the Department Homeland Security, the U.S. Department of Health and Human Services, among others. NRC should consult and coordinate with these agencies to ensure that the guidance for disposal of unique waste streams and depleted uranium is consistent with existing regulations that protect natural resources, public health, and national security.

Attachment A

ICL Scoping Comments for Proposed AREVA Enrichment Services, LLC Eagle Rock Enrichment, Idaho Falls, ID - Docket No. 70-7015

www.wildidaho.org

Idaho Conservation League
PO Box 844, Boise, ID 83701
208.345.6933

Chief, Rules and Directives Branch
Mail Stop TWB-05-B01
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

June 18, 2009

RE: Scoping Comments for Proposed AREVA Enrichment Services, LLC Eagle Rock Enrichment, Idaho Falls, ID - Docket No. 70-7015

To Whom it May Concern;

Thank you for the opportunity to comment on the Notice of Intent and Environmental Report for the proposed AREVA Enrichment facility in Idaho Falls, Idaho. Since 1973, the Idaho Conservation League (ICL) has been Idaho's voice for clean water, clean air, and wilderness—values that are the foundation to Idaho's extraordinary quality of life. The Idaho Conservation League works to protect these values through citizen action, public education, and professional advocacy. As Idaho's largest state-based conservation organization we represent over 9,800 members, many of whom have a deep personal interest in protecting Idaho's natural resources and public health.

The ICL has reviewed the Environmental Report for the Eagle Rock Enrichment facility and is concerned that construction and operation of the facility will pollute Idaho's natural resources and compromise public health. The Environmental Report does not provide the level of detail that would ensure the reduction of impacts or appropriate mitigation plans. More detailed analysis must be given in subsequent documents to ensure that no adverse impacts occur that pollute Idaho's clean water and clean air, or endanger public health.

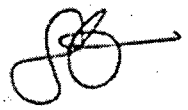
Specifically, we request that further analysis and mitigations plans will be prepared to:

- reduce the risks associated with transport and storage of toxic, hazardous, and/or radioactive materials;
- ensure no contamination of Idaho's waters;
- preserve Idaho's clean air;
- protect public health;
- analyze all potential risk associated with hazardous materials onsite, whether existing or proposed for storage;
- adequately document and mitigate for wildlife and habitat disturbances;
- and, reduce the risk of accident and fire.

We look forward to working with the project proponent, the U.S. Nuclear Regulatory Commission (NRC), additional federal agencies and interested parties to design a project that preserves Idaho's natural resources and provides adequate assurances that the project

will not adversely impact public health. Please keep us on the list to receive both a hard copy and an electronic copy of the Draft EIS.

Sincerely,



Sara Cohn
Community Conservation Associate
Idaho Conservation League

ICL Comments regarding AREVA Enrichment Services, Idaho Falls, Idaho

Transportation

The ICL is very concerned about the transportation of hazardous and toxic materials to and from the project site. Based on the size of the facility and the number of trips expected to transport hazardous and toxic materials, the possibility of accidental spills and subsequent contamination is high. Further analysis will be needed to ensure that the transport of hazardous materials to and from the site will not result in the pollution of Idaho's waters and air, or endanger public health. More information is needed to understand the size and scale of the enrichment facility, the amount of waste produced and transported from the site, and the amount of hazardous and toxic materials imported and exported from the site. We also request information regarding the methods of transport and the types of containment vessels that will be used to transport materials.

Detailed plans should be prepared to reduce contamination and public health risks in the event of a spill or accident during transport.

The Environmental Report does not provide cumulative risk analysis regarding the amount of hazardous or toxic materials to be imported and exported across state lines. The documents provided do not appropriately consider methods to minimize risks associated with transport routes options. Alternative transportation modes, such as rail, should be further analyzed. Transportation routes and modes that present significant risk to public health and natural resources should be avoided.

Permanent impacts associated with the project include the construction of two access roads from Highway 20 to the project site. Further analysis of this impact must include additional risk associated with fire and the spread of invasive weeds (for more detail on this topic see subsection Environmental Resources – *Invasive Weeds*).

Water Resources

The ICL is very concerned that spillage or leakage of hazardous materials and waste from the proposed facility will contaminate Idaho's surface or groundwater. We are concerned that there will be large quantities of hazardous, toxic, and radioactive materials produced and stored onsite and that these materials may contaminate Idaho's waters. The Snake River Plain Aquifer is southern Idaho's primary source of drinking and irrigation water. Should the facility operations result in the contamination of the aquifer, this pollution would have wide reaching affects on public health and Idaho's agricultural economy. Toxic and radioactive materials from enrichment facilities have been shown to leak through detention basins and contaminate groundwater. We are very concerned the proposed facility may contaminate Idaho's waters the way similar facilities have contaminated groundwater in Paducah, KY and Portsmouth, OH.

Due to the amount of pollutants expected to be stored onsite, the extremely hazardous nature of waste products like depleted uranium, the possibility of waste spills, the possibility of leakage from proposed retention basins, and the importance of the Snake River Plain Aquifer, much more information is needed to ensure no endangerment of public health or contamination of precious water resources. We request more information

with regard to the amount of waste and hazardous materials expected to be stored onsite, the types of preventative measures that will be in place to ensure no contamination of water, as well as plans outlining monitoring and reporting methods and responsible parties. The applicant should also prepare reports and plans that detail the roles and responsibilities of agencies and AREVA in the event of spillage or contamination from the site. These plans should outline remediation, public alerts, public safety measures, and clean up strategies, among all other necessary actions to protect environmental and public health.

Nitrate contamination of groundwater is also of concern. Recent findings indicate that long-term exposure to elevated concentrations of nitrate may contribute to the risk of developing bladder and ovarian cancers[1] and non-Hodgkin's lymphoma[2].

Air Quality

The ICL is very concerned about the potential release of radioactive, hazardous and toxic materials into the air. Potential air releases associated with operation of this facility should be further analyzed, reported, and permitted though Idaho's Department of Environmental Quality. The environmental documents mention the use of Gaseous Effluent Ventilation Systems. We are concerned about the waste associated with the ventilation system and would like more detail with regard to the use and disposal of any filter-like product that may contain pollutants. We also concerned that hazardous materials will be concentrated in retention basins prior to and after evaporation of any water. These materials have the potential to settle in sediments and be released into the air with other dust particles.

We request that the applicant include air monitoring and reporting plans that are specific to the operations of the proposed facility. These plans should include guidance for public alerts, immediate containment, responsible parties, etc., should air releases be detected.

Air pollution resulting from construction of the proposed facility should be avoided or reduced using the best available management practices and control technology. To preserve Idaho's clean air during construction operations, the NRC should include mitigation measures for these pollutants. For example, fugitive dust emissions can be controlled through the use of water trucks, provided the Storm Water Pollution Prevention Program (SWPPP) ensures no discharge of sediment from the site. Additionally, diesel emissions should be reduced using best management practices for construction including limited idling of diesel equipment and the use of low-emitting fuels and low-emitting technology for construction equipment.

Public Health

The ICL is concerned that operation of this facility may expose Idahoans to toxic, radioactive, and/or harmful pollutants. Further detail and analysis must investigate risks

[1] Weyer, P.J., Cerhan, J.R., Kross, B.C., Hallberg, G.R., Kantamneni, J., Breuer, G., Jones, M.P., Zheng, W., and Lynch, C.F., 2001, Municipal drinking water nitrate level and cancer risk in older women: the Iowa women's health study: *Epidemiology*, v. 11, p. 327-338.

[2] Ward, M.H., Mark, S.D., Cantor, K.P., Weisenburger, D.D., Correa-Villasenor, A., and Zahm, S.H., 1996, Drinking water nitrate and the risk of non-Hodgkin's lymphoma: *Epidemiology*, v. 7, p. 465-471.

associated with water and air contamination from enrichment operations. We request detailed information regarding the amounts and types of materials used, produced, and stored onsite. We would like detailed information about how these materials may be released and how releases may endanger public health. Detailed plans to contain releases as well as alert and protect the public will be essential. Additionally, further analysis must ensure no air releases during transportation of both uranium product and waste to and from the site. The health of Idahoans is of primary import and should not be compromised by enrichment product, waste, or transport.

Hazardous Materials

The impact analysis did not contain any information regarding hazardous materials existing onsite, or proposed for storage. The EIS must provide information with regard to any hazardous materials existing or proposed for storage onsite and any cumulative risk associated with the storage, transport, and use of hazardous materials during project operations. Additionally, subsequent environmental documentation must include a Management Plan for Toxic and Hazardous Materials. This plan should address health and accident risks associated with toxic and hazardous materials onsite as well as accident prevention and management strategies. This information is incredibly important to protect the health and lives of emergency responders and communities such as Idaho Falls, Pocatello, and others that would potentially be harmed by facility operations. The ICL is concerned that a hazardous materials analysis was not included in the environmental analysis and we look forward to evaluating information on this subject.

Ecological Resources

The Environmental Report does not adequately address impacts to ecological resources on site. Due to pending sage-grouse and pygmy rabbit Endangered Species Act (ESA) listing, we suggest the applicant prepare environmental documentation and pursue the appropriate permits in anticipation of this ESA listing.

Avoid, Minimize, Mitigate
In terms of priorities, the NRC should first site facilities and infrastructure to avoid impacts to wildlife and cultural resources. If impacts cannot be entirely avoided, the NRC should incorporate design features to minimize impacts. Lastly, a plan should be prepared to mitigate for impacts that cannot be avoided or minimized.

Habitat, habitat fragmentation, and migration corridors
Portions of the project area contain habitat that is crucial to the sagebrush steppe obligate species such as sage-grouse, pygmy rabbits, sage thrasher, sage sparrow, and others. Such habitat has been severely fragmented and reduced through a variety of land management practices, including road construction and development of rights of way corridors. Although communities can't be listed under the endangered species act, sagebrush steppe habitat is considered by federal agencies as "imperiled" and an area of primary concern. The project should minimize negative impacts by avoiding areas of critical habitat for species of concern, establishing siting criteria to minimize soil disturbance and erosion on steep slopes, utilizing visual resource management guidelines, avoiding significant historic and cultural resource sites, and mitigating any potential disturbance of this habitat.

Sage-grouse
There is significant concern regarding the long-term viability of greater sage-grouse populations. The US Fish and Wildlife Service is currently conducting a finding of determination whether greater sage-grouse deserve protections under the Endangered Species Act. These protections could have far reaching effects on land management in Idaho and in the region.

Greater sage-grouse suffer from the loss, degradation, and fragmentation of habitat throughout the west. It's estimated that only 50-60% of the original sagebrush steppe habitat remains in the west (West 2000), and in 2007, the American Bird Conservancy listed sagebrush as the most threatened bird habitat in the continental United States.[3] As such, we cannot stress enough how important it is for agencies to consider impacts to sage-grouse, conserve existing habitat, and actively restore altered sagebrush steppe habitats due to project-related impacts.

Depending on location and design specifics, the construction of additional roads within sage-grouse habitat could constitute "nonlinear infrastructure" under the *Conservation Plan for the Greater Sage-grouse in Idaho (Idaho Sage-Grouse Advisory Committee 2006).* Nonlinear infrastructure is defined as "human-made features on the landscape that provide or facilitate transportation, energy, and communications activities." [4]The *Conservation Plan* lists infrastructure such as this as the second greatest threat for sage grouse, with wildfires as the greatest risk. Road construction and use associated with the facility represents high risk for loss of lek areas, nesting locations, and brood-rearing habitats (Braun 1986, Connelly et al. 2004). [5] [6]

Coordination with local stakeholder groups
We believe that an integral part of conserving and recovering sage-grouse will be relying on the guidance from local stakeholder groups. As such, we recommend that the applicant coordinate further efforts more closely with the US Fish and Wildlife Service, local Sage-grouse Working Groups, the Idaho State Sage Grouse Advisory Council, the Idaho Department of Fish and Game, and the Governor's Office of Species Conservation. Conservation groups to consult include the Audubon Society, the Idaho Chapter of the North American Grouse Partnership, the Idaho Falconer's Association, the Nature Conservancy, the Western Watersheds Project as well as the Idaho Conservation League.

Additional Wildlife
In addition to sage-grouse, other wildlife including pygmy rabbits, sage thrasher, sage sparrow, and birds of prey, are of concern. New construction and infrastructure will also change crucial habitat for these species and may inhibit the ability of these species to migrate. The project design should avoid construction in any designated areas or lands for

---

[3] West, N.E. Synecology and disturbance regimes of sagebrush steppe ecosystems, p. 15-26. *In* P.G. Entwistle, A.M. DeBolt, J.H. Kaltenecker, and K. Steenhoff, Proceedings: sagebrush steppe ecosystems symposium. USDI Bureau of Land Management Publication BLM/ID/PT-001001+1150, Boise, ID.
[4] Idaho Sage-Grouse Advisory Committee. 2006. *Conservation Plan for the Greater Sage-grouse in Idaho.*
[5] Braun, C.E. 1986. Changes in sage-grouse lek counts with advent of surface coal mining. Proceedings, Issues and technology in the management of impacted western wildlife. *Thorne Ecological Institute* 2: 227-231.
[6] Connelly, J.W., Knick, S.T., Schroeder, M.A., and S.J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

special management of these species. There are also elk, mule deer, and pronghorn antelope in the proposed project area.

The project should avoid and minimize all impact to big game winter habitat. The project site contains good to excellent antelope and sage-grouse habitat. We are concerned how the proposed project will impact this important habitat and the species that depend on it. We are also greatly concerned the project will impact nesting habitat for migratory birds.

Invasive Weeds

The most cost-effective way to deal with noxious weeds is to protect strongholds of native vegetation from activities that either spread noxious weeds directly or create suitable habitat by removing native vegetation and disturbing the soil. Project activities should limit road construction in areas that contain mineral soils where weeds may become established. Roads serve as a primary route for noxious weed species expansion. Special care should be taken to safeguard ecologically intact areas that are not currently infested. The EIS needs to analyze the effects of noxious weeds and describe management of weeds in the project area. For example, management strategies may include ensuring the tires and undercarriage of access vehicles are hosed down prior to site access to dislodge noxious weeds. Further documentation should analyze the effects of regular weed control activities in previously undisturbed areas. For example, weed treatments may affect non-target species and vehicle access may increase fire hazard and soil disturbance.

Public Comment Opportunities

Due to the nature and size of the proposed facility, we suggest the project proponent hold additional public hearings throughout the EIS process in Boise, Idaho.

ENERGY*SOLUTIONS*

October 29, 2009

CD09-0293

6/24/09
74FR 30175
(17)

Michael Lesar, Chief
Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: Comments on Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium – 74 FR 30175

Dear Mr. Lesar:

Energy*Solutions* is submitting these comments in response to the subject notice. Our comments are contained in the attachment. In general, we are supportive of not only the proposed rulemaking to require a performance assessment for a site disposing of significant quantities of depleted uranium, but also the NRC's approach in this matter. The workshop process was very helpful in clarifying some of the major issues, for example, how, if at all, to define unique waste streams other than depleted uranium.

We appreciate the opportunity afforded us to participate in the workshops held in Maryland and Utah and we applaud the Staff on the professional manner in which the workshops were conducted. The comments provided herein do not differ in substance from the comments we provided verbally during the workshops. In addition to documenting our position on several of the questions posed in the Federal Register notice, we have proposed specific regulatory language to implement our views.

Finally, there is one overarching comment that deserves emphasis, which is that the NRC should carefully balance the choice of what changes are made in its regulations *vis a vis* what changes should be incorporated in guidance. We believe that minimal changes to regulations are necessary to affect the desired outcome.

Thank you again for this opportunity to comment. Questions regarding these comments may be directed to me at (301) 957-3770 or temagette@energysolutions.com.

Sincerely,

Thomas E. Magette, P.E.
Senior Vice President
Nuclear Regulatory Strategy

SUNSI Review Complete
Template=ADM-013

E-RIDS=ADM-03
Add = C. Grossman (CJG2)
B. Traynham (BNT1)
P. Yadav (PRY)

6100 Chevy Chase Drive • Laurel, Maryland 20707
301.957.3800 • Fax: 301.776.3265 • www.energysolutions.com

Comments on Potential Rulemaking

Safe Disposal of Unique Waste Streams including Significant Quantities of Depleted Uranium

1. Requirement to Perform a Site-Specific Assessment – Energy*Solutions* supports the concept of a limited rulemaking to specify a requirement for a site-specific analysis and associated technical requirements for the disposal of significant quantities of depleted uranium as directed by the Commission in *Staff Requirements—SECY-08-0147—Response to Commission Order CLI-05-20 Regarding Depleted Uranium*. We believe the changes to the regulations to accomplish this direction are minimal and should include only:

a. Inclusion of the new requirement to prepare a site-specific performance assessment
b. Modification of 10 CFR 61 Subpart C to specify an intruder dose and a compliance period using updated dose methodology

We provide specific language below to implement these changes, as well as to address other issues raised either in the Federal Register notice or during the workshops. In our specific comments below, we also distinguish between items that should be addressed in regulations and those that are more appropriately addressed in guidance.

2. Period of Performance – The period of performance for the site-specific analysis should be addressed in NRC regulations. NRC regulations should establish a period of compliance in order to assure consistency in the assessment of compliance by all parties. Energy*Solutions* proposes the adoption of a compliance period of performance of 10,000 years. This is consistent with both existing NRC Guidance (e.g., NUREG-1573[1]) and federal regulations (40 CFR 191). In addition, recognizing that the peak dose may occur after this period, we recommend that the rule require a qualitative analysis if the peak occurs beyond 10,000 years for input into the analysis. This also is consistent with existing guidance as found in NUREG-1573 and NUREG-1854[2].

3. Intruder Dose – 10 CFR 61.42 currently requires "...protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste;" however, the regulations are silent on the specific dose standard to apply. A dose objective would assure consistency in the assessment of compliance by all parties. We recommend the inclusion of a dose standard for an intruder of 500 mrem/yr. This would formalize as a regulatory requirement the dose standard that currently is stated in guidance.

We would note that 500 mrem was the standard proposed in Part 61 in 1981 (46 FR 38081, July 24, 1981). The Statement of Considerations for the final rule identifies no objection to this dose standard. It apparently was removed at the request of EPA because of their concern regarding how one would monitor or demonstrate compliance with the standard, but not because EPA disagreed with the proposed dose (47 FR 57446, 57449, December 27, 1982).

---

[1] *A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities*, U.S. Nuclear Regulatory Commission, NUREG-1573, October 2000.

[2] *NRC Staff Guidance for Activities Related to U.S. Department of Energy Waste Determinations*, U.S. Nuclear Regulatory Commission, NUREG-1854, August 2007.

A dose standard of 500 mrem/yr is also used as part of the license termination rule dose standard for intruders (10 CFR 20.1403).

We also recommend that the NRC further revise Subpart C, specifically Section 61.41, to update the annual dose methodology to the newer methodology of ICRP 26 and 30 used in 10 CFR Part 20. This is consistent with the approach taken in more recent NRC guidance, including NUREG-1573 and NUREG-1854.

4. Definition of Significant Quantity – The subject Federal Register notice sought input on how the NRC should define a "significant quantity" of depleted uranium. Energy*Solutions* does not believe it is necessary to define "significant quantity." This topic was the subject of much discussion in both workshops and, as several participants observed, there is little if anything to be gained by attempting to define a limit below which no site-specific assessment is necessary. The quantity of uranium that the NRC relied upon in developing the tables in Part 61.55 was approximately 60 tons. SECY-08-0147 refers to a lower limit of 1-10 tons below which no site-specific assessment would be required. Either of these limits, or any other the Commission is likely to adopt, would easily be exceeded at a facility that is disposing of depleted uranium from an enrichment or deconversion facility.

The language we provide below regarding the requirement to prepare a site-specific assessment is in our view sufficient to address how this issue should be addressed in the regulations, which is to say that the requirement should include no threshold.

5. Identification of Scenarios – NRC regulations in Part 61 already contain requirements regarding compliance with the performance objectives in Subpart C. 10 CFR 61.13, *Technical Analyses*, and Subpart C, *Performance Objectives*, specify pathways to be analyzed, require identification of disposal site characteristics and design features, and require the analysis of inadvertent intrusion, routine operations, likely accidents, and long-term stability of the disposal site. Details regarding how to select potential exposure scenarios are addressed in NRC guidance, e.g., NUREG-1573. Energy*Solutions* recommends that the NRC continue to follow this approach.

NRC should permit disposal site operators to justify site-specific assumptions and exposure scenarios based on reasonably foreseeable circumstances to evaluate the critical group that could reasonably encounter material that may be released from the disposal cell after the institutional control period. This could include residential use, farming, resident farming, or some other reasonable use consistent with the current environment of the specific site. For example, a site would not be expected or required to consider a groundwater pathway if the groundwater was not useable for irrigation or human consumption. In addition, the assumptions for the analyses would not need to project changes in society, the biosphere, human biology, or increases or decreases of human knowledge or technology except for foreseeable changes to the geology, hydrology, and climate based upon cautious, but reasonable assumptions of the changes in these factors that could affect the disposal site. The actual details for preparing performance assessments should be addressed in NRC guidance, which can be updated periodically as necessary.

6. Performance Assessment Update Frequency – Energy*Solutions* recommends that the NRC include a requirement that the site-specific performance assessment be updated at a frequency not to exceed once every 5 years. Updates may be more frequent as necessitated to demonstrate compliance with changes at the site not previously analyzed, but in the event that is not the case, the 5-year minimum would apply.

7. Definition of Unique Waste Streams – The subject Federal Register notice sought input on whether the NRC should define "unique waste streams." Energy*Solutions* recommends that the NRC not attempt to define unique waste streams. We believe that any attempt to define unique waste streams would be elusive and thus merely serve to divert attention and resources from more important activities. Over the course of four days of workshops, no proposed definition was offered that garnered even mild support from panelists or members of the public. More importantly, there is no need to define other unique waste streams. A sufficiently broad requirement for the preparation of a site-specific performance assessment will capture the suitability of a given site for the disposal of radioactive waste containing any isotopes whether or not they are addressed in the tables in 10 CFR 61.55(a).

8. Guidance vs. Regulations – Regulations provide for certainty, consistency, and enforceability. Guidance, while not directly enforceable, provides direction to disposal site operators and has the advantage of being easier to change over time. It is Energy*Solutions* view that fundamental objectives should be included in regulations and details addressed in guidance. This allows the NRC to provide acceptable methods for implementation to the industry as guidance and enables disposal site operators to defend other ways to satisfy the fundamental objectives. As is the case with regulations, development of guidance should provide for the opportunity for public comments on drafts before it is issued for use.

We have identified herein those changes to requirements necessary and sufficient to assess the adequacy of a site for the disposal of depleted uranium:

- The basic requirement for the preparation of a performance assessment that demonstrates compliance with the performance objectives of Subpart C
- Designation of compliance periods, dose standards, and a reasonableness standard for scenarios and assumptions to be used in performance assessments

Any additional details for achieving compliance, particularly those that are site-specific, should be addressed in guidance. The subject Federal Register notice addressed a number of issues for consideration in this rulemaking, e.g., geochemical parameters, impacts of radon gas releases, and details of performance assessments. These and any other issues apart from the ones listed above should be addressed in NRC guidance.

9. Classification of Depleted Uranium – Although not the subject of this limited rulemaking, Energy*Solutions* agrees with the determination by the Commission that depleted uranium is and should remain Class A waste. We do not believe any change in waste classification is warranted and recommend that the Commission not take any action in this or subsequent rulemakings to change the classification of depleted uranium.

10. Implementation – It is important that site operators have sufficient time to respond to the new regulations; particularly given that they will directly affect ongoing activities and that the preparation of a rigorous performance assessment is a nontrivial endeavor. Energy*Solutions* proposes that the effective date of the new regulation be 12 months following publication in the Federal Register. The 12-month time period should be requirement for the submittal of the performance assessment and would not include NRC review and approval.

11. Proposed Language to Revise Regulations – Energy*Solutions* proposes the following specific modifications to NRC regulations to implement the direction of the Commission (proposed new language shown in underline and deletions in ~~strikethrough~~).

Performance Assessment. In order to implement the basic requirement to prepare a site-specific performance assessment, we propose that a new paragraph 10 CFR 61.55(a)(9) be added to read:

> *Performance Assessment.* Prior to the disposal of waste containing isotopes not listed above in Table 1 or Table 2, a site-specific performance assessment shall be prepared and submitted for Commission approval to demonstrate that the performance objectives of Subpart C of this part will be met. The performance assessment shall:
>
> *(i)* Address isotopic content of all waste disposed, including but not limited to the isotopes listed above in Table 1 and Table 2.
>
> *(ii)* Be updated for Commission approval at least once in every five-year period unless the disposal site operator justifies an alternative period.
>
> *(iii)* Address the analyses listed in § 61.13 and be performed for a compliance period of 10,000 years using reasonably foreseeable assumptions and scenarios. If the peak dose occurs after 10,000 years, a qualitative analysis shall be prepared up to the time of the peak dose for consideration in the site's environmental evaluation.

The beauty of this approach is that it links the preparation of a performance assessment to waste classification by imposing the new requirement only in the event of disposal of wastes not listed in Tables 1 and 2. Thus it specifically addresses the intent of the limited rulemaking to consider the disposal of significant quantities of depleted uranium and other unique waste streams that may not have been contemplated in the development of existing regulations. It also obviates any need to specifically define a unique waste stream. Furthermore, it permits disposal site operators to limit the waste they accept and avoid the burden of the new requirement.

A more global and technically elegant approach would be to add virtually the same language (minus the opening clause referencing isotopes not listed in Tables 1 and 2) to 10 CFR 61.13, *Technical Analyses*, as a new § 61.13(e). This would have the net effect of requiring all persons desiring a license under Part 61 to prepare a performance assessment. Although this goes beyond the scope of the limited rulemaking, it would go far towards the larger objective articulated by the Commission in the SRM of risk informing Part 61.

Intruder Dose. In order to implement the proposed requirement that an intruder dose be specified in regulation, we propose that 10 CFR 61.42 be modified to read:

> Design, operation, and closure of the land disposal facility must ensure protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed. The annual dose to an intruder must not exceed 500 millirems total effective dose equivalent for a compliance period of 10,000 years.

Dose Methodology Update. In order to update Subpart C to incorporate more current dose calculation methodology, we propose that 10 CFR 61.41 be modified to read:

> Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems total effective dose equivalent for a compliance period of 10,000 years to ~~25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of~~ any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

NUCLEAR ENERGY INSTITUTE

6/24/09
74FR 30175
18

Felix M. Killar, Jr.
SENIOR DIRECTOR
FUEL SUPPLY/MATERIAL LICENSEES
NUCLEAR GENERATION DIVISION

October 30, 2009

Mr. Michael Lesar
Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M
Washington, D.C. 20555-0001

Subject: Industry Response to NRC Questions on the Disposal of Large Quantities of Depleted Uranium as stated in 74FR30175 dated June 24, 2009

Project Code: 689

Dear Mr. Lesar:

On behalf of industry, the Nuclear Energy Institute[1] (NEI) offers the enclosed responses to the questions noticed in the *Federal Register* on June 24, 2009 (74FR30175). We offer the general comments below and the enclosed specific responses to the questions. We trust that U.S. Nuclear Regulatory Commission (NRC) staff will find this information useful as it proceeds to potentially develop the technical basis for a proposed rule that would require site-specific analysis for the disposal of large quantities of depleted uranium.

We appreciate the time and effort that the NRC expended to solicit participation from a wide variety of stakeholders and conduct the very professional roundtable workshops in Maryland and Utah. Since the earlier workshops were focused on the potential proposed rule, we suggest that the NRC

[1] The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

SUNSI Review Complete
E-RIDS=ADM-03
Add = C. Grossman (CSG2)

1776 I Street, NW | Suite 400 | Washington, DC | 20006-3708 | P: 202.739.8126 | F: 202.533.0157 | fmk@nei.org | www.nei.org

Template = ADM-013
B. Traynham (BNT2)
P. Yadav (PBY)

consider conducting an additional roundtable workshop with technical experts who can provide detailed information on the myriad of issues that should be addressed in a guidance document and not the rule, e.g., geochemical factors, waste stabilization practices, and exposure scenarios. As such, we suggest that this workshop be held before the NRC issues the draft guidance for comment to better inform the drafting process.

We offer the following general comments for your consideration. First, it is not evident that a rulemaking is needed to affect the outcome that the NRC is seeking based on a review of the current Part 61 requirements and corresponding Agreement State regulations, which must be adequate and compatible with the NRC's rule, and current regulatory oversight. Further, there is no evidence to suggest that the current regulatory framework is not providing adequate protection to public health and safety or the environment. That being said, various representatives supported the September workshops as this matter is important to nuclear industry as a whole and the opportunity to provide such input then and now is appreciated.

Secondly, industry believes that any NRC rule on the disposal of large quantities of depleted uranium or other waste streams should be risk-informed and performance-based. Specifically, since the performance objectives in Part 61 already apply to waste disposal sites, any additional rule language should be kept to a minimum, e.g., require a site-specific assessment, period of performance and intruder dose limit, while leaving the engineering decisions and technical approaches at the discretion of the licensed waste site operator. The licensee's role is to demonstrate and provide the NRC or the Agreement State reasonable assurance that the performance objectives and standards can be met if implemented as described, which the regulator would then confirm through inspection as Agreement States do today. In addition, the supporting guidance should encourage and not inadvertently dissuade licensees to evaluate and consider unique site features, characteristics and practices that, when utilized, support the site performance assessment.

Third, as stated during the September 2009 public workshops, industry does not support including a definition of "unique waste stream" or "significant quantities" in the rule. The origin of the waste is irrelevant and its characteristics such as radionuclide concentration, volumes, waste form, etc., are all factors that would be considered by the applicant in its site-specific performance assessment and evaluated by the regulatory authority.

Finally, industry has the authority and responsibility to safely manage its inventories of depleted uranium or other waste streams. As such, it should not be assumed that current or future inventories of depleted uranium will be destined for permanent disposal since it can be considered a resource by its owner who makes decisions on its management based on current and future market conditions.

In summary, we appreciate the opportunity to provide further input and look forward to additional dialogue with NRC on these important matters. If you would like to discuss these matters further,

you may contact me at 202.739.8126 or fmk@nei.org or Janet Schlueter at 202.739.8098 or jrs@nei.org.

Sincerely,

Felix M. Killar, Jr.

Attachment

c: Mr. Larry Camper, FSME/DWMEP
Ms. Priya Yadav, FSME/DWMEP

Attachment

Industry Responses to NRC Questions on Disposal of Large Quantities of Depleted Uranium as discussed in 74FR30175 issued June 24, 2009

Question II–1.1—Should the NRC propose a regulatory definition to (a) specify general criteria that would capture both current and foreseeable unique waste streams; or (b) limit the definition to a known set of current unique waste streams including significant quantities of depleted uranium? What characteristics should NRC propose as defining for unique waste streams?

No. As discussed during the September workshops, industry does not support the inclusion of a definition of "unique waste stream" in the proposed or final rule which was the subject of the workshop. Defining a "unique waste stream" is unnecessary, potentially arbitrary, and could inadvertently preclude the disposal of yet-to-be developed or identified waste streams that would meet applicable disposal requirements. Instead, waste disposal site applicants and licensees should be required to meet the applicable performance objectives contained in Part 61 regardless of the origin of the waste stream.

Question II–1.2—What waste streams containing radionuclides listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in quantities significantly greater than initially considered in the development of 10 CFR Part 61?

Industry is not aware of any information to suggest that there are waste streams containing radionuclides, listed in the waste classification tables, which are currently being disposed of in significant quantities greater than initially considered in the development of 10 CFR Part 61 and which pose any threat to public health and safety or the environment.

Question II–1.3—What waste streams containing radionuclides that are not listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in concentrations or quantities significantly greater than initially considered in the development of 10 CFR Part 61?

Question II–1.4—What waste streams that were not considered in the initial development of 10 CFR Part 61 should be considered under the definition of "unique waste streams"?

Question II–1.5—Should the NRC consider waste streams that result from spent fuel reprocessing and are not high-level or greater-than-class C waste in the definition of "unique waste streams"?

Question II–1.6—Are there other characteristics besides concentration and quantity that NRC should consider when defining "unique waste streams"?

Response to Questions II – 1.3 - 1.6

Currently, and in the foreseeable future, there may be a need to dispose of depleted uranium from commercial and government inventories in quantities that are potentially greater than initially considered in the development of 10 CFR 61, based on the information contained in this FRN and SECY-08-0147. However, it should be recognized that holders or owners of depleted uranium may consider it to be a resource depending on current or future market conditions. As such, current and

future inventories may or may not be destined for permanent disposal. Finally, industry is not aware of any information to suggest that there are other waste streams that are currently or could be in the foreseeable future being disposed of in concentrations or quantities significantly greater than those considered during the development of Part 61. As stated previously, defining a "unique waste stream" is unnecessary, potentially arbitrary, and could inadvertently preclude the disposal of yet-to-be developed or identified waste streams that would meet applicable disposal requirements.

Question II–2.1—Should the NRC (a) specify a single time period to evaluate the performance of facilities disposing of all unique waste streams in the near surface; (b) specify criteria requiring the consideration of how the hazard for each unique waste stream evolves over time; or (c) permit a licensee to justify a period of performance?

Question II–2.2—If NRC were to specify a single time period for site specific analysis of facilities disposing of unique waste streams in the near surface, what would be an appropriate period? What factors should NRC consider in determining a single time period of performance?

Question II–2.3—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time for each unique waste stream, what factors should NRC consider in determining these criteria?

Question II–2.4—If NRC were to permit a licensee to justify a time period of performance, what factors should NRC consider when evaluating a licensee's justification?

Question II–2.5—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a time period of performance, should the NRC consider limiting the maximum extent of the time period considered? If so, what factors should NRC consider when specifying a maximum period of performance?

Question II–2.6—What other approaches might NRC consider when specifying criteria for a period of performance for facilities disposing of unique waste streams in the near surface?

Response to Question II – 2.1-2.6

There are advantages and disadvantages of specifying the period of performance for disposal facilities utilizing near surface disposal methods in the rule versus the guidance. However, industry generally supports specifying the period of performance in the rule for consistency across the disposal facilities nationwide and to provide for a more transparent and predictable regulatory process. Industry suggests that the period of performance be set at 10,000 years for consistency with NRC's existing regulatory guidance for low-level waste disposal facilities and other federal regulations, e.g., 40 CFR 191 and the Uranium Mill Tailings Radiation Control Act. Industry does not support specifying criteria for hazards analysis in the rule. This level of detail and information on how to comply with the performance objectives is more appropriate for a guidance document.

As with any period of performance to demonstrate regulatory compliance, it is best to identify a time period where the regulator can determine and the licensee can demonstrate with reasonable assurance, and using current technology and methodology, that the applicable regulatory release and exposure limits can be met. It is also important that the rule allow for a risk-informed and

performance-based approach by the applicant or licensee to demonstrate compliance with applicable standards.

NRC should not specify any such criteria in the rule. Any criteria related to evaluating the evolution of a waste stream over time should be included in a guidance document, if at all, that is performance based and not prescriptive, or radionuclide or waste stream specific. The licensee should be required to demonstrate that the applicable regulatory limits or requirements can be met regardless of its characteristics, e.g., waste origin, quantity, concentration, radionuclide concentration, and the regulator's role is to verify that the approach proposed by the licensee can, theoretically, be met which would then be verified through inspection. NRC should solicit additional stakeholder input through focused and well orchestrated public roundtable workshops, such as those conducted in September 2009, to gather information from experts on such technical matters before issuing the draft guidance for comment. Finally, as stated above, industry does not support the specification of criteria for the period of performance in the rule.

Question II–3.1—Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting members of the public for unique waste streams?

Industry believes that NRC should permit licensees to justify site-specific exposure scenarios for demonstrating compliance with the applicable performance objectives. Each site may have unique characteristics based on its geographic location, geologic features, local zoning ordinances and preferences by its residents and elected officials, State oversight, level of community involvement, activities at adjacent facilities or properties, etc. that would need to be considered when demonstrating compliance with the performance objectives.

What factors should NRC consider in specifying technical criteria or reviewing licensee justifications for exposure scenarios associated with members of the public?

Licensees should be expected to use realistically conservative assumptions in any dose modeling or exposure scenario calculations and NRC should verify the appropriateness and completeness of these assumptions. However, this approach should be performance-based, in that, the applicable regulatory requirements including radionuclide release limits and radiation exposure limits must be demonstrated to be met and verified through inspection. NRC should solicit additional stakeholder input through focused and well orchestrated public roundtable workshops, such as those conducted in September 2009, to gather information from experts on such technical matters before issuing the draft guidance for comment.

Question II–3.2—Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting individuals from inadvertent intrusion for unique waste streams?

What factors should NRC consider in specifying technical criteria, or reviewing licensee justifications, for inadvertent intruder exposure scenarios?

As stated in response to Question II-3.1, each site may have unique characteristics. Such characteristics may have a direct or indirect bearing on the likelihood and consequences of, timeline associated with, and realistically conservative assumptions associated with an inadvertent intrusion scenario. However, similar to the issue of a period of performance, industry generally supports including an intruder dose limit in the rule and suggests that NRC consider setting a 500 millirem per year limit consistent with existing public exposure limits from residual activity at certain sites under

Part 20.1403 and considered during a previous Part 61 rulemaking. NRC should solicit additional stakeholder input through focused and well orchestrated public roundtable workshops, such as those conducted in September 2009, to gather information from experts on such technical matters before issuing the draft guidance for comment.

Question III–1.1—Should NRC specify a lower quantity limit in the definition of "significant quantities" for near surface disposal?

If so, what factors should NRC consider in setting an appropriate lower threshold for near surface disposal?

Question III–1.2—Should NRC specify an upper quantity limit in the definition of "significant quantities"?

If so, what factors should NRC consider in setting an appropriate upper threshold for near surface disposal?

Question III–1.3—Are there alternative methods NRC should consider when specifying criteria to define "significant quantities"?

Response to Question III -- 1.1-1.3

As discussed during the September public workshops, industry does not believe that NRC should attempt to define or set a specific quantitative limit for a "significant" quantity of depleted uranium proposed for disposal. Setting a somewhat arbitrary quantitative limit does not necessarily reflect a risk-informed and site-specific approach nor does it helps licensees or applicants demonstrate compliance with the regulatory performance objectives since site characteristics, waste form, waste concentration and other unique characteristics will need to be considered when determining whether certain quantities of radionuclides can be disposed of at a specific site and whether the performance objectives can be met. As such, an "appropriate lower threshold" may be rendered meaningless and, may also, inadvertently become a defacto regulatory standard.

Question III–2.1—If NRC were to specify a single time period for the site specific analysis of near-surface disposal of unique waste streams (see Question II.2.1), what factors associated with disposal of significant quantities of depleted uranium should NRC consider in determining a single time period of performance for unique waste streams, including significant quantities of depleted uranium?

As stated previously, NRC should solicit additional stakeholder input through focused and well orchestrated public roundtable workshops, such as those conducted in September 2009, to gather information from experts on such technical matters before issuing the draft guidance for comment.

Question III–2.2—If NRC were to specify criteria requiring the consideration of hazards for each unique waste stream evolving over time (see Question II.2.1), what factors should NRC consider in determining these criteria for disposal of significant quantities of depleted uranium?

Industry does not support the specification of criteria for hazards consideration in an NRC rule. As stated previously, the rule should be risk-informed and performance-based and any information to guide applicants or licensees on the type and completeness of information needed to demonstrate compliance with the regulation should be contained in a guidance document.

Question III–2.3—If NRC were to permit a licensee to justify a time period of performance (see Question II.2.1), what factors should NRC consider when evaluating a licensee's justification for disposal of significant quantities of depleted uranium?

Question III–2.4—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a reasonable time period of performance (see Question II–2.1), should the NRC consider limiting the maximum extent of the time period considered for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider when specifying a maximum period of performance?

Question III–2.5—What other approaches might NRC consider when specifying criteria for a period of performance for near-surface disposal of significant quantities of depleted uranium?

Response to Question III -- 2.3-2.5

Industry generally supports including a period of performance in the rule and suggests that NRC considering using 10,000 years consistent with existing NRC guidance.

Question III–3.1—What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee's justification for exposure scenarios for protection of members of the public?

Question III–3.2—What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee's justification for exposure scenarios for the protection of individuals from inadvertent intrusion?

Response to Question III -- 3.1-3.2

Industry has no additional information to provide on this matter at this time. NRC should solicit additional stakeholder input through focused and well orchestrated public roundtable workshops, such as those conducted in September 2009, to gather information from experts on such technical matters before issuing the draft guidance for comment.

Question III–4.1—Should NRC specify or permit licensees to propose physical or chemical forms (e.g., UF6, U3O8, metal) for disposal of significant quantities of depleted uranium?

If so, what factors should NRC consider in specifying criteria for or developing guidance to review an analysis of physical or chemical forms?

NRC should not attempt to specify physical or chemical forms for disposal of significant quantities of depleted uranium in the rule. The rule should set the performance objectives or dose limits to be met with the burden on the applicant or licensee to demonstrate compliance with the applicable limits and regulations. Any criteria for or guidance regarding the analysis of the forms should only be included in a guidance document and not the rule. Again, a focused workshop with experts should be conducted before any draft guidance is issued for public comment.

Question III–4.2—Should NRC specify criteria for, or permit licensees to justify, stabilizing admixtures (e.g., grout) for disposal of significant quantities of depleted uranium?

If so, what factors should NRC consider in specifying criteria for, or developing guidance to review, an analysis of admixtures?

Yes, NRC should allow licensees to add stabilizing admixtures (e.g., grout) to depleted uranium to ensure that the performance objectives can be met. As stated above, the rule should set the performance objectives or dose limits to be met with the burden on the applicant or licensee to demonstrate compliance with the applicable limits and regulations. Any criteria for or guidance regarding the analysis of the forms should only be included in a guidance document and not the rule.

Question III–4.3—What other factors should NRC consider when specifying criteria, or developing technical guidance, regarding waste forms for disposal of significant quantities of depleted uranium in near-surface facilities?

A focused workshop with experts should be conducted before any draft guidance is issued for public comment.

Question III–4.4—Should NRC require a site-specific analysis to capture previously disposed quantities of depleted uranium?

If so, what factors should NRC consider when specifying criteria, or developing technical guidance, regarding previously disposed quantities of depleted uranium?

To date, depleted uranium has been disposed of in accordance with applicable regulations and with the approval of the appropriate regulatory authorities. There is no evidence to suggest that worker, environmental or public health and safety has been compromised since applicable requirements including dose and release limits can be met. That being said, it appears appropriate that NRC require a total site-specific analysis to capture previously disposed quantities of depleted uranium to the degree that this information is readily available or can be calculated bases on available or readily available information. Such quantities of depleted uranium clearly contribute to the overall site performance assessment and the licensee's ability to demonstrate compliance with the applicable performance objectives.

Question III–5.1—Should NRC specify regulatory criteria for, or permit licensees to justify, site-specific geochemical parameters for the analysis of disposal of significant quantities of depleted uranium?

Question III–5.2—If NRC should specify regulatory criteria, then what factors should NRC consider in developing criteria for geochemical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

Question III–5.3—If NRC should permit licensees to justify site-specific geochemical parameters, then what factors should NRC consider when reviewing a licensee's justification?

Question III–5.4—What new or alternative approaches should NRC consider regarding the incorporation of geochemical parameters in a site specific analysis for disposal of significant quantities of depleted uranium?

Response to Question III -- 5.1-5.4

NRC should not specify regulatory criteria on site-specific geochemical parameters for the disposal of depleted uranium or other waste streams since such an approach is not risk-informed or performance-based. Rather, NRC should consider including such technical information in a guidance document that should be developed, as stated previously, based on input gathered through an additional public workshop with technical experts.

Question III–6.1—What new approaches for modeling radon emanation, migration, and exposure pathways, including the effects of differences in the physical and chemical properties between radon and its progeny, should NRC consider?

Question III–6.2—Should NRC require licensees to evaluate the effects of radon in a site-specific analysis for disposal of significant quantities of depleted uranium in near-surface facilities?

Question III–6.3—Should NRC specify by regulation, or develop guidance on, the technical parameters for evaluating radon emanation, migration, and exposure in a site-specific analysis of significant quantities of depleted uranium?
Question III–6.4—If NRC should specify by regulation the technical parameters for evaluating radon emanation, migration, and exposure, what factors should NRC consider in specifying technical parameters for a site-specific analysis for significant quantities of depleted uranium?

Question III–6.5—If NRC should develop guidance on the technical parameters for evaluating radon emanation, migration, and exposures to accompany regulatory criteria, then what factors should NRC consider in the development of guidance for evaluating technical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

Question III–6.6—What societal uncertainties should NRC consider when developing guidance for scenarios of exposure to radon gas released from the disposal of significant quantities of depleted uranium?

Question III–6.7—What alternative methods should NRC consider when developing guidance on evaluating the impacts of radon gas exposures?

For instance, U.S. Environmental Protection Agency standards at 40 CFR Part 192 for the control of residual radioactive materials from inactive uranium mill tailings sites specify that releases of radon-222 to the atmosphere will not exceed an average release rate of 20 picocuries per square meter per second or increase the annual average concentration of radon–222 in air at or above any location outside the disposal site by more than 0.5 picocuries per liter.

Response to Question III -- 6.1-6.7

No, NRC should not require licensees to evaluate and calculate the potential contribution from radon in a site-specific analysis for disposal of large quantities of depleted uranium or other waste streams in near surface facilities. As NRC is aware, radon is ubiquitous and adequately addressed by the Environmental Protection Agency and individual States. NRC has not, and should not; begin to attempt to regulate radon and its contribution to dose by requiring licensees to consider its contribution to any source of exposure regulated by NRC, e.g., uranium mining and milling, industrial, medical, low-level waste disposal, etc.

Mendiola, Doris

From: Diane D'Arrigo [dianed@nirs.org]
Sent: Friday, October 30, 2009 10:40 PM
To: Rulemaking Comments; francis.cameron@nrc.gov.
Cc: Diane D'Arrigo; pryors02@suddenlink.net
Subject: Comment on Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium (Document ID NRC-2009-0257-0001)
Attachments: NIRS NBFB DU comments.doc

6/24/09
74 FR 30175 (19)

Comment on
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium (Document ID NRC-2009-0257-0001)

Federal Register /Vol. 74, No. 120 /Wednesday, June 24, 2009 /Notices **30175**

Nuclear Information and Resource Service and No Bonds for Billionaires oppose the categorization of Depleted Uranium as "low-level" radioactive waste, especially as Class A "low-level" radioactive waste. It is hazardous for longer than institutional control periods for licensed nuclear waste dumps such as proposed in Andrews TX. Its length of hazard exceeds the projected hazardous time periods for Classes A, B and C radioactive waste (100, 300 and 500 years respectively). We have been concerned that the waste already in those classes will be hazardous much longer than it can be isolated from the environment, the public and precious water supplies. We support comments of IEER (Institute for Energy and Environmental Research), submitted to this docket separately http://www.ieer.org/comments/DUcomments2009.pdf.

Regarding rulemaking on 10 CFR 61, we oppose unjustified piecemeal additions of "Unique Waste Streams Including Significant Quantities of Depleted Uranium" to the already inappropriately long-lasting waste in the so-called "low-level" waste classes. We support removing all wastes that remain radioactive longer than the active institutional control period from inclusion in the so-called "low-level" waste classes.

Diane D'Arrigo
Nuclear Information and Resource Service
Takoma Park MD
dianed@nirs.org

Peggy and Melodye Pryor
No Bonds for Billionaires
Andrews TX
pryors02@suddenlink.net

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
add = C. Grossman (CSG2)
B. Traynham (BNT1)
P. Yadav (PPY)

Nuclear Information and Resource Service
No Bonds for Billionaires

Comment on

Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium (Document ID NRC-2009-0257-0001)
Federal Register /Vol. 74, No. 120 /Wednesday, June 24, 2009 /Notices **30175**

Nuclear Information and Resource Service and No Bonds for Billionaires oppose the categorization of Depleted Uranium as "low-level" radioactive waste, especially as Class A "low-level" radioactive waste. It is hazardous for longer than institutional control periods for licensed nuclear waste dumps such as proposed in Andrews TX. Its length of hazard exceeds the projected hazardous time periods for Classes A, B and C radioactive waste (100, 300 and 500 years respectively). We have been concerned that the waste already in those classes will be hazardous much longer than it can be isolated from the environment, the public and precious water supplies. We support comments of IEER (Institute for Energy and Environmental Research), submitted to this docket separately http://www.ieer.org/comments/DUcomments2009.pdf.

Regarding rulemaking on 10 CFR 61, we oppose unjustified piecemeal additions of "Unique Waste Streams Including Significant Quantities of Depleted Uranium" to the already inappropriately long-lasting waste in the so-called "low-level" waste classes. We support removing all wastes that remain radioactive longer than the active institutional control period from inclusion in the so-called "low-level" waste classes.

Diane D'Arrigo
Nuclear Information and Resource Service
Takoma Park MD
dianed@nirs.org

Peggy and Melodye Pryor
No Bonds for Billionaires
Andrews TX
pryors02@suddenlink.net

6/24/09
74 FR 30175
(20)

TALISMAN
INTERNATIONAL, LLC

October 30, 2009

RECEIVED
2009 NOV -2 PM 12:36
RULES AND DIRECTIVES BRANCH

Michael Lesar
Chief, Rulemaking and Directive Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: Comments on Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium – 74 FR 30175

Dear Mr. Lesar:

We are filing these comments on behalf of Talisman International, LLC, in response to the subject notice. In our view, it is important to establish a clear requirement in 10 CFR Part 61 to perform performance assessments to ensure sites meet the performance objectives of Part 61. In that regard, there are several fundamental changes that need to be made to Part 61 to strengthen that requirement. Other matters to improve the implementation of Part 61 can be treated by NRC guidance. Our comments are contained in the attachment.

Questions regarding these comments may be directed to Jim Lieberman at (301) 299-3607 or jl@lieblet.com and to John Greeves at (301) 452-3511 or greevesj@aol.com.

Sincerely,

Jim Lieberman

Jim Lieberman
Senior Regulatory Nuclear Consultant

John Greeves

John Greeves
Senior Regulatory Nuclear Consultant

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = C. Greenman (CSG2)
B. Traynham (BNT1)
P. Yadav (PPY)

Comments on Potential Rulemaking

Safe Disposal of Unique Waste Streams including Significant Quantities of Depleted Uranium

We support the concept of a rulemaking to specify a requirement for a site-specific analysis and associated technical requirements for the disposal of significant quantities of depleted uranium as directed by the Commission in *Staff Requirements—SECY–08–0147—Response to Commission Order CLI–05–20 Regarding Depleted Uranium.*

1) <u>10 CFR 61.13</u>

The issue before the Commission is what changes should be made to 10 CFR Part 61 to ensure that large quantities of depleted uranium and other unique waste streams are disposed safely. In our view the solution to this issue is to a large degree clarifying the requirements to perform a site specific performance assessment demonstrating that the performance objectives of Part 61 are met. This is consistent with the view of the Commission in the Louisiana Energy Services proceeding, CLI-05-05 at page 11, January 18, 2005, that:

> In the end, the "bottom line for disposal" of low-level radioactive wastes are the *performance objectives* of 10 C.F.R. Subpart C, which set forth the ultimate standards and radiation limits for (1) protection of the general population from releases of radioactivity; (2) protection of individuals from inadvertent intrusion; (3) protection of individuals during operations; (4) and stability of the disposal site after closure. Thus, while there may not yet be detailed technical criteria established for all of the kinds of land disposal that might be proposed under Part 61, criteria can be developed "on a case-by-case basis," as needed. After all, any technical requirements are "intended to help ensure that the performance objectives established in Subpart C are met," but they are "not the end in themselves, ... [only] a means of achieving the end," which are the performance standards. (Citations omitted)

Currently, 10 CFR 61.12 and 13 addresses the need to demonstrate that the performance objectives will be met. However, these provisions have been interpreted by some to not require the submittal of a site specific performance assessment. As to protection against the intruder, NRC appears to have accepted the provisions of 10 CFR 61.52 (a)(2) for either five meter depth or the 500 year intruder barrier to meet the performance objectives of 10 CFR 61.42. While these depths and barriers may be sufficient in many cases to meet the performance objectives, without a site specific performance assessment there is not assurance that the performance objectives will be met for all waste packages regardless of the radionuclides.

Therefore, we recommend that 10 CFR61.13 be clarified to require that the analyses required to demonstrate that the performance objectives of subpart C of part 61.41 and 61.42 will be met include a site specific performance assessment. We also recommend

that there be periodic updating of the performance assessment to reflect changed conditions at the site, past disposal history, and new methodology, if any. This is consistent with the approach taken by DOE at its disposal sites under DOE Order 435.1.

In addition, we recommend that this amendment adopts a Part 61 compliance a period of 10,000 years consistent with NUREG 1573 and 40 CFR 191. However, recognizing the peak dose may occur after this period, we recommend that the rule require a qualitative analysis if the peak occurs beyond 10,000 years for input into the environmental analysis consistent with section 3.2.3 of NUREG-1573, A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities (2000), to determine if there is a need for environmental mitigation. This is also consistent with Section IV.A.6 of the Decommissioning Criteria for the West Valley Demonstration Project at the West valley Site (67 FR 5003, 5006, Feb 1, 2002). See also section 4.1.1.1 of NUREG-1854, NRC Staff Guidance for Activities Related to US DOE Waste Determinations (2007). A period of compliance in the rule would assure consistent assessment of compliance by all parties.

Recognizing that performance assessments require the use of assumptions and scenarios, we also recommend that the proposed language provides that the assumptions and scenarios used in performance assessments be reasonably foreseeable to avoid undue speculation and overly conservative approaches. NRC should permit licensees to justify, site-specific assumptions and exposure scenarios based on reasonably foreseeable circumstances to evaluate the critical group that could reasonable encounter material that is released from the disposal cell after the institutional control period based on reasonably foreseeable circumstances. This would include residential use; farming; resident farming; and any other reasonable use consistent with the current environment of the specific site. For example, a site would not be expected to consider a groundwater pathway if the groundwater was not useable for irrigation or human consumption. In addition, the assumptions for the performance analyses would not need to project changes in society, the biosphere, human biology, or increases or decreases of human knowledge or technology except for foreseeable changes to the geology, hydrology, and climate based upon cautious, but reasonable assumptions of the changes in these factors that could affect the disposal site. The actual details for performing performance assessments consistent with the regulatory language would be treated in NRC guidance which can be updated periodically by the NRC without a rule change.

Specifically, we would recommend that the introductory sentence of 10 CFR 61.13 be amended to read:

> **The specific technical information must also include ~~the following analyses needed to demonstrate that the performance objectives of subpart C will be met:~~ a site specific performance assessment to demonstrate that the performance objectives of subpart C of this part will be met. The performance assessment would need to be updated for Commission approval at a five year frequency unless the license provides an alternative period for updating it. The performance assessment shall include the following analyses**

and be preformed for a compliance period of 10,000 years using reasonably foreseeable assumptions and scenarios. If the peak dose occurs after 10,000 years, a qualitative analysis shall be prepared up to the time of the peak dose for consideration in the site's environmental evaluation.

2) 10 CFR 61.13 (b)

An important aspect of the performance assessment is to demonstrate that the performance objective for the intruder is met. Demonstration of meeting the applicable performance objective is currently in paragraph (a). Therefore, we recommend that the requirements for the analysis required in 10 CFR 61.13 (b) be amended to be consistent with section 61.13(a). Section 61.13(b) would read:

(b) Analyses of the protection of individuals from inadvertent intrusion must include demonstration that there is reasonable assurance the waste classification and segregation requirements will be met and that adequate barriers to inadvertent intrusion will be provided. The analyses must clearly identify and differentiate between the roles performed by the natural disposal site characteristics and design features in isolating and segregating the wastes. The analyses must clearly demonstrate that there is reasonable assurance that the exposure to humans from the release of radioactivity will not exceed the limits set forth in § 61.42.

3) 10 CFR 61.41

We recommend that an amendment to section 61.41 be made to update the annual dose methodology to the newer methodology of ICRP 26 and 30 used in 10 CFR Part 20 rather than the methodology used in Part 61 based on ICRP 2 recommendations. This is consistent with the approach taken in sections 3.3.7.1.2 and 3.3.7.3.1 of NUREG 1573; footnote 6 of the Decommissioning Criteria for the West Valley Demonstration Project at the West Valley Site (67 FR 5003, 5005, Feb 1, 2002); and section 4.6.1.3 of NUREG-1854.

In addition, section 61.41 should be amended to be consistent with the period of compliance stated in the proposed amendment to 10 CFR 61.13. Section 61.41 would read:

Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems total effective dose equivalent for a compliance period of 10,000 years ~~25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of~~ to any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

4) 10 CFR 61.42

10 CFR 61.42 currently requires "...protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste;" however, the regulations are silent on the specific dose standard to apply. We recommend that section 61.42 be amended to provide a dose standard for an intruder of 500 mr/yr. This would provide in the rule the dose standard that currently is only stated in guidance. It is noted that the 500 millirem was the standard proposed in Part 61 in 1981. (46 FR 38081, July 24, 1981). The Statement of Considerations for the final rule did not object to the number. It was removed apparently at the request of EPA because of its concern of how one would monitor it or demonstrate compliance with it, but not because EPA disagreed with it. (47 FR57446, 57449 , December 27, 1982). A dose standard of 500 mr/yr is also used as part of the license termination rule dose standard for intruders (10 CFR 20.1403). A dose objective would assure consistent assessment of compliance by all parties. Section 61.42 would read:

> **Design, operation, and closure of the land disposal facility must ensure protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed. The intrusion must not result in an annual dose exceeding an equivalent of 500 millirems total effective dose equivalent for a compliance period of 10,000 years.**

5) 10 CFR 61.55

If the Commission adopts the above changes, performance assessments would be the norm for disposal sites. However, such performance assessments would be performed initially when the applicant applied for its license and then periodically thereafter. There could be a situation where a licensee desired to dispose of depleted uranium or other radionuclide not addressed in the tables under situations where either the performance assessment had not considered the depleted uranium or other radionuclide, or the performance assessment had yet to be performed. This could be addressed by establishing a requirement that would provide for a site specific performance assessment if the quantity of the radionuclide to be disposed had not been previously considered in a performance assessment approved by the NRC. Such a performance assessment would need to meet the amended provisions discussed above. However, this does not necessarily mean that a new performance assessment would need to be developed. Depending on the scope and detail of an existing performance assessment, a current performance assessment may only need minor changes to update it to include the new radionuclide.

We recommend that 10 CFR 61.55 (a)(6) be amended to read:

> **(6) Classification of wastes with radionuclides other than those listed in Tables 1 and 2. If radioactive waste does not contain any nuclides listed in**

either Table 1 or 2, it is Class A. However, before such waste can be disposed a performance assessment must be approved by the Commission.

6) Definition of Significant Quantity and Unique Waste Stream

The subject Federal Register notice sought input on how the NRC should define a "significant quantity" of depleted uranium and unique waste streams. In light of the recommended changes discussed above, it is unnecessary to define these terms as the performance assessment will address them.

7) Guidance vs. Regulation

Regulations provide for certainty, consistency, and enforceability. However, changing regulations entails significant effort and time. Guidance while not directly enforceable is easier to change over time. Consequently, it is our view that the fundamental objectives should be in regulations leaving the details for guidance. This leaves the regulator in the position to offer its positions on implementation to the industry as guidance and the industry the ability to defend other ways to implement the fundamental objectives. However, it is important that the development of guidance like regulations involve public input that would allow for public comments on drafts before such guidance is issued for use by either the staff or industry.

Accordingly, we recommend as indicated above that requirements include the need to demonstrate meeting of performance objectives through performance assessments, compliance periods, dose standards, and the standard for scenarios and assumptions used in performance assessments. However, the details for achieving compliance which are often site related should be in guidance. In that regard, the subject Federal Register notice addressed a number of issues for consideration in this rulemaking, e.g., geochemical parameters, impacts of radon gas releases, and details of performance assessments. In our view, the issues other than the ones we addressed above should be addressed in NRC guidance and not made a part of this rulemaking.

8) Implementation

It is recognized that existing licensees may need an appropriate time period to prepare quality performance assessments so that ongoing operations will not be unduly interrupted. It is suggested that the effective date be 12 months after publication in the Federal Register. However, recognizing it is difficult to predict how long it may take for a regulator to review and approve a performance assessment, the rule should provide that disposals made after the effective date may be made if the required performance assessment was submitted for approval at least six months prior to the effective date.

LES

urenco

6/24/09
74FR 30175

NOV 0 2 2009

NEF-09-00209-NRC

(21)

RECEIVED
2009 NOV -3 PM 2:42
RULES AND DIRECTIVES BRANCH

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M
Washington, DC 20555-0001

Louisiana Energy Services, LLC
NRC Docket 70-3103

Subject: Louisiana Energy Services, LLC, National Enrichment Facility
Submittal of Comments on Proposed Rulemaking

Reference: 1) Federal Register Notice (FRN), Wednesday, June 24, 2009, Page 30175

As identified in Reference 1, the U. S. Nuclear Regulatory Commission (NRC) has proposed rulemaking relative to safe disposal of unique waste streams including significant quantities of depleted uranium. The NRC staff has also invited comments on both the issues and questions presented in the FRN.

Louisiana Energy Services, LLC (LES) is hereby submitting written comments on the issues and questions discussed in the FRN. General comments on the issues and specific comments on the questions are included in Enclosure 1.

LES supported the recently held depleted uranium rulemaking workshops sponsored by the NRC, however, given the Performance Objectives in 10 CFR 61, Subpart C, LES does not believe additional rulemaking is necessary.

Furthermore, in regard to "unique waste streams", LES does not believe it practical or prudent to attempt to define unique waste streams at present or for the foreseeable future. LES supports a performance-based approach to waste streams using existing performance objectives to make determinations for regulatory compliance regarding disposal.

LES believes that the language involving "significant quantities" should be discontinued. NRC staff has not provided a proposed definition of the term, which leaves it open for interpretation. Previous industry experience with ambiguous regulatory language has resulted in numerous interpretations, confusion and a lack of consistent implementation.

SUNSI Review Complete
Template - ADM-013

E-RIDS = ADM-03
Add - C. Grossman (CSG2)
B. Baynham (BNT2)
P. Yadav (PPY)

Should you have any questions related to this submittal, please contact Mr. Stephen R. Cowne, Director, Quality and Regulatory Affairs at 575.394.5253.

Respectfully,

Gregory OD Smith
Chief Operating Officer and Chief Nuclear Officer

Enclosure: As stated

Enclosure 1

LES Comments Regarding Federal Register Notice, Wednesday June 24, 2009, Page 30175

Issue General Comments

Issue General Comment Summary:

- LES believes that depleted uranium (DU), when not considered a resource, is properly characterized as a Class A low level radioactive waste.

- LES does not believe that rulemaking, even limited rulemaking, is necessary to ensure the Performance Objectives of 10 CFR 61 Subpart C are met to protect public health and safety.

- Rulemaking cannot occur in a vacuum. Cost-benefit analysis and backfit assessments must be integral parts considered for any new proposed rulemaking when the potential outcome of the rulemaking can impact financial and business models which precede the proposed rulemaking.

- The actual decision to proceed with a rulemaking, even one of limited scope, should follow and reflect careful consideration of stakeholder input from the public workshops and this Federal Register Notice (FRN) comment period—the Commission should be willing to reconsider the need for rulemaking based on the results of the comments received.

- LES is prepared to work with the NRC to engage and discuss the issues regarding depleted uranium.

Characterization of Depleted Uranium (DU)

LES believes the current NRC characterization of DU is correct:

- On March 18, 2009 a majority of the NRC Commissioners voted to retain the Class A low level radioactive waste classification of DU. This recent NRC action was not a change to the classification of DU. It has been regulated as Class A waste for decades. With its March 18 vote, the NRC merely reaffirmed the existing Class A classification.

- LES agrees with and supports the Commission characterization of depleted uranium as a Class A low level waste, when no longer considered a resource.

- LES appropriately retains the authority and responsibility to declare when depleted uranium is no longer considered a resource for the owner and is allowed to base those decisions on current and future market conditions.

Rulemaking

LES believes there is no need for additional rulemaking, even limited rulemaking, to address the issue of site-specific analysis for waste streams at present or for future waste streams for the following reasons:

- Rulemaking is not required as current regulations include appropriate Performance Objectives for maintaining public health and safety

- The Performance Objectives in 10 CFR 61, Subpart C identify current compliance requirements with regulations for land disposal of low level radioactive waste (LLW).

- The 10 CFR 61 Performance Objectives detail the required criteria for low level waste facilities with regards to protection of public heath and safety.

- Current low level radioactive waste land disposal facilities must meet the 10 CFR 61 Performance Objectives.

- The fact that depleted uranium is classified as Class A waste only means that it is eligible for near-surface land disposal, and not that near-surface disposal may be appropriate for depleted uranium under all conditions. In order to dispose of Class A waste, a particular near surface disposal facility receiving the waste must currently meet the Performance Objectives and applicable technical standards in 10 CFR 61.

- In order to meet the Performance Objectives, analysis presumably must be currently performed to ensure that from both an incremental receipt shipment contribution and cumulative facility perspective, the Performance Objectives remain satisfied.

- Most of the technical issues discussed in the Federal Register Notice (74 Fed. Reg. 30175 (June 24, 2009)) could be addressed in an NRC guidance document and does not require rulemaking for implementation. This guidance approach would also allow the NRC more flexibility to adjust the guidance as new waste streams or new waste processing and disposal techniques arise without new rulemaking to implement rule revisions.

- An enhanced regulatory guidance document for Performance Objective compliance assurance for low level radioactive waste facilities may be valuable to the stakeholders. This could include scoping and assessment guidance for important attributes, such as climatic, hydrological, geotechnical and geochemical conditions regarding waste stream disposal and provide for a common and systematic assessment process.

- Bounding analyses could also be conducted for different applications and then applied to any particular set of circumstances, in a manner similar to a previously approved Generic/Programmatic Environmental Impact Statements. These scoping and analytical techniques can also be provided in a regulatory guidance document.

- Agreement States that are likely to receive depleted uranium as a low level radioactive waste, such as Utah and Texas, currently have the statutory and regulatory authority necessary to require additional analyses of depleted uranium waste streams to ensure public health and safety and protection of the environment.

- Additionally, prior to allowing a local licensed disposal site to accept depleted uranium, the State of Utah presumably determined that disposing of depleted uranium at the local licensed LLW disposal site met the Performance Objectives of 10 CFR 61. Further, the Utah Division of Radiological Control has not placed volume restrictions on the disposal of significant quantities of depleted uranium in oxide form (depleted U_3O_8) at the local licensed LLW disposal facility.

Cost-Benefit Analysis and Backfitting

LES believes this proposed rulemaking cannot occur in a vacuum. Cost-benefit analysis must be included as an integral part of rulemaking and is currently not addressed in this proposed rulemaking:

- Depleted uranium disposal costs are important financial variables in business modeling for uranium enrichment companies.

- Depleted uranium disposal costs are factored into decommissioning cost estimates and are translated into the decommissioning funding instruments required by regulations.

- Additional costs to uranium enrichment companies imposed by proposed rulemaking outputs must be considered relative to the analyzed benefit for those increased costs.

- Cost-benefit analysis related to avoided radiation dose is not a novel concept as cost-benefit models and equivalent dose cost assignments are currently prescribed for nuclear reactor radioactive waste management systems and equipment. In 10 CFR 50 Appendix I, cost-benefit analyses are performed for liquid and gaseous radioactive waste systems for reactor plants to determine the cost and benefit of additional radioactive waste processing equipment to compare dose reduction with capital, operating and maintenance costs. An assignment of $1000 per total body man-rem and $1000 per man-thyroid-rem is used in the analysis. The proposed rulemaking should require similar analysis to assess the cost and benefit

of any potential for avoided dose with respect to any increase in disposal costs and funding those costs through the decommissioning funding instruments.

Additionally, LES believes that a potential backfit issue exists with this proposed rulemaking and the Materials License issued to LES under, among other parts of the Code, 10 CFR 70.

- Any proposed new requirements for disposal of depleted uranium could raise a backfitting issue, and the NRC may need to prepare a backfitting analysis meeting the cost-benefit standards of 10 CFR 70.76.

- 10 CFR 70.76(a)(1) defines "backfitting" as "the modification of, or addition to, systems, structures, or components of a facility; or to the procedures or organization required to operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previous NRC staff position."

- If the NRC imposes new requirements on the procedures by which licensed uranium enrichment facilities can dispose of depleted uranium, then the new requirements should invoke the backfitting rule and require the NRC to perform the cost-benefit analysis described in the regulation to justify any new disposal requirements.

General Comment Conclusions

- LES agrees that the characterization of depleted uranium, as defined in the current regulatory structure, is correct and appropriate.

- LES also believes that the current regulatory framework is sufficiently robust to not require additional rulemaking related to site-specific analysis for waste streams. This is due to the fact the existing 10 CFR 61 Subpart C Performance Objectives are, and will remain, the standard by which low level radioactive waste facilities are licensed and operated. These Performance Objectives are currently being satisfied through licensee assessment, thus making additional rulemaking unwarranted.

- Agreement States most likely to receive the depleted uranium as a waste stream currently have the authority to have site specific analysis performed and available for review by regulatory authorities in order to protect public health and safety. This eliminates the need for the proposed rulemaking suggested by the NRC.

- LES believes any proposed rulemaking effort must include a rigorous cost-benefit analysis. There is precedent in 10 CFR 50, Appendix I for evaluating radioactive waste systems and equipment against an avoided dose (which has been assigned a

cost from a man-rem perspective) to determine if additional waste treatment systems are warranted. Similar logic should prevail in this proposed rulemaking.

- LES believes this proposed rulemaking must be reviewed in light of backfit regulations and provisions in 10 CFR 70.76. Potential changes to waste stream disposal plans that can alter financial cost models for Material License holders must be evaluated using backfit regulations in 10 CFR 70. Backfit evaluations must be done in a clear, rigorous and repeatable fashion to ensure its credibility. Any nexus to public health and safety, or protection of the environment, must be clearly demonstrated.

FRN Question Comments

Issue II-1, Definition of Unique Waste Streams

Question II-1.1—Should the NRC propose a regulatory definition to
(a) specify general criteria that would capture both current and foreseeable unique waste streams; or
(b) limit the definition to a known set of current unique waste streams including significant quantities of depleted uranium? What characteristics should NRC propose as defining for unique waste streams?

LES Response:

LES does not believe it practical or prudent to attempt to define unique waste streams at present or for the foreseeable future. Attempts at identifying future unique waste streams will, at best, be speculative. LES supports a performance-based approach to waste streams by utilizing existing performance objectives to make determinations for regulatory compliance regarding disposal.

Question II-1.2—What waste streams containing radionuclides listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in quantities significantly greater than initially considered in the development of 10 CFR Part 61?

LES Response:

LES can provide no information regarding specific waste streams and potential increases in disposal quantities for those radionuclides listed in the waste classification tables in 10 CFR 61.55.

Question II–1.3—What waste streams containing radionuclides that are not listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in concentrations or quantities significantly greater than initially considered in the development of 10 CFR Part 61?

LES Response:

LES believes that there are no additional radionuclides that were not previously considered initially in the development of 10 CFR Part 61. LES believes that uranium (depleted uranium) was appropriately considered initially and the characterization of depleted uranium remains valid.

Question II–1.4—What waste streams that were not considered in the initial development of 10 CFR Part 61 should be considered under the definition of ''unique waste streams''?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

Question II–1.5—Should the NRC consider waste streams that result from spent fuel reprocessing and are not high-level or greater-than-class C waste in the definition of ''unique waste streams''?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

Question II–1.6—Are there other characteristics besides concentration and quantity that NRC should consider when defining ''unique waste streams''?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

Issue II-2, Time Period of Performance

Question II–2.1—Should the NRC
(a) specify a single time period to evaluate the performance of facilities disposing of all unique waste streams in the near-surface;
(b) specify criteria requiring the consideration of how the hazard for each unique waste stream evolves over time; or
(c) permit a licensee to justify a period of performance?

LES Response:

With the number of relevant variables needing to be considered for each licensee, LES believes NRC should not attempt to specify a single time period for performance of facilities. NRC and the industry should identify the criteria for evaluating the time period of performance in a regulatory guidance document and allow licensees to implement the criteria on a site-specific basis.

Question II–2.2—If NRC were to specify a single time period for site specific analysis of facilities disposing of unique waste streams in the near-surface, what would be an appropriate period? What factors should NRC consider in determining a single time period of performance?

LES Response:

As stated above, LES believes NRC should not attempt to specify a single time period for performance of facilities.

Question II–2.3—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time for each unique waste stream, what factors should NRC consider in determining these criteria?

LES Response:

As stated above, LES believes NRC should not attempt to specify a single time period for performance of facilities.

LES believes, however, that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. These regulations provide limits and performance time periods for uranium and thorium mill tailings. NRC staff is encouraged to utilize these

standards rather than create new ones with the possibility of introducing inconsistencies between different industry regulations for similar issues.

Question II–2.4—If NRC were to permit a licensee to justify a time period of performance, what factors should NRC consider when evaluating a licensee's justification?

LES Response:

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Question II–2.5—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a time period of performance, should the NRC consider limiting the maximum extent of the time period considered? If so, what factors should NRC consider when specifying a maximum period of performance?

LES Response:

LES believes that placing a limit to the maximum extent of the time period of performance for a licensee would be arbitrary and may have unintended consequences. Unless there is a rigorous process that both NRC and industry can endorse for determining a period of performance, such an arbitrary time limit may modify existing licenses and may impact types and amounts of acceptable waste at currently-licensed facilities. This impact can translate into additional transportation distances and time for radioactive waste to be shipped to the ultimate disposal site, which may actually increase hazards to the public.

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Question II–2.6—What other approaches might NRC consider when specifying criteria for a period of performance for facilities disposing of unique waste streams in the near-surface?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Issue II-3, Exposure Scenarios for Site-Specific Analysis

Question II–3.1—Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting members of the public for unique waste streams? What factors should NRC consider in specifying technical criteria or reviewing licensee justifications for exposure scenarios associated with members of the public?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

As stated above, LES believes that NRC should utilize and implement currently existing regulations and standards that have been created for the uranium milling industry and embodied in 40 CFR 192.

Question II–3.2—Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting individuals from inadvertent intrusion for unique waste streams? What factors should NRC consider in specifying technical criteria, or reviewing licensee justifications, for inadvertent intruder exposure scenarios?

LES Response:

As stated above, LES does not believe it practical or prudent to attempt to define unique waste streams.

LES believes that with the uncertainty associated with future activities at a particular site, NRC staff should consider providing guidance for inadvertent intruder exposure scenarios. This guidance should provide intruder scenario bounding criteria for consideration in a manner similar to the "design basis threat" concept utilized in security planning. Absent a bounding set of criteria, numerous different scenarios can be reasonably postulated thus requiring a reactive posture by a licensee or prospective licensee. This lack of regulatory predictability can result in increased costs to waste disposers.

Issue III-1, Definition of Significant Quantities

Question III–1.1—Should NRC specify a lower quantity limit in the definition of ''significant quantities'' for near-surface disposal? If so, what factors should NRC consider in setting an appropriate lower threshold for near-surface disposal?

LES Response:

LES believes that the language involving "significant quantities" should be discontinued. NRC staff has not provided a proposed definition of the term, which leaves it open for interpretation. Previous industry experience with ambiguous regulatory language has resulted in numerous interpretations, confusion and a lack of consistent implementation. This lack of specificity should not be re-introduced into the regulatory framework though this process.

LES believes utilization of the term "significant quantities" without a specific definition or criteria will introduce additional uncertainty and unpredictability into the regulatory process and should be avoided. Regulatory uncertainty and unpredictability may introduce additional costs for disposers.

Question III–1.2—Should NRC specify an upper quantity limit in the definition of ''significant quantities''? If so, what factors should NRC consider in setting an appropriate upper threshold for near-surface disposal?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process

Question III–1.3—Are there alternative methods NRC should consider when specifying criteria to define ''significant quantities''?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process

LES believes that, irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61. By compliance with the particular low level radioactive waste disposal site license conditions

and Performance Objectives, "significant quantities" need not exist in this regulatory structure.

Issue III-2, Time Period of Performance for a Site-Specific Analysis

Question III–2.1—If NRC were to specify a single time period for the site specific analysis of near-surface disposal of unique waste streams (see Question II.2.1), what factors associated with disposal of significant quantities of depleted uranium should NRC consider in determining a single time period of performance for unique waste streams, including significant quantities of depleted uranium?

LES Response:

With the number of relevant variables needing to be considered for each licensee, LES believes NRC should not attempt to specify a single time period for performance of facilities. NRC and the industry should identify the criteria for evaluating the time period of performance in a regulatory guidance document and allow licensees to implement the criteria on a site-specific basis.

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61

Question III–2.2—If NRC were to specify criteria requiring the consideration of hazards for each unique waste stream evolving over time (see Question II.2.1), what factors should NRC consider in determining these criteria for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–2.3—If NRC were to permit a licensee to justify a time period of performance (see Question II.2.1), what factors should NRC consider when evaluating a licensee's justification for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–2.4—If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a reasonable time period of performance (see Question II–2.1), should the NRC consider limiting the maximum extent of the time period considered for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider when specifying a maximum period of performance?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–2.5—What other approaches might NRC consider when specifying criteria for a period of performance for near-surface disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Issue III-3, Exposure Scenario(s) for a Site-Specific Analysis

Question III–3.1—What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee's justification for exposure scenarios for protection of members of the public?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

Question III–3.2—What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee's justification for exposure scenarios for the protection of individuals from inadvertent intrusion?

LES Response:

LES believes that with the uncertainty associated with future activities at a particular site, NRC staff should consider providing guidance for inadvertent intruder exposure scenarios. This guidance should provide intruder scenario bounding criteria for consideration in a manner similar to the "design basis threat" concept utilized in security planning. Absence of a bounding set of criteria, numerous different scenarios can be reasonably postulated thus requiring a reactive posture by a licensee or prospective licensee. This lack of regulatory predictability can result in increased costs to waste disposers.

Issue III-4, Source Term Issues for a Site-Specific Analysis

Question III–4.1—Should NRC specify or permit licensees to propose physical or chemical forms (*e.g.*, UF6, U3O8, metal) for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider in specifying criteria for or developing guidance to review an analysis of physical or chemical forms?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES believes the NRC should not be prescriptive when discussing physical or chemical forms for disposal of depleted uranium, regardless of amount or volume. To do so may unnecessarily limit implementation of advances in technology that may define a more suitable physical and/or chemical form for depleted uranium in the future. Producers of depleted uranium may have ability under their Materials License to de-convert depleted uranium hexafluoride (DUF_6) into a variety of chemical or physical forms, such as depleted uranium dioxide (DUO_2), depleted triuranium octaoxide (DU_3O_8), or depleted uranium tetraflouride (DUF_4). Technology and business financial models used by uranium enrichment companies employ assumptions for DUF_6 de-conversion and disposal and prescriptive positions taken by NRC for ultimate waste disposal forms may not be consistent with those models.

LES believes that Materials Licensees are in the better position to determine the ultimate waste form, based on maintaining compliance with the 10 CFR 61 Performance Objectives, business financial modeling and available technology at the time when the licensee declares the DUF_6 no longer a resource and treats the DUF_6 as a Class A low level radioactive waste.

Question III–4.2—Should NRC specify criteria for, or permit licensees to justify, stabilizing admixtures (*e.g.*, grout) for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider in specifying criteria for, or developing guidance to review, an analysis of admixtures?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the NRC should not be prescriptive in specifying stabilizing admixtures criteria for any amount of depleted uranium, but should provide regulatory guidance to the industry, however, not in the form of rulemaking.

Question III–4.3—What other factors should NRC consider when specifying criteria, or developing technical guidance, regarding waste forms for disposal of significant quantities of depleted uranium in near-surface facilities?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the NRC should not be prescriptive in specifying stabilizing admixtures criteria for any amount of depleted uranium, but should provide regulatory guidance to the industry, however, not in the form of rulemaking.

Question III–4.4—Should NRC require a site-specific analysis to capture previously disposed quantities of depleted uranium? If so, what factors should NRC consider when specifying criteria, or developing technical guidance, regarding previously disposed quantities of depleted uranium?

LES Response:

LES believes that NRC should not require any site-specific analysis for previously disposed quantities of depleted uranium without performing both a cost-benefit analysis and backfitting evaluation to determine the impacts of such an analysis.

LES has no indication that previously disposed quantities of depleted uranium were not in compliance with all applicable laws, regulations, license conditions and 10 CFR 61 Performance Objectives. Therefore, any additional analysis is beyond the scope of existing regulations with a backfit evaluation.

LES believes that requiring a site-specific analysis to capture previously disposed quantities of depleted uranium without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Issue III-5, Modeling of Uranium Geochemistry in a Site-Specific Analysis

Question III–5.1—Should NRC specify regulatory criteria for, or permit licensees to justify, site-specific geochemical parameters for the analysis of disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium. If characterization of site-specific geochemical parameters is considered relevant to low level waste disposal facilities, then the requirement to perform the analysis should be embodied within the regulations for the initial licensing of a low level waste facility for all radionuclides and not be introduced as a requirement solely due to depleted uranium disposal, regardless of amount or volume of depleted uranium disposal.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Question III–5.2—If NRC should specify regulatory criteria, then what factors should NRC consider in developing criteria for geochemical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Question III–5.3—If NRC should permit licensees to justify site-specific geochemical parameters, then what factors should NRC consider when reviewing a licensee's justification?

LES Response:

As stated above, LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Question III–5.4—What new or alternative approaches should NRC consider regarding the incorporation of geochemical parameters in a site specific analysis for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that no additional regulatory criteria need be established for evaluating geochemical parameters for disposal of any amount of depleted uranium.

LES believes that requiring a site-specific geochemical parameter analysis without the cost-benefit and backfitting analysis can undermine the argument of regulatory consistency and predictability for all stakeholders.

Issue III-6, Modeling of Radon in the Environment in a Site-Specific Analysis

Question III–6.1—What new approaches for modeling radon emanation, migration, and exposure pathways, including the effects of differences in the physical and chemical properties between radon and its progeny, should NRC consider?

LES Response:

LES believes that the techniques for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. Since evaluation and monitoring techniques have been previously identified and embodied in Federal regulations, those criteria should be adequate for depleted uranium applications, regardless of disposed quantity or volume.

Question III–6.2—Should NRC require licensees to evaluate the effects of radon in a site-specific analysis for disposal of significant quantities of depleted uranium in near-surface facilities?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance. Prescriptive identification of needed evaluations need not be identified in order for licensees to maintain compliance with appropriate license conditions and Performance Objectives.

Question III–6.3—Should NRC specify by regulation, or develop guidance on, the technical parameters for evaluating radon emanation, migration, and exposure in a site-specific analysis of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process.

Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance.

LES believes that the technical parameters for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings. Since evaluation and monitoring techniques have been previously identified and embodied in Federal regulations, those criteria should be adequate for depleted uranium applications, regardless of disposed quantity or volume.

Question III–6.4—If NRC should specify by regulation the technical parameters for evaluating radon emanation, migration, and exposure, what factors should NRC consider in specifying technical parameters for a site-specific analysis for significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance.

As stated above, LES believes that the techniques for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192.

Question III–6.5—If NRC should develop guidance on the technical parameters for evaluating radon emanation, migration, and exposures to accompany regulatory criteria, then what factors should NRC consider in the development of guidance for evaluating technical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

As stated above, LES believes that the Performance Objectives in 10 CFR 61 should determine the types of licensee evaluation and monitoring needed to ensure compliance.

As stated above, LES believes that the techniques for modeling radon emanation, migration and exposure pathways should be consistent with those previously endorsed by the U. S Environmental Protection Agency and embodied in 40 CFR 192.

Question III–6.6—What societal uncertainties should NRC consider when developing guidance for scenarios of exposure to radon gas released from the disposal of significant quantities of depleted uranium?

LES Response:

As stated above, LES believes that the language involving "significant quantities" should be discontinued. Without a specific definition or criteria the use of this term will introduce additional uncertainty and unpredictability into the regulatory process. Irrespective of "significant quantities" from this discussion, the prevailing considerations for disposal are the particular low level radioactive waste disposal site license conditions and the Performance Objectives of 10 CFR 61.

LES can offer no substantive comments regarding this question, however, LES believes that NRC and industry should create a bounding set of criteria and limitations necessary to provide a clear framework for exposure scenarios. This is necessary to minimize ambiguity and issues with varying interpretations in the future. Absence of a bounding set of criteria, numerous different scenarios can be reasonably postulated thus requiring a reactive posture by a licensee or prospective licensee. This lack of regulatory predictability can result in increased costs to waste disposers.

Question III–6.7—What alternative methods should NRC consider when developing guidance on evaluating the impacts of radon gas exposures? For instance, U.S. Environmental Protection Agency standards at 40 CFR Part 192 for the control of residual radioactive materials from inactive uranium mill tailings sites specify that releases of radon-222 to the atmosphere will not exceed an average release rate of 20 picoCuries per square meter per second or increase the annual average concentration of radon–222 in air at or above any location outside the disposal site by more than 0.5 picoCuries per liter.

LES Response:

LES believes that NRC standards and U. S. EPA standards should be consistent, where appropriate. However, this citation of 40 CFR 192 for radon-222 suggests an inconsistent application of this standard within the context of this FRN issues and questions. For example, 40 CFR 192.02 actually states that:

> Control of residual radioactive materials and their listed constituents shall be designed[1] to:
>
> (a) Be effective for up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years, and,
>
> (b) Provide reasonable assurance that releases of radon-222 from residual radioactive material to the atmosphere will not:
>
> (1) Exceed an average[2] release rate of 20 picocuries per square meter per second, or
>
> (2) Increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than one-half picocurie per liter.

[1] Because the standard applies to design, monitoring after disposal is not required to demonstrate compliance with respect to § 192.02(a) and (b).

[2] This average shall apply over the entire surface of the disposal site and over at least a one-year period. Radon will come from both residual radioactive materials and from materials covering them. Radon emissions from the covering materials should be estimated as part of developing a remedial action plan for each site. The standard, however, applies only to emissions from residual radioactive materials to the atmosphere.

It is important to note that this standard is for design only, requires no monitoring after disposal to demonstrate compliance and the period of performance is up to one thousand years, to the extent reasonably achievable.

LES believes that regardless of depleted uranium amount and volume, low level radioactive waste disposal for depleted uranium and daughter products, such as radon-222, should be no more restrictive than existing regulations such as is contained in 40 CFR 192 and encourages NRC staff to utilize existing regulations where warranted.

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name William E. Hogan

Address 9287 W. Caribou Rd.
Pocatello, ID. 83204

William Hogan
9287 W. Caribou Rd.
Pocatello, ID 83204

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

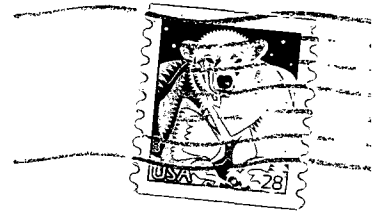
Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name GARRY TANNER

Address 2944 HILLWAY DR

BOISE ID. 83702



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Timothy Lee

Address 1101 N 8th St

Boise Id 83702

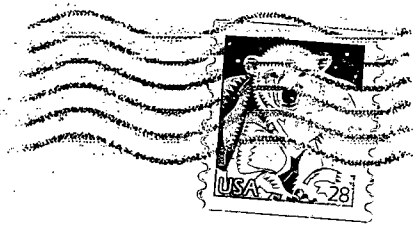
BOISE ID 837

T. Lee

20 OCT 2020 PM 1 L

1101 N. 8th St.

Boise Idaho 83702



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name John Michael Schurt

Address 1717 Brunback

Boise, ID 83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Brent M Marchbanks

Address 1207 N. 14th ST.

Boise Idaho 83702

BOISE IDAHO

30 OCT 2009 PM 6 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

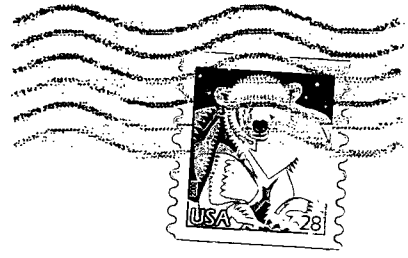
Name Elizabeth Paul

Address 6152 Plantation Lane

G.C. ID 83703

BOISE ID 837

31 OCT 2008 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Michelle Ruoux

Address 587 E Ridge Dr
Eagle, ID 83616

BOISE ID 837

PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Stephen M. Pauley, M.D.

Address P.O. Box 3759

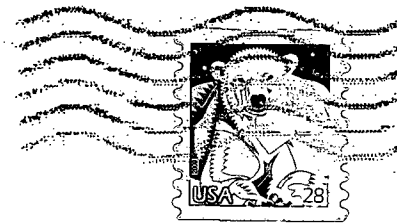
Ketchum ID 83340

BOISE ID 837

P.O. Box 3759

Ketchum, ID

83340



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Lisa Left

Address 1410 N. 11th

Boise, ID 83702

BOISE ID 837

Lisa Leff
1410 N. 11th
Boise, Id.
83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Michael C. Beaty

Address PO Box 2526
Boise, ID 83701

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted-uranium disposal.

Name Anne Housrath

Address 1620 N 7th St

Boise, ID 83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

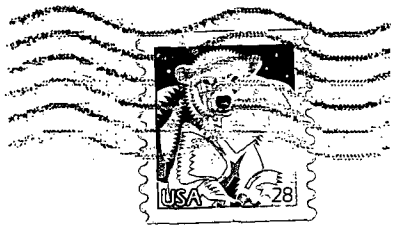
Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Anne Bell

Address 684 E Braemere Rd
Boise Idaho
83702

BOISE ID 837



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

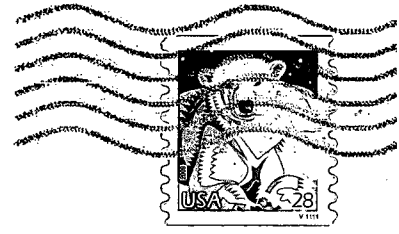
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Trey McIntyre

Address 1717 Briarcrest St
Boise, ID 83702

BOISE ID 837

26 OCT 2002 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Margaret Macdonald Stewart

Address 122 Board Loop But 2404
Ketchum, ID 83340

BOISE ID 837

M. MacStewart
Box 2404
Ketchum, ID
83340

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

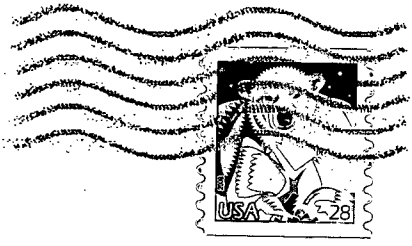
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Paul Benedict

Address 2246 Dalton Ln. 83714
Boise ID

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

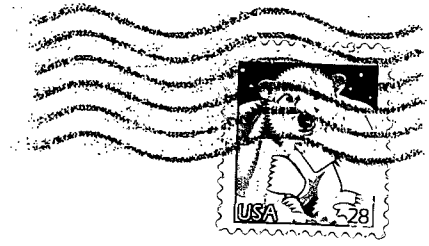
Name Scott Hyder

Address 3321 Tucker

Boise ID 83703

BOISE ID 837

S. Hyder
3321 Tucker
Boise ID 83703



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

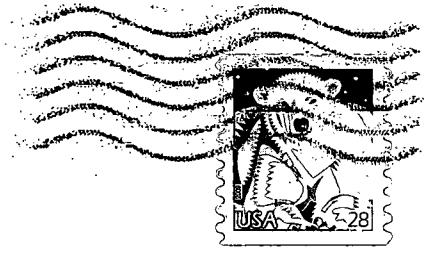
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Jason Hartley

Address 313 N. 30th St #108
Boise, ID 83702

BOISE ID 837

25 OCT 2000 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted-uranium disposal.

Name Carrie Jones

Address 3802 W. Taft

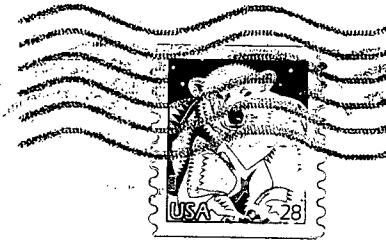
Boise, ID 83703

BOISE ID 837

3802 W Taft

Boise, ID

83703



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Michael Brad Siegel

Address 2030 Candlewood Circle

Twin Falls ID 83301

RECEIVED
2005 JAN 26 P 9:46
RULES AND DIRECTIVES BRANCH USNRC

Siegel

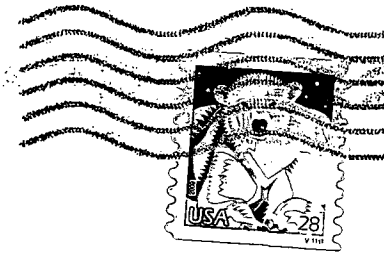
BOISE ID 837

26 OCT 2009 PM 2 T

2030 Coachlewood Cir

Twin Falls ID

83301



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

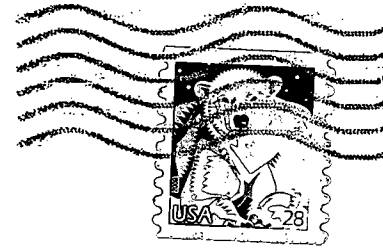
Name JOSEPH L. CASTLE III

Address 331 BAY HORSE RD

BELLEVUE ID 83313

BOISE ID 837

J. Castle, III
331 Bay Horse Rd.
Bellevue, ID
83313



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

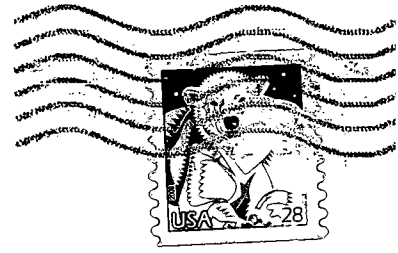
Name Debra Purcell

Address 1301 N. 20th.

Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

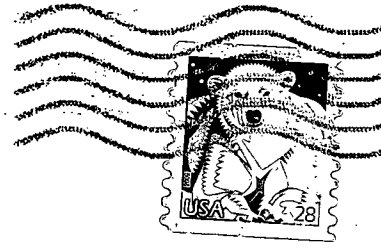
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Andrea Bogle

Address 7312 W. Kingston Dr
Boise ID 83704

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

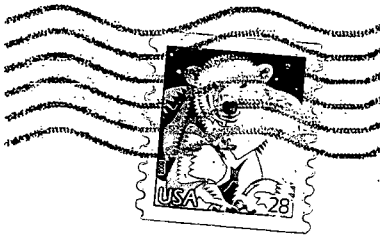
Name Leif Elgethun

Address 3607 W. Taft.

Boise, ID 83703

BOISE ID 837

28 OCT 2003 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

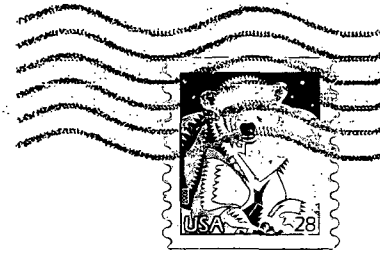
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Barbara Nashar

Address 2029 N 20th
Boise, ID. 83702

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

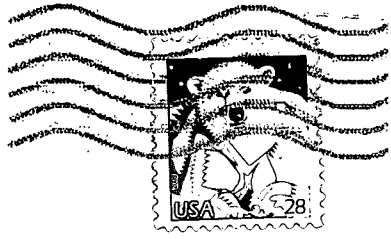
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Kathy Railsback

Address 10018 W. Skycliffe Ave.

Boise ID 83704

K. Rails book
10018 W. Skydiffe
Boise ID 83704



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

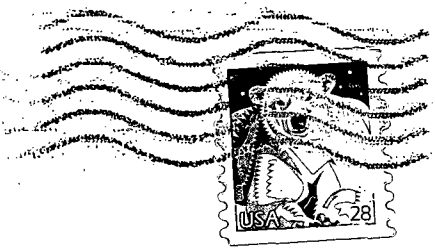
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Mary Lee

Address 1101 N 8th St

Boise Id 83702

BOISE ID 837



Maryhee
20 OCT 2009 PM 1 L
1101 N. 8th St.
Boise Idaho
83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

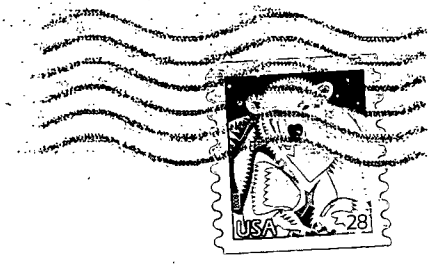
Name Carol Ackley

Address 5617 Randolph Dr.
Boise, ID 83705

RECEIVED
2007 NOV -3 AM 9:44
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

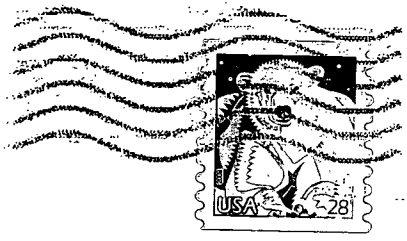
Name DAVID RIOUX

Address 587 E. Rioso Dr

EAGLE IDAHO 83616

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

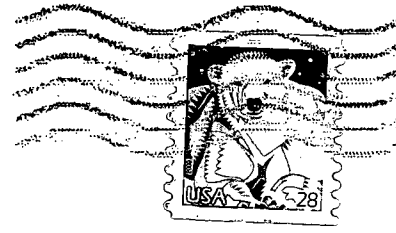
Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted-uranium disposal.

Name Leif Andersen

Address 2725 Dewey St
Boise, ID 83702

BOISE ID 837



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

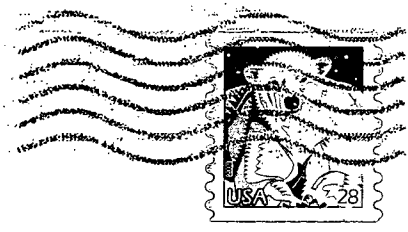
Name DAVE BROWN

Address 3778 N. 39th ST

83703

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

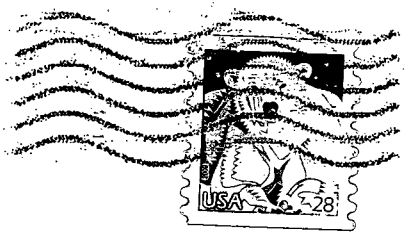
Name Jenelle Parma

Address 2527 White tail ct

Nampa Id 83686

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name P.J. Hennings

Address PO Box 5836

Kelchum ID. 83340

P. Hemmings
Box 5836
Ketchum ID
83340

TWIN FALLS ID 833
PM
28 OCT
2008

Collect Stamp

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

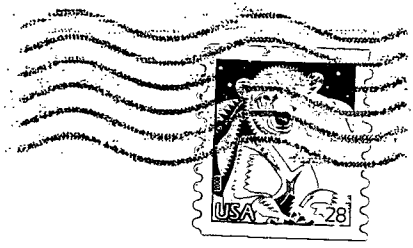
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Andrew Weston

Address 4702 Castletar drive.
Boise, Id 83703.

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

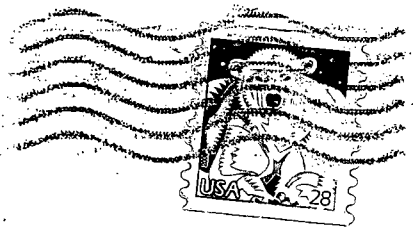
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Tanya Love

Address 9172 W. Preble
Boise, ID 83709

Love
917 1/2 W. Pueblo
Boise, ID 83702

BOISE ID 837
OCT 2010 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

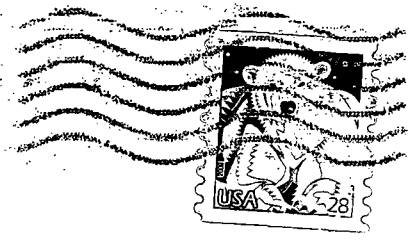
Name ERROL D. JONES

Address 2115 DANMORE DRIVE

BOISE, ID 83712

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

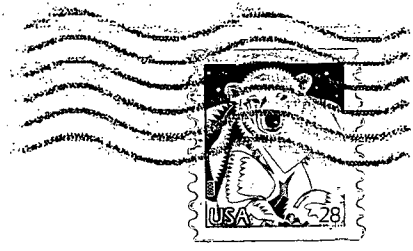
Name SHARON CHURCH

Address 3663 Collister Dr

Boise, ID 83703

BOISE ID 837

S.E. Church
2009 PM 1 L
3663 Collister Dr.
Boise, ID 83703



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Sally Briggs

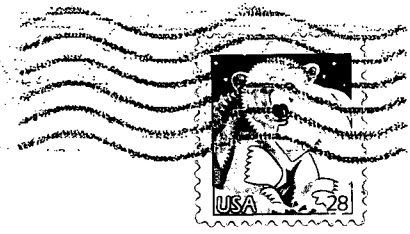
Address 1316 Harrison Blvd

Boise 83702

BOISE ID 837

Sally Briggs
1316 Harrison Blvd
Boise, ID 83702

25 OCT 2007 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

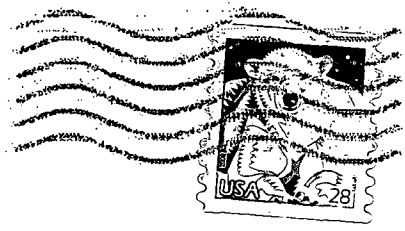
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Katy Benson

Address 8732 W Mediterranean
Boise Id 83709

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Amy Hutchinson

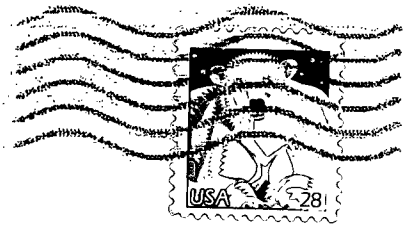
Address 1014 N. 21st

Boise ID 83702

Amy Hutchinson

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

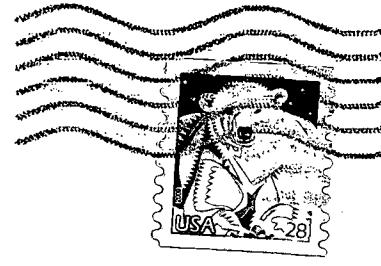
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Cymry B. Reed

Address 3516 HAWTHORNE DR.
BOISE, ID. 83703-4526

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

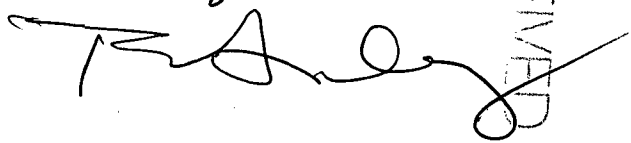
To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Tom Archie MD

Address 340 Cranbrook Dr
Hailey ID 83333



RECEIVED
2007 NOV -3 AM 9:40
RULES AND DIRECTIVES
BRANCH

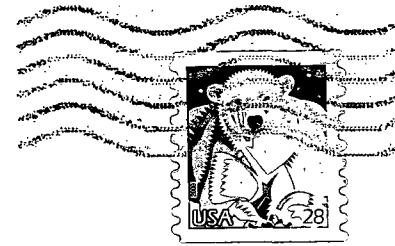
BOISE ID 837

Archie

20 OCT 2003 PM 1 T

340 Cranbrook

Hailey ID 83333



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission

Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Alan & Linda Harkness

Address 3400 Crane Creek Rd

Boise, ID 83702

Seriously!!

BOISE ID 837

PM

Alan Harkness
3400 Crane Creek Rd
Boise ID 83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name James Fleming

Address 13991 Country Way
McCall, ID. 83638

RECEIVED -3 AM 9:56

RULES AND DIRECTIVES BRANCH

J. Fleming
13991 Country Ln.
McCall Idaho
83638

TWIN FALLS ID 833
PM
28 OCT
2008

Collect Stamps!
USA 28

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

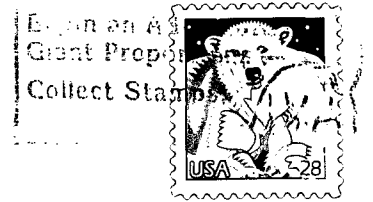
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Maureen Jenner

Address PO Box 249 Sun Valley Id 83353
201 Skiway Dr Ketchum, Id 83340

RECEIVED
2003 DEC -3 AM 9:36
RULES AND DIRECTIVES
BRANCH

Maureen Jen[illegible]
P.O. Box 249
Sun Valley Rd.
83353



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

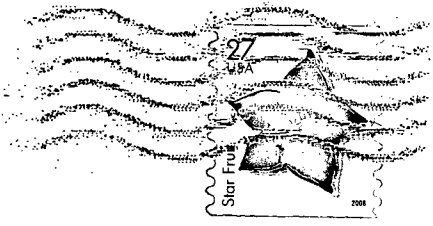
Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Theresa Kaufmann

Address 4977 Clearview Ave.
Pocatello ID 83204

Ms. Theresa M. Kaufmann
4977 Clearview Ave.
Pocatello, ID 83204



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

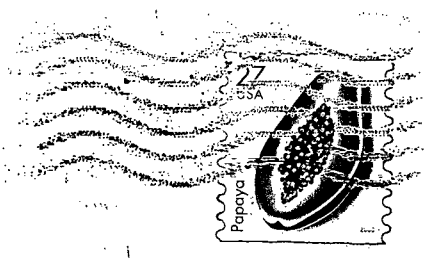
Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Vicki [illegible]

Address 240 Oakway Dr.
Pocatello ID 83204

Watson
260 Valley View
Loc SD 83204



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Rachael Lorcher

Address 480 S. Main St.

Richfield, ID 83349

BOISE ID 837

OCT 2019 PM 2 1

R Iorchet
480 S. Main St
Richfield ID
83349

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Kathy Ruyts

Address P.O. Box 186

Buhl, Id. 83316

"Thank You"

RECEIVED
'97 FEB 27 AM 8:57
RULES AND DIRECTIVES
BRANCH

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

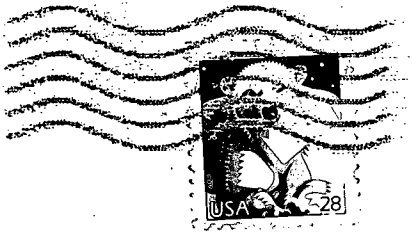
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Roger + Kaye Turner

Address 507 N. Buchanan
Pocatello, Idaho 83204

Thank you for your consideration.

SALT LAKE CITY UT 840
TURNER
307 N. BUCHANAN
POCATELLO, IDAHO 8320 4



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Rocky Carpenter

Address 10152 W. State St.
Boise, Idaho 83714

Mr. Rocky Carpenter
10152 W. State St.
Boise, ID 837

BOISE ID 837
FIRST-CLASS FOREVER

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Dorinda Glennon

Address 9287 W. Caribou Rd.
Pocatello, ID 83204

Dorinda Glazier
9287 W. Caribou Rd.
Pocatello, ID. 83204

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name MARK STEWART

Address 122 Board Loop
KETCHUM, ID
83340

M. Stewart
Box 2404
Ketchum, ID
83340

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

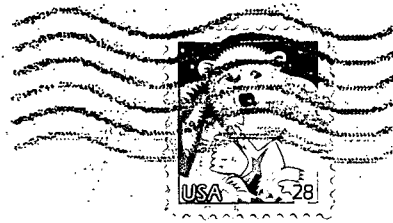
Name Michael Person

Address 6057 Denton St

Boise, ID 83704

BOISE ID 837

30 OCT 2002 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Lorraine Bishop

Address PO Box 246

Irwin, ID 83428

BOISE ID 837

31 OCT 2008 PM 1 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

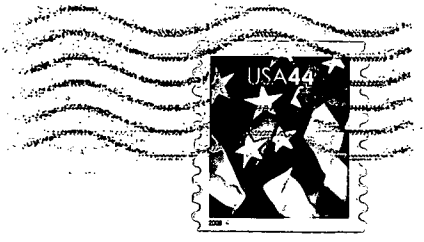
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Ellen E. Barfield

Address 814 Powers St

Baltimore MD 21211-2510

E Barfield
814 Powers St
Baltimore MD
21211-2510



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Chaz Eyre

Address 546 South 5th Avenue, Apt. #1

Pocatello, ID 83201

BOISE ID 837

Chazz Eyre 2009 PM 2 L

546 S. 6th Ave. Apt #2

Pocatello, ID 83201

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

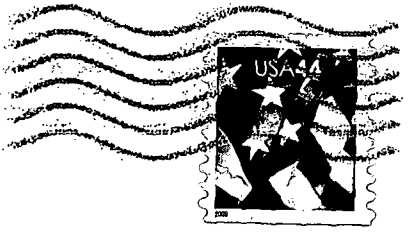
Name Tom Briggs

Address PO Box 246

Irwin, ID 83428

BOISE ID 837

30 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name KC Harding

Address 2421 S. 2nd Ave, #G

Pocatello, ID 83204

BOISE ID 837

OCT 2009 PM 2 T

KC Harding
2421 S. 2nd Ave, #C
Pocatello, ID 83204

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

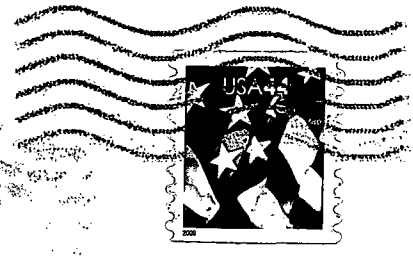
Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

Name Marylia Kelley

Address 173 Heligan Lane #9
Livermore, CA
94551

BOISE ID 837

30 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

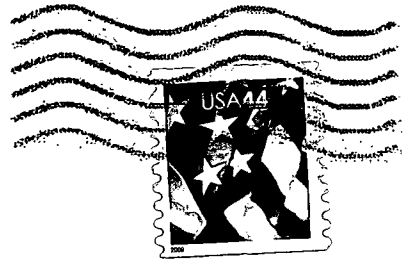
Name Shelby Hannah

Address 1025 E. BENTON

Pocatello ID, 83201

BOISE ID 837

Shelby Hernandez
1025 E BENTON
Pocatello ID, 83201



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

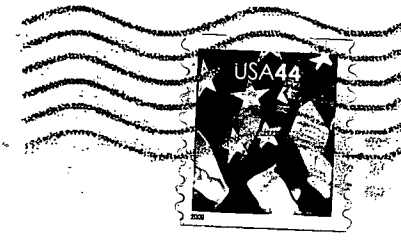
Name Susan Gordon

Address 903 W. Alameda, Santa Fe, NM 87501

Depleted uranium becomes more radioactive as it ages. Therefore, it can not be disposed in shallow land burial.

BOISE ID 837

OCT 2009 PM 2 T



S. Gordon
903 W. Alameda
Santa Fe, NM
87501

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal.

Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

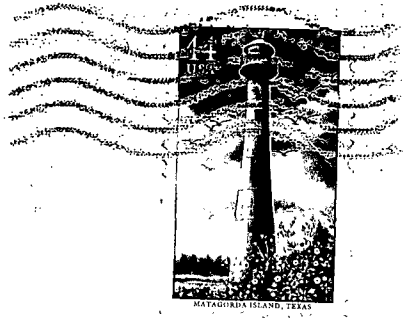
Name Nancy Greco

Address 442 So. Garfield
Pocatello, Id 83204

POCATELLO ID 832

Nancy Greco
442 S Garfield Ave
Pocatello, ID 83204

22 OCT 2020 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

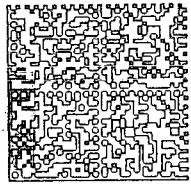
To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

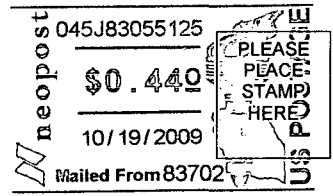
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name William L. Mauk

Address 610 E Curling Dr.
Boise, Idaho 83702

USA Bill & Susan Mauk
610 E Curling Dr
Boise, ID 83702-1905





Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Peter V. Joyce

Address 477 Colusa

Pocatello, ID 83204

PJ

477 Cochise

Pocatello, ID

83204

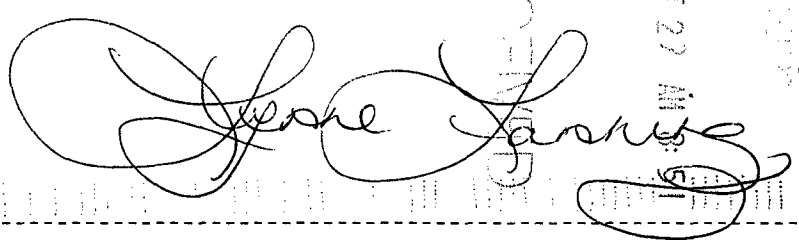
Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Lynne Lanning

Address 1605 City Creek Rd
Pocatello ID 83204



L. Lanning
1603 City Creek Rd.
Pocatello ID 83204

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name [signature]

Address 8862 N. Maple Grove

Poc ID

83201

RECEIVED

AM 8:52

RULES AND DIRECTIVES BRANCH

J. Schmidt
8862 N. Maple Grove
Poc ID
83201

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

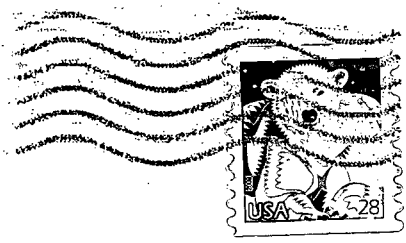
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name GINA KANG

Address 1702 N. 10th St
Base ID B3102

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Marylyn P. Pauley

Name Marylyn Pauley

Address P. O. Box 3759

Ketchum, ID 83340-3759

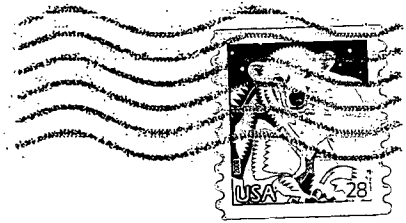
BOISE ID 837

P.O. Box 3759

26 OCT 2009 PM 1 L

Ketchum, ID

83340



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission

Oct. 10, 2009

Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Kay Hummel

Address 420 E. Crestline Dr

Boise, ID 83702

RECEIVED

2009 NOV -3 AM 9:49

RULES AND DIRECTIVES
BRANCH
USNRC

420 E. Crestline
Boise, ID 83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Betsy Bridge

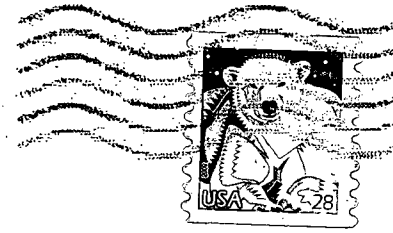
Address 1418 Carol Rock Ln Apt 121

Boise ID 83702

RECEIVED
2008 NOV -3 AM 9:49
RULES AND DIRECTIVES
BRANCH
USNRC

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Molly Haar Hoff

Address 2167 Grant
Boise ID 83706

RECEIVED
2009 NOV -3 AM 9:49
RULES AND DIRECTIVES
BRANCH
USNRC

BOISE ID 837

26 OCT 2009 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name John DADAY

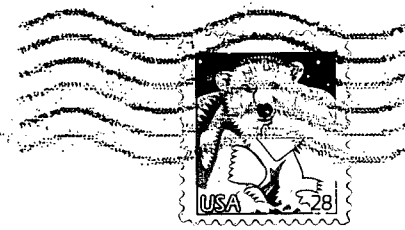
Address 2415 Mt. View Dr.

Boise, ID 83706

RECEIVED
2007 NOV -3 AM 9:49
RULES AND DIRECTIVES
BRANCH
USNRC

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Susan Raney

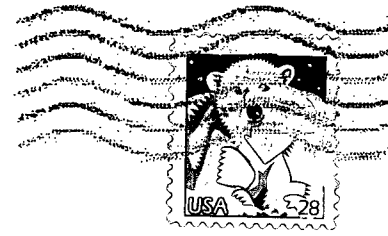
Address 2115 Dunmore

Boise ID 83712

NO.

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Cees Hoefnagels

Address 5402 Hill Rd

Boise, ID 83703

5402 Hill Rd
Boise, ID 83703

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

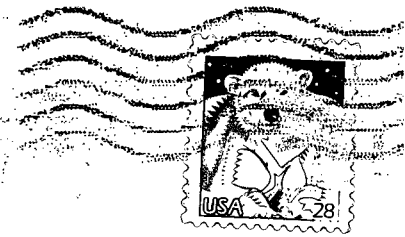
Name Gary K Trakas

Address 6700 Hill Rd

Boise, Id 83714

RECEIVED
2007 NOV -3 AM 9:48
RULES AND DIRECTIVES
BRANCH

Gary Trakas
6700 Hill Rd
Boise, Id 83714



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

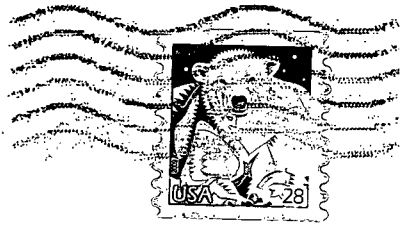
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name BRUCE POE

Address 2034 S. RIDGE POINT WAY
BOISE, IDAHO 83712

BOISE ID 837

26 OCT 2004 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Helen Jones

Address 815 W. Braemere Rd
Boise, ID 83702

RECEIVED
2007 JUL -3 AM 9:48
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

26 OCT 2004 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

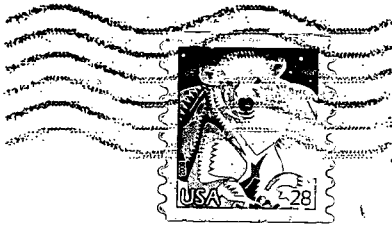
Name Linda Stohmeyer

Address 15 Loafers Glory

Boise ID 83716

BOISE ID 837

26 OCT 2004 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

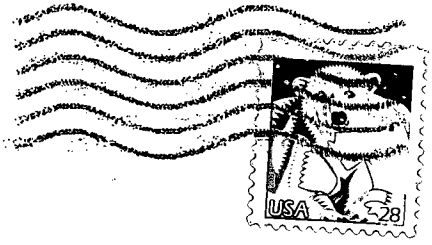
Name Kathy Robinson

Address 3110 Treasure Dr

Boise, ID 83703

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Marsha Lamborn

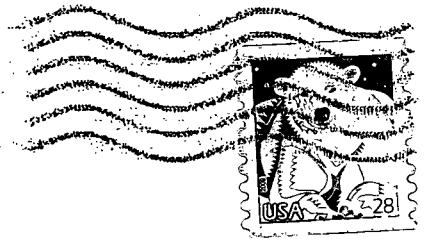
Address PO Box 44673

Boise Id. 83711

RECEIVED
'03 NOV -3 AM 9:47
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

25 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Jane Gheen Post

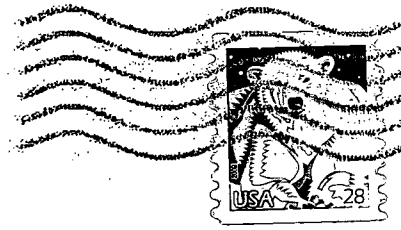
Address 2103 N. 19th St.

Boise, ID 83702

Jane G. Post

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

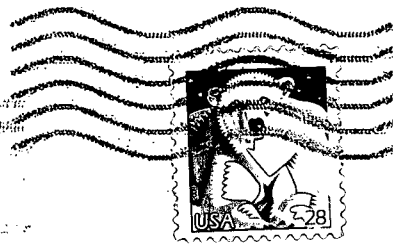
To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Charles Gill

Address 2117 Warm Springs Ave
Boise, ID 83712

RECEIVED
2007 NOV 13 AM 9:46
RULES AND DIRECTIVES
BRANCH



BOISE ID 837

26 OCT 2009 PM 2 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

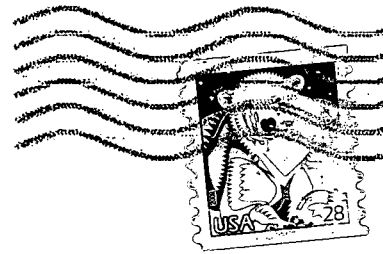
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name John Thomsen

Address 15 Loafers Glory
Boise, Id. 83716

BOISE ID 837

25 OCT 2008 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

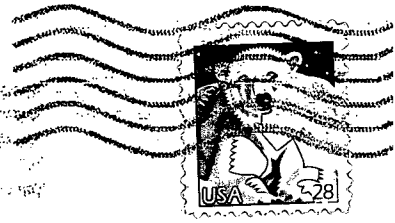
Name GENE Emerson

Address 1867 W. Targee St.
Boise, ID 83705

RECEIVED
2005 NOV -3 AM 9:45
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

20 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

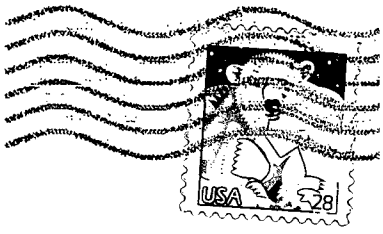
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name ELLEN JONES

Address 3102 W TREASURE
BOISE ID 83703

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Roger and Pamela Piper-Ruth

Address 1615 N 27th

Boise, Idaho 83702

BOISE ID 837

26 OCT 2009 PM 2 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Natalie Hayling

Address 1010 N. 22nd

Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM 2 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Jacob Nelson

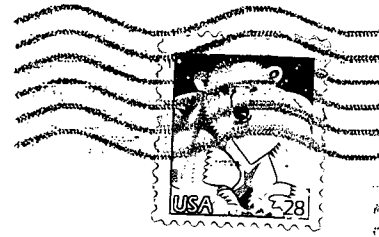
Address 13 Grade Ln

Banks, ID 83602

... Please don't ruin our state.

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Rosemary Powers Ardinger

Address 17 Canyon Trail

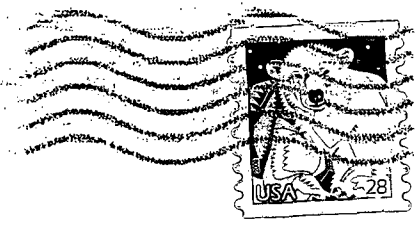
Boise, ID 83716

RULES AND DIRECTIVES BRANCH

07 NOV -3 AM 9:44

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Ann Huycke

Address 111 Broadway Suite 101

Boise ID 83702

RECEIVED

2005 NOV 3 PM 9:44

RULES AND DIRECTIVES BRANCH USNRC

BOISE ID 837

26 OCT 2004 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name DIXIE SIEGEL

Address 2030 Candlewood Circle

Twin Falls, ID 83301

BOISE ID 837

26 OCT 2009 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Erik B. Schultz

Address Box 5339

Ketchum, Idaho 83340

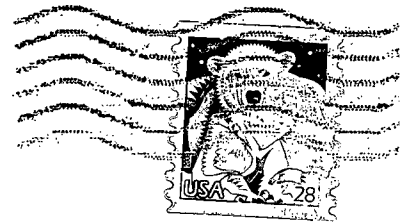
BOISE ID 837

Erik Shultz

P.O. Box 3339

Ketchum, ID

83340



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

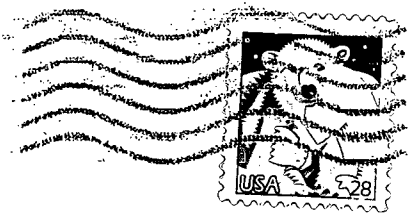
Name Devin Slager

Address 104 E. Fairview #209

Meridian ID 83642

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name CAROL CRAIGHILL

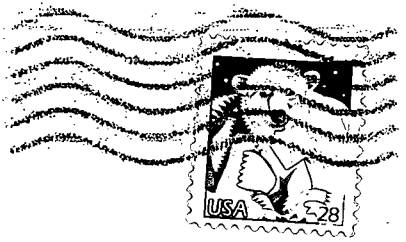
Address 1207 No 14th St.

Boise ID 83702

BOISE ID 837

26 OCT 2009 PM 1 L

Craig Banks
1205 No 14th
Boise 83702



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

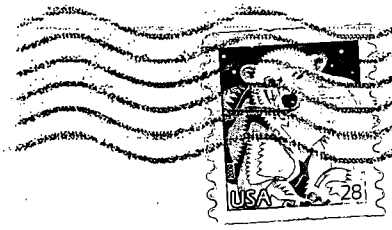
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Allen Haverlah

Address 1820 N 7th St
BOISE, ID 83702

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Michael Jones

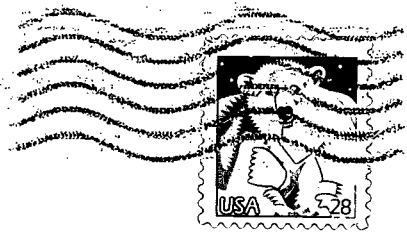
Address 5218 Castle Drive

Boise ID 83703

Resources to local, sustainable non-toxic, job-creating green energy. For present and future

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Linda L Carlson

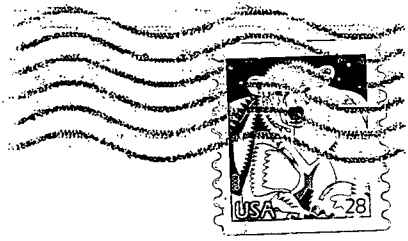
Address 12553 W Murchison St

Boise, ID 83709

RECEIVED
2009 NOV -3 AM 9:42
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Maureen Pressley

Address P.O. Box 2973

Ketchum, ID. 83340

box 2973
Ketchum ID
83340-2973

TWIN FALLS ID 833
PM
28 OCT
2009

Collect Stamps

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name MARK DAVIS

Address 409 Pueblo

Boise, ID 83702

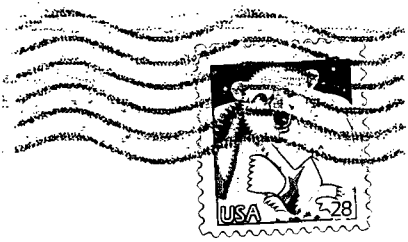
RECEIVED

2007 NOV -3 AM 9:43

RULES AND DIRECTIVES BRANCH

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

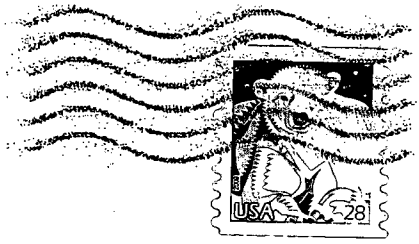
Name Dianne Crowe

Address 2225 Cherry Ln
Boise, ID 83705

RECEIVED
2007 NOV -3 AM 9:34
RULES AND DIRECTIVES BRANCH

BOISE ID 837

30 OCT 2003 PM 2 1



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

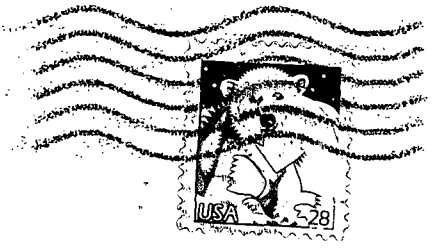
Name Jess Barrett

Address 2319 W. Jefferson

Boise, ID 83702

BOISE ID 837

Jerr Barrett
2319 W. Jefferson
Boise, ID 83702



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name WILLIAM "BILL" TOMMEY

Address 1165 N. SHERWOOD AVE

MERIDIAN IDAHO 83642

RECEIVED
2008 NOV -3 AM 9:34
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

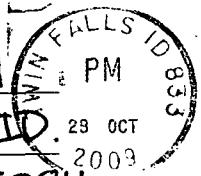
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

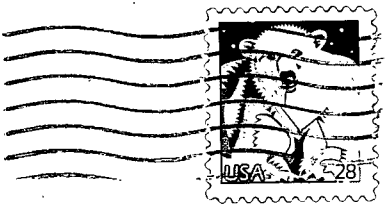
Name Peter Pressley

Address po box 5284

Ketchum ID. 83340-5284

box 5284
ketchum ID
83340-5284





Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

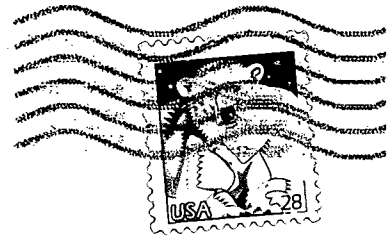
Name Paul Shappell

Address 1486 Shenandoah Dr [illegible]

Baltimore MD [illegible]

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Ernie Alvarado

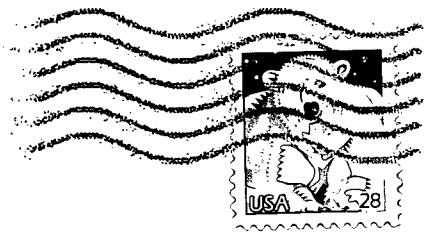
Address 1800 N Cole
Boise Id. 83704

BOISE ID 837

Ernie Alvarado

7800 W Cole

Boise ID 83704



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

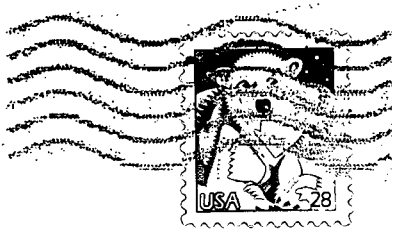
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Kimberly Stout
Address 2903 N. McKinney St.
Boise, ID 83704

Please do not do any business of any kind with Areva until they meet more stringent environmental standards. Kimberly Stout

BOISE ID 837

30 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

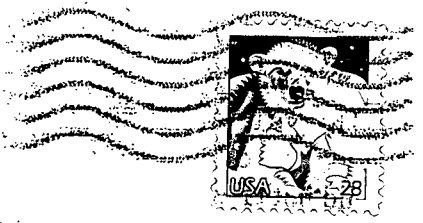
Name Tracey Hocevar

Address 8 Condor Circle

Boise Idaho 83714

BOISE ID 837

30 OCT 2009 PM 3 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

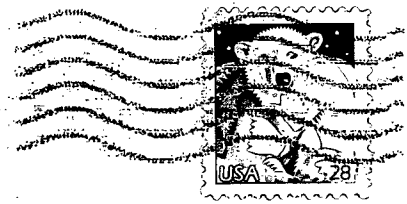
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Lorien Oberlander

Address 3119 Smith Ave

Boise, ID 83703

Lorien Oberlander
3119 Smith Ave
Boise, ID 83703



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

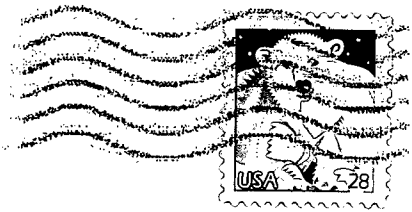
It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name Mark Lagomarsino

Address 6524 S. Derbyshire Ave

Boise, ID 83709

BOISE ID 837
Mark Lagomarsino
6524 S. Derbyshire Ave.
Boise, ID 83709



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

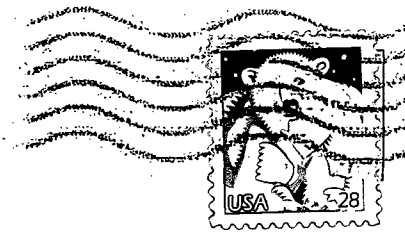
Name Tina Lawhead

Address 6432 W. Out Look Dr.

Boise Idaho 83703

BOISE ID 837

30 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

Name LINN KINCANNON

Address 101 MEADOWBROOK RD, HAILEY ID 83333

It's irresponsible to continue to produce DU with no rules for disposal! Seven generations - it's a reasonable to look at what we're doing. Please do not license Areva in Idaho!

BOISE ID 837

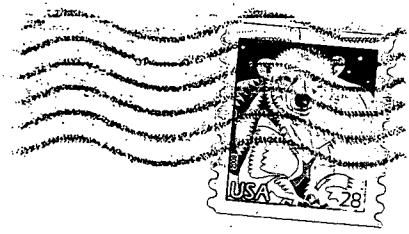
L. K.

26 OCT 2009 PM 1 L

101 Meadowbrook Rd.

Hailey, Idaho

83333



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Virginia A. Glasscock

Address 208 David St. Placabo

Bellevue, ID 83313

D+V Glasscock
208 David St.
Bellevue, ID 83313

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Marianne Barker

Address 20282 Hwy 30
Buhl, ID 83316

Marianne Barker
20282 Highway 30
Buhl, ID 83316-5703

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Elly Schmidt

Address 8862 N. Maple Grove

Poc ID

83201

RECEIVED 2009 ... AM 8:51

RULES AND DIRECTIVES BRANCH

E. Schmidt
8862 N. Maple Grove Cir
Poe ID
83201

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Katherine Daley

Address 1135 E. Bonneville

Pocatello, I.D. 83201

Daly
1135 E. Bonneville
Pocatello, I.D. 83201

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

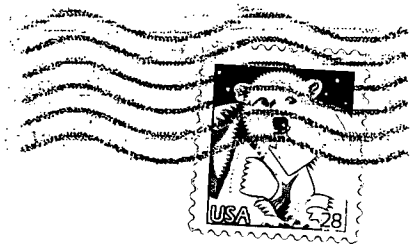
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Bill Chisholm

Address 19073 E Hwy 30
Buhl, Idaho 83316

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

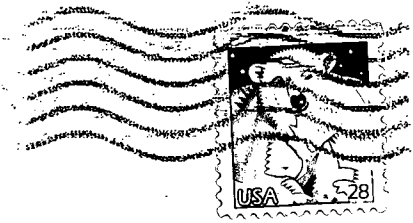
Name STEVE JACKSON

Address 2440 Menlo Dr.

BOISE, ID 83702

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

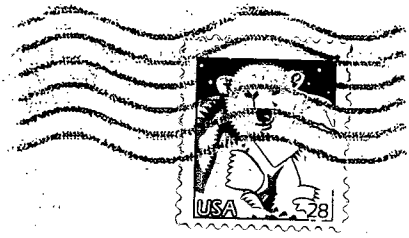
Name John Weber

Address 3025 N. Five mile Rd
Boise, ID 83713

RECEIVED
2007 NOV -3 PM 3:04
RULES AND DIRECTIVES
BRANCH
USNRC

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

83

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

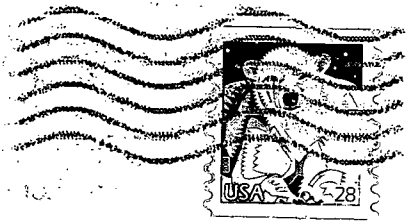
Name Janet Ross-Heiner

Address PO Box 5551

Ketchum, Idaho 83340

J Ross-Heiner
Box 5551
Ketchum, Idaho
83340

BOISE ID 837
25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

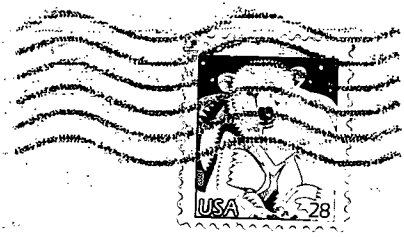
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Lon Stewart

Address 4610 N Shirley
Boise, ID 83703

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

133

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name David Glasscock

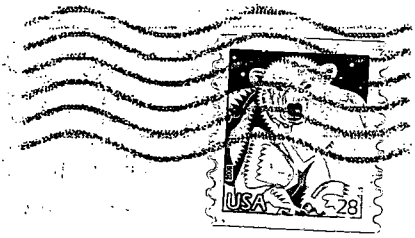
Address 208 David St.

Ballevue, ID 83313

BOISE ID 837

26 OCT 2009 PM 1 L

Glasscock
203 Main St.
Bellevue, ID 83313



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

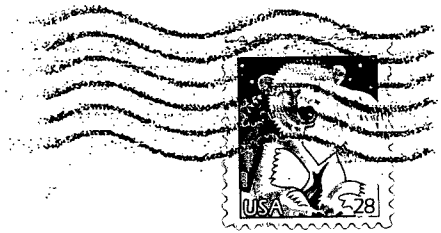
To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Michael Jones

Address 815 W. Braemere Rd
Boise, ID 83702



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

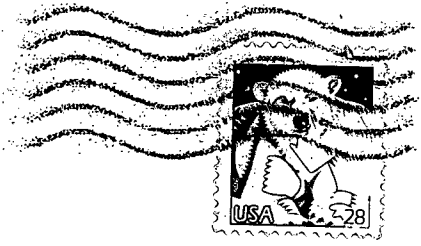
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Mary Ann Seitz

Address 4179 N. Mardiffe Ave
Boise, ID 83704

BOISE ID 837

20 OCT 2009 PM 2 1



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Victoria Everett

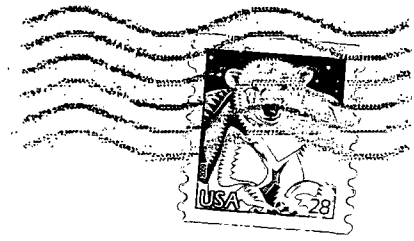
Address 408 E. 5th St #8

Coeur d'Alene City, Id. 83814

RECEIVED
NOV -3 AM 9:50
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

26 OCT 2010 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

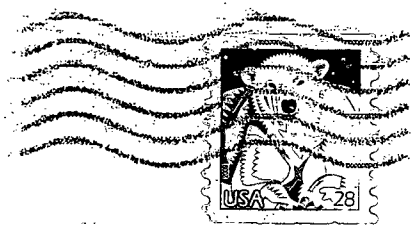
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Rick Ardinger

Address 17 Canyon Trail
Boise ID 83716

17 Canyon Trail
Boise, ID 83714

BOISE ID 837
29 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

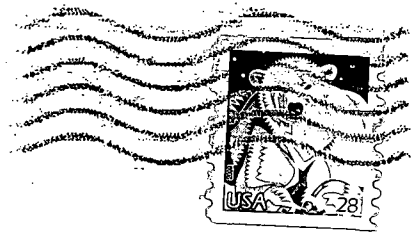
Name Rosalie Bell

Address 684 E. Braemere

Boise, Id 83702

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

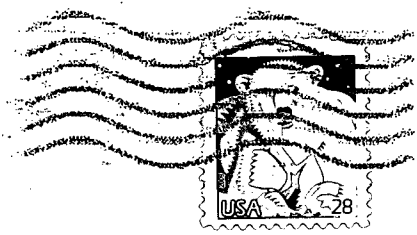
Name Lisa Livings

Address 1309 N 13th St

Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

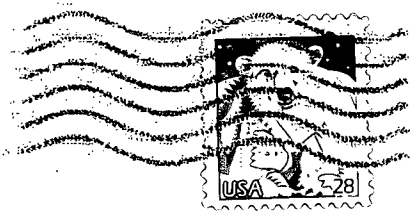
Name Dave Krick

Address 246 N. 8th

Boise, Id. 83702

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

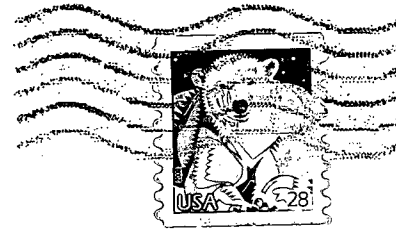
Name Marti Bridges

Address 3127 Crane Creek

Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Bob Seraphin

Address 8901 West River Beach Lane

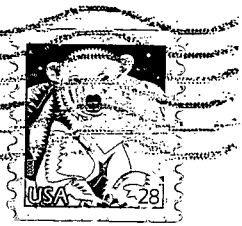
Garden City, ID 83714

Seraphim

8901 W. River Beach Lane

Garden City, ID 83714

BOISE ID 837



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

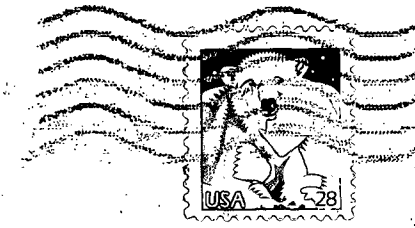
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Charles R. Ernst Jr.

Address 24750 EL Paso
Caldwell, Idaho 83607

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Joan Dannis

Address 214 2ND AVE N.

Hailey, Ida 83333

RECEIVED
2007 JUL -3 AM 9:48
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

J. Davies
214 2nd Ave No.
Hailey, Idaho
83333

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

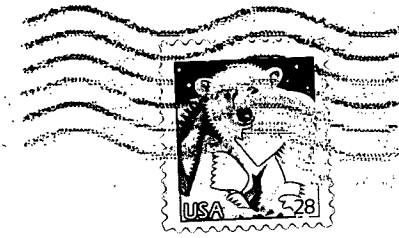
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Linda Jolly

Address 2415 Mt Vree Dr.
Boise, ID 83706

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Abigail Thomson

Address 507 Maple Ave

Boise, ID 83712

BOISE ID 837

26 OCT 2004 6PM E.T.

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Sue Chew

Address 1304 LaCola Ave

Boise ID 83706

BOISE ID 837

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Leana Leach

Address P.O. Box 2768 Ketchum Id 83340

(Home) 113 Sunrise, Sun Valley 83353

L. Leach
Box 2768
Ketchum ID 83340

BOISE ID 837
28 OCT 2009 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

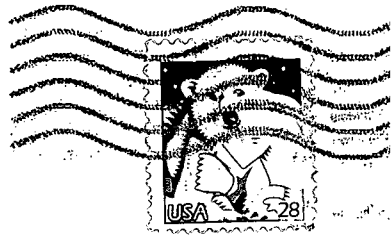
Name Jay Richards

Address 746 SANTA PAULA CT
BOISE ID 83712-6564

83712-656F96

BOISE ID 837

25 OCT 2002 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name DEBORRA L. BOHRER

Address P.O. BOX 606

KETCHUM, ID. 83340

BOISE ID 837

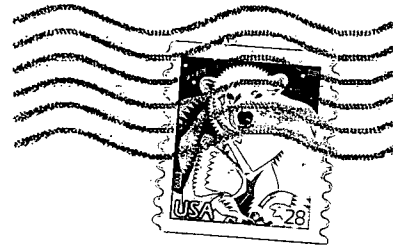
Deb Bohrer

26 OCT 2009 PM 2 T

Box 606

Ketchum ID

83340



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, ~~so it~~ cannot be disposed ~~of.~~ which

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

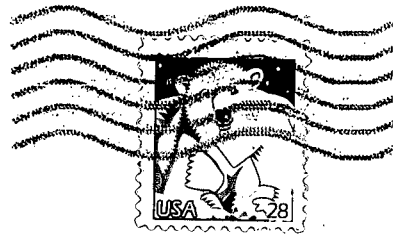
Name Phil Lansing

Address 743 Santa Paula Ct

Boise, Id 83712

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

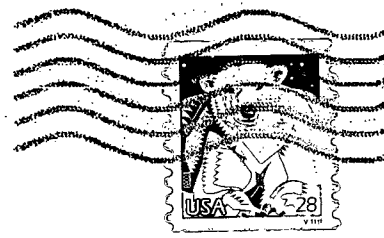
Name Joey Benedict

Address [redacted] 2246 Dafton Lane

Boise Idaho 83714

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
-- Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Carol Bachelder

Address 1626 Howry ST
Boise ID 83706

BOISE ID 837

26 OCT 2009 PM 2 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Leni Smith

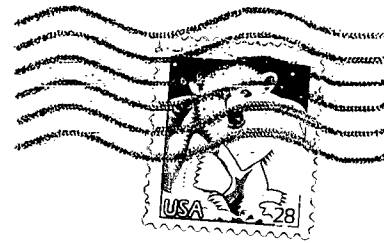
Address P.O. Box 845

Meridian ID. 83680

NOT HERE, NOT EVER!!

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

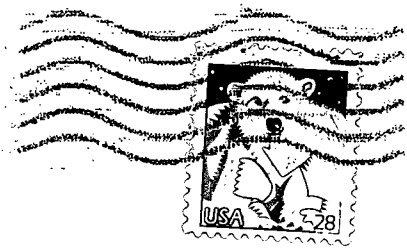
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name E. Manley Briggs, M.D

Address 1316 Harrison Blvd.
Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name LELAND THAMES

Address 8308 VALLEY VIEW DR,
BOISE ID 83704

RECEIVED
2004 SEP -3 AM 9:45
RULES AND DIRECTIVES
BRANCH

BOISE ID 837

26 OCT 2009 PM 1 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

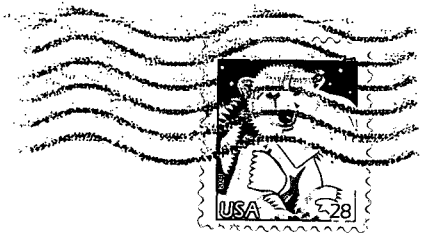
Name STEVE JAKUBOWICZ

Address 908 N. 21st STREET

BOISE, IDAHO 83702

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Micaela de Loyola

Address 1710 North 7th Street

Boise, Idaho 83702

BOISE ID 837

26 OCT 2009 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Page Jenner

Address PO Box 249 Sun Valley Id 83353
201 Skiway Dr Ketchum Id 83340

Jenner
Box 249
Sun Valley ID
83353

TWIN FALLS ID 833
PM
28 OCT
2009

Collect Stamps

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name STEPHEN WEEG

Address 442 S GARFIELD

POCATELLO, ID 83204

Mr. Stephen Weeg
[illegible]
442 S. Garfield Ave.
Pocatello, ID 83204-3335

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Sue Carroll

Address 200 N 3RD ST #301
Boise ID 83702

S. CARROLL

BOISE ID 837

20 OCT 2009 PM 2 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

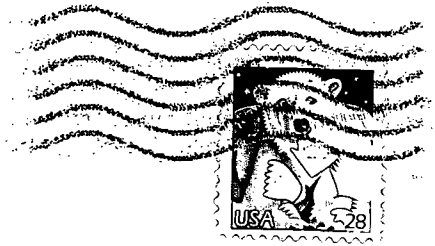
Name Kristin Ruether

Address 2314 N. 25th St.

Boise ID 83702

BOISE ID 837

25 OCT 2002 PM 2 1



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

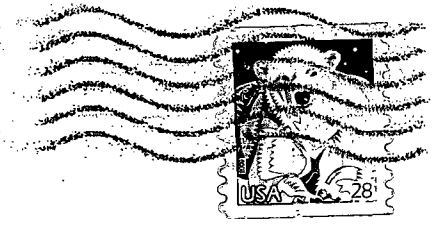
The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Barbara Littlejohn

Address 1011 S. Ivy St.
Nampa, ID. 83686

BOISE ID 837



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

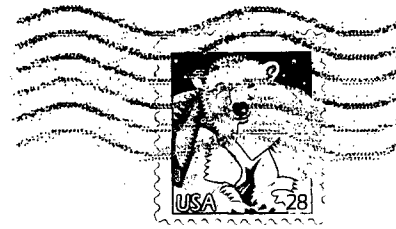
Name Jean Boyles

Address 1714 N. 7th St

Boise, Idaho 83702

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

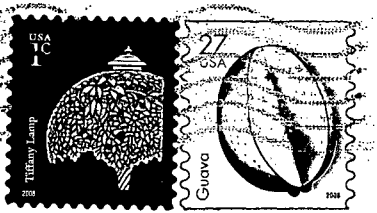
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Su Puckett

Address 5025 Mohawk

Pocatello, Id. 83204

Ms. Susan Puckett
5025 Mohawk St
Pocatello, ID 83204-4547



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

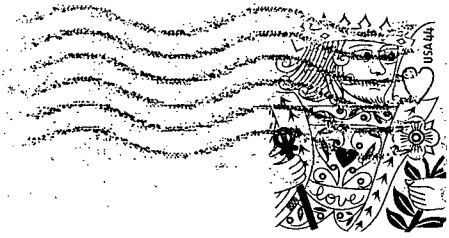
The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name George Curtis - George Curtis

Address 336 S. 12th Ave.
Pocatello, ID 83201

Ms. Chara Boehm
Mr. George Coutis
[illegible] 12th Ave
Pocatello ID 83201-4816



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

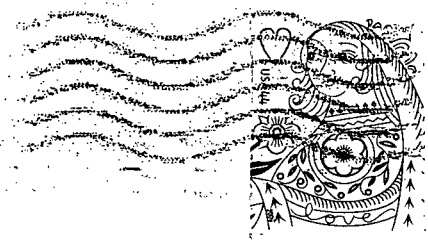
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Chara R Boehm Chara R Boehm

Address 336 S 12th Ave

Pocatello ID 83201

Ms. Chara Boehm
Mr. George Coutis
3365 12th Ave
Pocatello ID 83201-4816



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

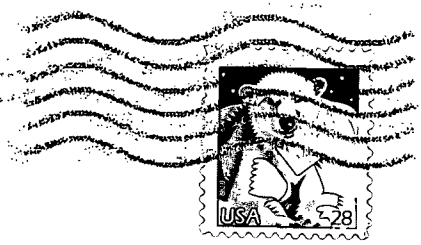
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Frank Culbertson

Address 2406 W. Idaho
Boise ID 83702

BOISE ID 837

25 OCT 2000 PM 2-1



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

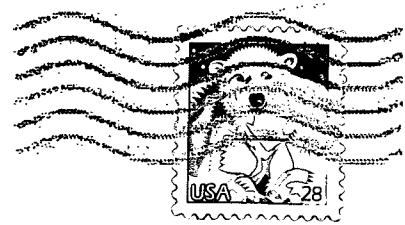
Name Kendra Person

Address 6057 Denton St

Boise, ID 83704

BOISE ID 837

30 OCT 2008 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Tammy Walker

Address 255 Blue Lakes Blvd. N.

#562

Twin Falls, Idaho 83301

RECEIVED

RULES AND DIRECTIVES BRANCH

2009 MAY 5 AM 9:16

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

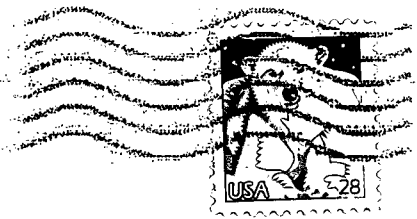
Name Marie Sward

Address 624 9th Ave So.

Nampa, Idaho 83651

M. Sword
624 9th Ave So
Nampa Idaho

BOISE ID 837
30 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

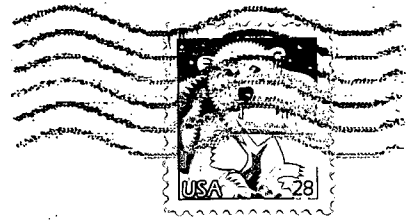
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Kurt Reusser

Address 379 W Trophy ST
Kuna, ID 83634

BOISE ID 837

30 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

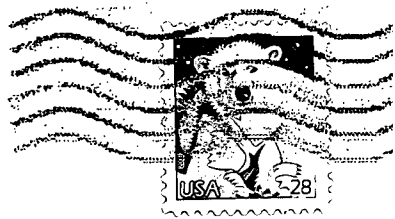
Name Mark Lagomarsino

Address 6524 S. Derbyshire Ave.

Boise, ID 83709

Mark Lagmarsino
6524 S Derbyshire Ave.
Boise, ID 83709

BOISE ID 837
30 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

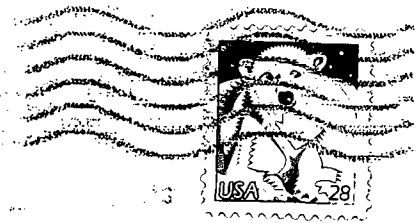
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Vikki Bonnell

Address 1927 S. Hilton St.
Boise, Id. 83705

Vikki Bonnell
1927 S. Hilton St.
Boise, Id. 83705

BOISE ID 837
OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission.
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

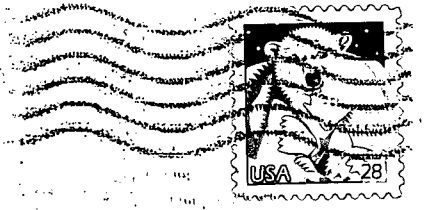
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Brian Taylor

Address 3613 Tulara St

Boise, ID 83706

Brian Taylor
3613 Tulara Ct.
Boise, ID 83706



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

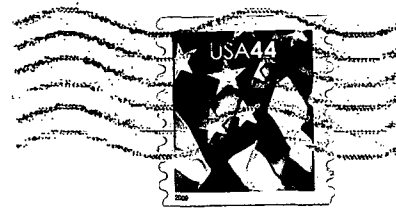
Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Kevin Kamps

Address 3206 Shepherd St.
Mt. Rainier, MD 20712

Kevin Kamps
3206 Shepherd St
Mt. Rainier, MD 20712

BOISE ID 837



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name TAMARA KING

Address 2810 INGLEWOOD RD

BOISE ID 83705

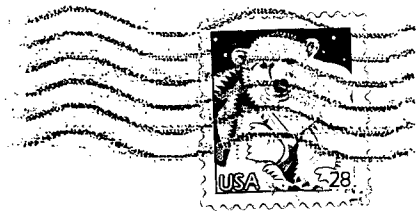
BOISE ID 837

T. KING

OCT 2009 PM 1 L

2810 INGLEWOOD RD.

BOISE ID 83705



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

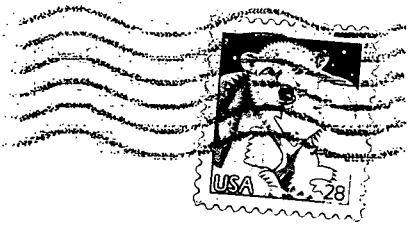
Name Bonnie L. Pilcher

Address 4385 W. Rose Hill Ct #201

Boise Idaho 83705

Pilcher
4385 W Rose Hill
Boise Id 83705

BOISE ID 837
30 OCT 2000 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Matt Kopydlowski

Address 257 S. Hayes

410 5922

141 Come to LSU meeting and say nice things to [illegible]

BOISE ID 837

30 OCT 2009 PM 2 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Dave Hensel

Address 3187 S. 200E

Orress 2d 83122

BOISE ID 837

30 OCT 2009 PM 2 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

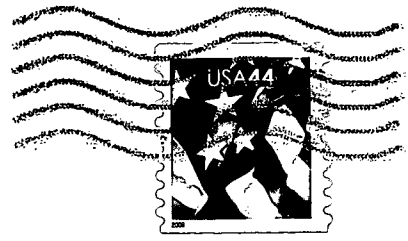
Name Liz Mattson

Address 2191 1st Ave S, Ste 220
Seattle, WA 98104

BOISE ID 837

30 OCT 2009 PM 2 T

Liz Mattson
2191st Ave S, Ste220
Seattle, WA 98104



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

Name Scott Kovac

Address 903 W. Alameda

Santa Fe, NM, 87501

BOISE ID 837

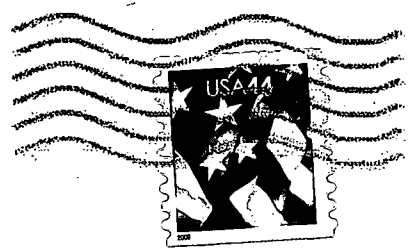
Scott Kovac

30 OCT 2009 PM 2 T

903 W. Alameda

Santa Fe, NM

87501



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of.

Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

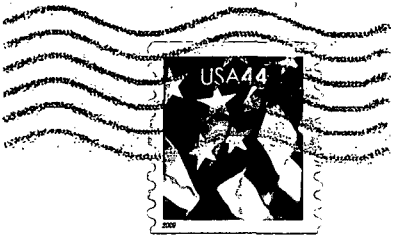
Name Sharon Cordrey

Address 5491 Weidner Rd.

Springboro. OH 45066 Neighbor to Mound Fernald & Portsmouth

BOISE ID 837

Shawn Cowdrey
30 OCT 2009 PM 2 T
5491 Weidner Rd
Springboro, OH
45066

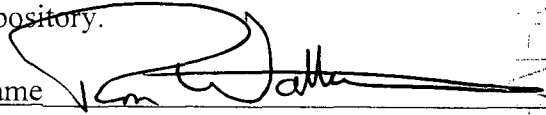


Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name 

Address 1135 E. Bonneville

Pocatello, ID 83201

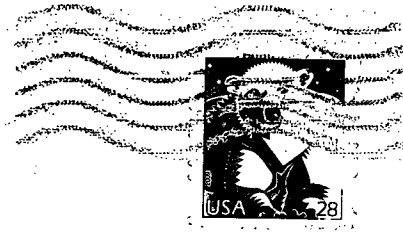
PRIORITY MAIL

Watters

1135 E. Bonneville

Poc. ID. 83201

23 OCT 2020 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Heather Joyce

Address 477 Cochise

Pocatello, ID 83204

HWRJ
477 Louise
Pocatello, ID
83204

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Diana Y Shipley

Address 405 N Lincoln

Pocatello, ID 83204

SALT LAKE CITY UT 841

Shipley
405 N. Lincoln
Pocatello, ID 8320[illegible]

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

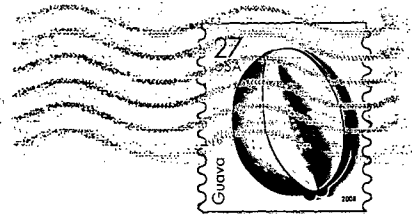
Name Karen Holland Tate

Address 4344 Zichardt

Pocatello, Id 83204

POCATELLO ID 832

Tate
4344 Ziebarth
Pocatello, ID 83204



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

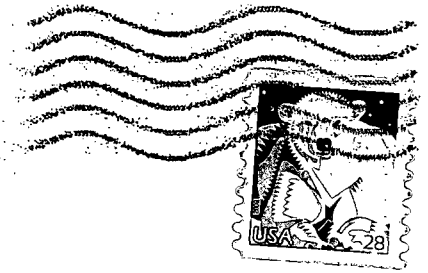
Name GERALD O. TOOLE

Address PO 1559 KETCHUM ID 83340

105 BENCH ROAD

BOISE ID 837

George Wittenberg
P.O. 1559
Ketchum, ID
83340



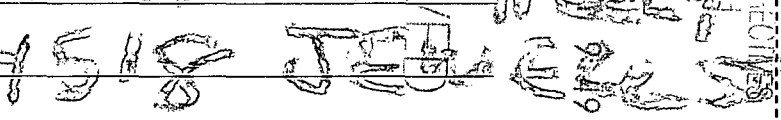
Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

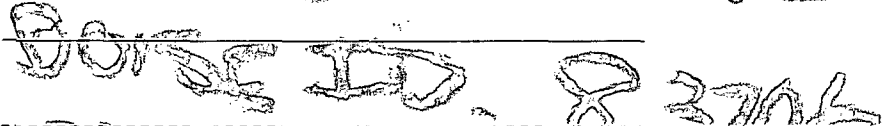
To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

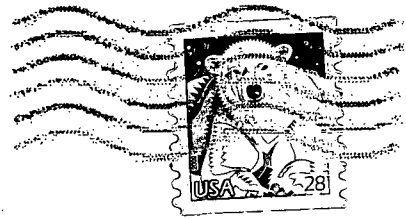
The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name 

Address 





Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Sara Rodgers

Address 4219 W Emerald

Boise ID 83706

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

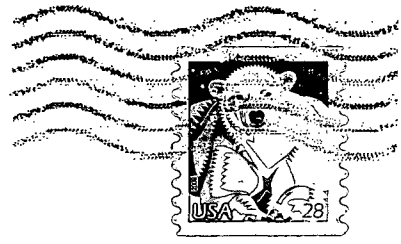
Name Susie Fisher

Address 3376 W. Agate Ct

Boise Id. 83705

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

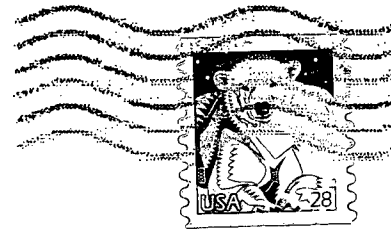
Name Mike Mancuso

Address 20 N. Wilson St

Boise ID 83702

BOISE ID 837

26 OCT 2009 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Melissa Estes

Address 223 Fillmore

Twin Falls, ID 83301

BOISE ID 837

26 OCT 2009 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

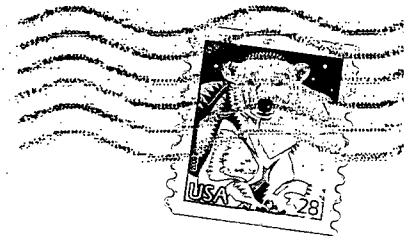
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Crystal White

Address 1715 ½ Bannock St.

Boise, ID. 83702

BOISE ID 837



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name John Post

Address 2103 N. 19th St.

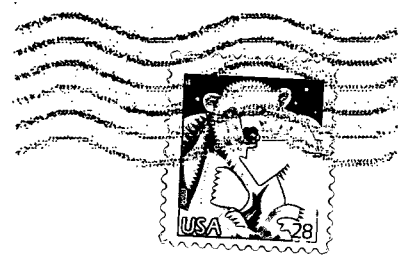
Boise, ID 83702

BOISE ID 837

Post

2103 W. 19th St.

Boise, ID 83702



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Patsy Bayer

Address 3030 N. 26th St

Boise ID 83702

BOISE ID 837

PM

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

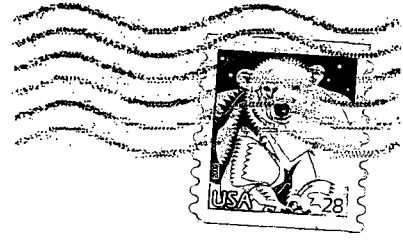
The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name ELAINE GILL

Address 2117 WARM SPRINGS AVE

BOISE, ID 83712



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Andrea S Rule

Address 1101 No 8th #A
Boise, ID
83702

BOISE ID 837

A. Rule
1101 No. 8th #A
Boise Idaho
83702

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

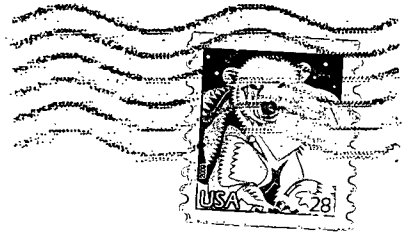
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name JIM ELGIN

Address 746 SANTA PAULA CT.

BOISE, ID 83712

BOISE ID 837



J.E. [illegible]

746 Santa Paula Ct.

Boise ID 83712

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Katherine Stearns

Address 805 E. State St

Boise, ID 83712

BOISE ID 837

24 OCT 2008 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

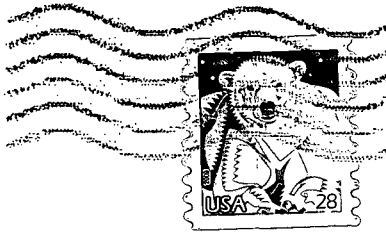
Name Joanie Fauci

Address 2944 Hillway Dr

Boise Id. 83702

BOISE ID 837

30 OCT 2003 PM 1 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name PAM CONLEY

Address 917 W HIGHLAND VIEW DR

BOISE ID 83702

Pam Conley pgconley@cableone.net

BOISE ID 837

26 OCT 2009 PM 2 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

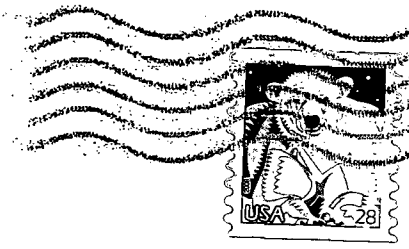
Name Frank Nedinger

Address 1312 Garden St.

Boise ID 83706

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

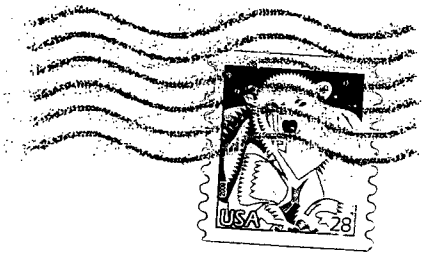
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Jessica Ruehrwein

Address 2457 S. Swallowtail Ln.
Boise ID 83716

BOISE ID 837

25 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

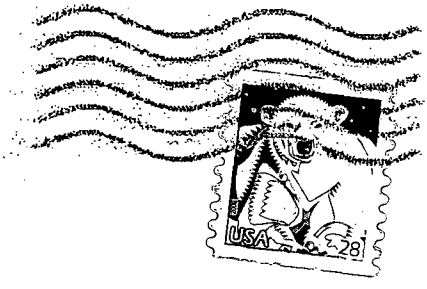
Name Hans Glenn

Address 525 Ave. H Apt. 704

Boise ID. 83712

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Mary E. Bay

Address PO Box 4604

Ketchum Id 83340

BOISE ID 837

2009 PM 2 1

Tracy B[illegible]
P.O. Box 4604
Ketchum, Idaho
83340

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

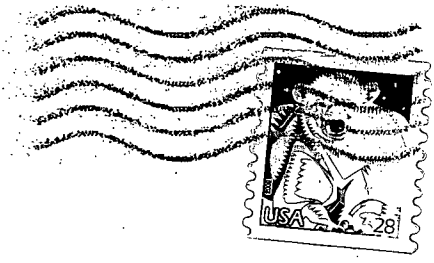
Name Rebecca Ratcliff

Address 1502 N. 7th St.

Boise ID

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

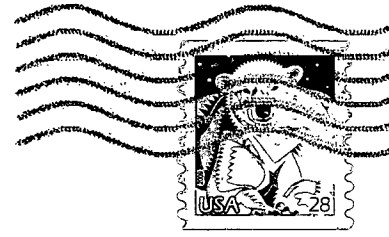
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name

Address

BOISE ID 837

26 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

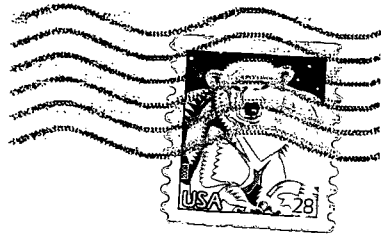
Name Rikki Held

Address 3300 Cara
Garden City, ID 83714

RECEIVED
03 NOV -3 AM 11:16
RULES AND DIRECTIVES BRANCH

BOISE ID 837

30 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Richard FASSINO

Address P.O. Box 4313

Ketchum, ID 83340

BOISE ID 837

R. Fassino

28 OCT 2008 PM 2 T

Box 4313

Ketchum, Id

83340

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

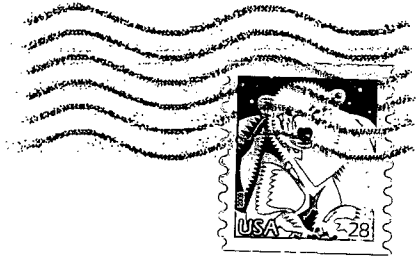
Name PEGGY FAITH

Address 3322 W. TAFT ST. #5

BOISE ID 83703

BOISE ID 837

26 OCT 2009 PM 2 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Stephen Crowley

Address 1023 Strawberry Lane

Boise ID 83712

BOISE ID 837

26 OCT 2023 PM 1 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

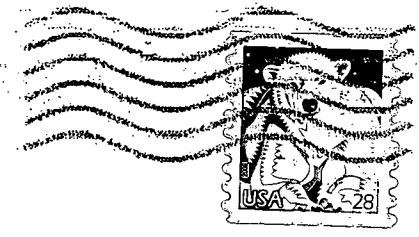
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Lori BWan

Address 1010½ N. 21st St.
Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

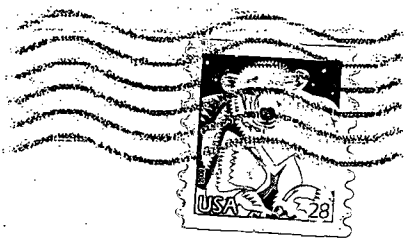
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Mike T. Gallup

Address 14301 Moreno Dr.
Caldwell, ID 83607

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name R Dean.

Address 101 Lewalt Rd
Bellevue ID 83313

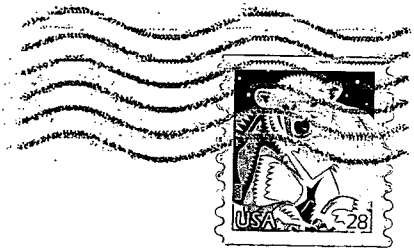
BOISE ID 837

R. Deacon 2009 PM 1 L

101 Lewalt Rd.

Bellevue Id.

83313



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Jennifer Sigert

Address 3802 W. Taft Street

Boise, ID, 83703

BOISE ID 837

J SIEGEL

PM 1 L

3802 W. Taft St

Boise, ID, 83703

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

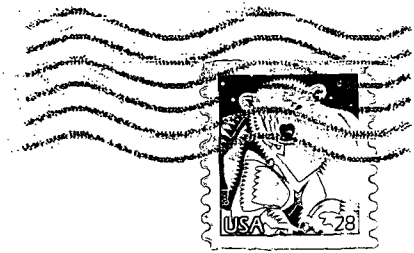
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name [illegible]

Address [illegible]

BOISE ID 837

26 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

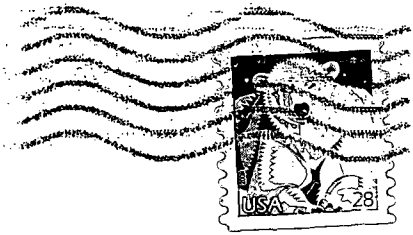
The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Diana S Bunt

Address PO Box 131

Lewiston ID 83501



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

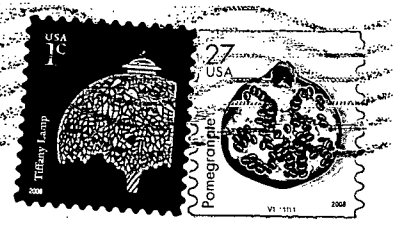
The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Dennis Prokop

Address 5192 W Old Hwy 91
Pocatello Id 83204

PROKSA
5192 W OLD HWY 91
POCATELLO, ID 83204



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Margo Probst

Address 5192 W Old Hwy 91
Pocatello Id 83204

PROKSA
5192 W OLD HWY 91
POCATELLO, ID 83204

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Diane Ronayne

Address 746 Santa Paula Ct

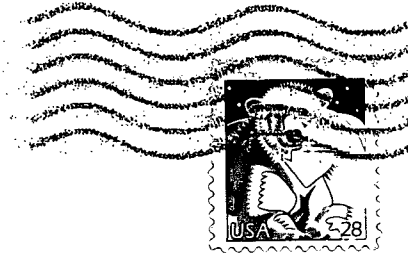
Boise

ID 83712

BOISE ID 837

25 OCT 2009 PM 2 L

D/R
Boise ID
83712



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Diana FASSINO

Address PO Box 4313

Ketchum, ID 83340

Diana Fassino

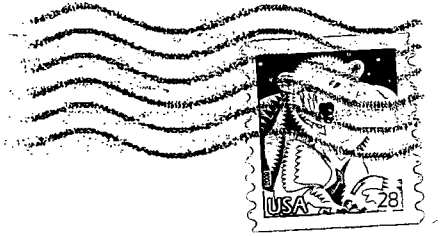
BOISE ID 837

Dana Fissing 2009 PM 2 1

Box 4313

Ketchum Idaho

83340



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Suzi Lee

Address PO Box 2863

Ketchum Id 83340

Suzy Lee
Box 2863
Ketchum ID.
83340

TWIN FALLS ID 833
PM
28 OCT
2009

Collect Stamps?

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

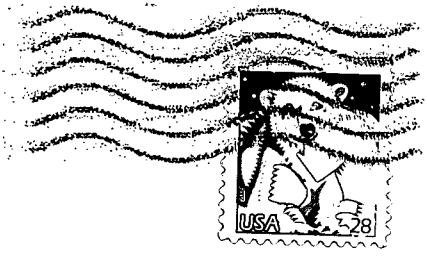
Name CAROL L. Growhoski

Address 1210 N 11th

Boise ID 83702

BOISE ID 837

26 OCT 2009 PM 2 1



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name J. Sangster

Address 12730 Sunnyslope Rd.
Caldwell, ID 83607

BOISE ID 837

26 OCT 2000 PM 2-1

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

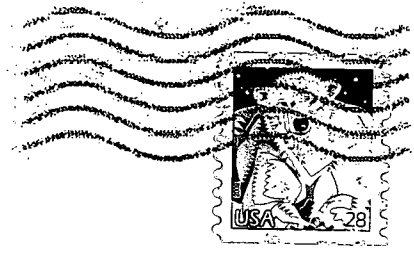
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Melody Eigler

Address 9651 W Cory Ln
Boise, ID 83704

BOISE ID 837

25 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Donna Hartmans

Address 2406 W. Idaho St.

Boise, ID 83702

BOISE ID 837

26 OCT 2009 PM 2 L

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium ~~Disposal~~ Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name LeRoy Moore

Address 3360 14th St.

Boulder, CO 80304

3360 [illegible]
Boulder, Co 80304

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

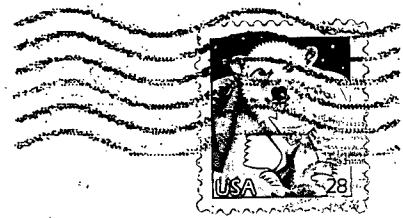
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Judi Bates

Address 9097 Northview Rd.

Middleton, ID 83644

BOISE ID 837



J. Bates
30 OCT 2020 PM 1 T
9097 Northview Rd
Middleton, ID 83644

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

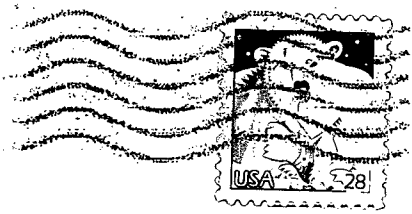
Name Lynda Person

Address 6057 Denton St

Boise, ID 83704

BOISE ID 837

30 OCT 2009 PM 3 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

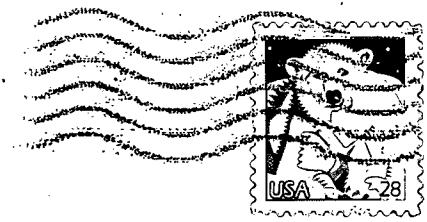
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Mary A. Glen

Address 76 Horizon DR.
Boise, ID 83702

BOISE ID 837

30 OCT 2009 PM 1 L



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Brice Boland

Address 2974 Silverado Place

Pocatello, ID 83201

BOISE ID 837

30 OCT 2009 PM 2 T

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Tom Carpenter

Address 4833 S. Morgan
Seattle WA 98118

BOISE ID 837

TOM CARPENTER
4833 S. MORGAN
SEATTLE, WA 98118

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

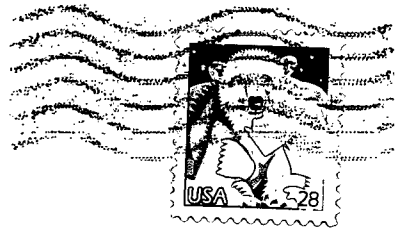
Name Sarah Rutthaler

Address 1607 Bedford Dr.

Boise, ID 83705

BOISE ID 837

Sarah Ritthaler
1607 Bedford Dr
Boise ID 83705



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Molly Johnson

Address 6290 Hawk Ridge Pl

San Miguel, CA 93451

BOISE ID 837

M Johnson
6290 Hawk Ridge Pl
San Miguel, CA 93451

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

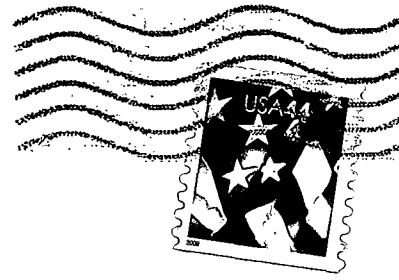
Name Jesse Stoler

Address [redacted]

350 West Maple Street, Apt H27

BOISE ID 837

30 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name AMANDA Hill-Atkisson

Address 989 Winburn Dr

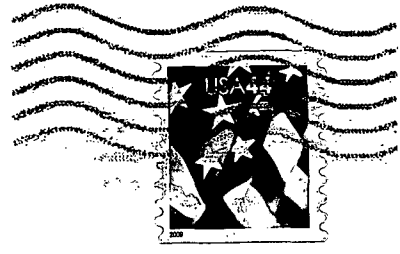
East Point GA 30344

BOISE ID 837

[illegible] PM 2 T

989 Winbourne Dr

East Point GA 30344



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Judith Mohling

Address 432 Marine St

Boulder, CO 80302

BOISE ID 837

30 OCT 2009 PM 2 T

JM

432 Marine St

Boulder, CO 80302

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Robin Rose

Address 3208 Hawthorne Pl SE

Olympia WA 98501

BOISE ID 837

OCT 2009 PM 2 T

Robin Ross
3208 Hawthorne PL SE
Olympia WA 98501

Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

To: Nuclear Regulatory Commission
Re: Depleted Uranium Disposal Rulemaking

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

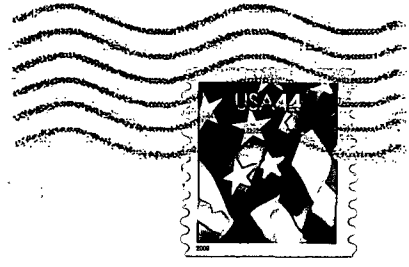
The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

Name Travis Oldham

Address 1519 Eastridge Dr. #65
Pocatello, ID 83201

BOISE ID 837

30 OCT 2009 PM 2 T



Chief, Rulemaking & Directives Branch
Division of Administrative Services
Office of Administration
U.S. NRC
Mail Stop TWB 5B01M
Washington, DC 20555-001

74 FR 30175
6/24/09
(26)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4e36f
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0016
Comment on FR Doc # E9-14820

Submitter Information

Name: Gary Merrell
Address:
1943 Bear Mountain Drive
Draper, UT, 84020
Submitter's Representative: None
Organization: Private Citizen

General Comment

As a professional consultant in the waste management industry for the last 27 years, I am concerned about the regulation and classification of depleted uranium (DU) as a low-level radioactive waste. DU poses a radiological hazard similar to other long-lived alpha-emitting radionuclides (such as the transuranic isotopes) and should be regulated using the same risk-based considerations as other long-lived alpha emitters. In the attached file, I point out the similarities between DU and transuranic isotopes and suggest a risk-informed approach for including DU in the 10CFR 61 classification system.

DU meets the definition of a low-level radioactive waste. However, the waste classification system in 10 CFR 61.55 does not specifically include uranium in the classification tables. As a result, DU receives the 10CFR61 default classification as Class A low-level waste. In general, Class A waste contains predominantly short-lived radionuclides and has a radiological hazard on the order of 100 years. DU shares neither of these characteristics with Class A waste because it is very long-lived and the radiological hazard persists far longer than 100 years.

Under the 10CFR61 classification system, Class A wastes may contain long-lived alpha-emitting radionuclides, such as transuranics, provided that their concentrations do not exceed 10 nCi/g. Based on the similar radiological characteristics and hazards of DU and tranuranics (see attached file), I believe a 10 nCi/g Class A concentration limit for DU is appropriate. For the same reasons, I believe a 100 nCi/g Class C limit for DU is also appropriate.

I believe it is essential that NRC maintain its long history of scientific integrity and leadership in developing risk-

SUNSI Review Complete
Template = ADM-013
E-RIDS = ADM-03 (bxt1)
Add: C. Grossman (cjg2), B. Traynham
P. Yadav (PPY)

based standards for radioactive waste disposal. I am optimistic that the NRC can properly evaluate the technical and scientific issues necessary to form a sound and consistent technical basis for disposal of low-level waste.

Attachments

NRC-2009-0257-DRAFT-0016.1: Comment on FR Doc # E9-14820

As a professional consultant in the waste management industry for the last 27 years, I am concerned about the regulation and classification of depleted uranium (DU) as a low-level radioactive waste. DU poses a radiological hazard similar to other long-lived alpha-emitting radionuclides (such as the transuranic isotopes) and should be regulated using the same risk-based considerations as other long-lived alpha emitters. In the comments below, I point out the similarities between DU and transuranic isotopes and suggest a risk-informed approach for including DU in the 10CFR 61 classification system.

NRC Classification of DU

DU meets the definition of a low-level radioactive waste, a fact which was confirmed in NRC's Memorandum and Order of January 18, 2005 (CLI-05-05). However, the waste classification system in 10 CFR 61.55 does not specifically include uranium in the classification tables. As a result, DU receives the 10CFR61 default classification as Class A low-level waste. In general, Class A waste contains predominantly short-lived radionuclides and has a radiological hazard on the order of 100 years. DU shares neither of these characteristics with Class A waste because it is very long-lived and the radiological hazard persists far longer than 100 years.

Under the 10CFR61 classification system, Class A wastes may contain long-lived alpha-emitting radionuclides, such as transuranics, provided that their concentrations do not exceed 10 nCi/g. Based on the similar radiological characteristics and hazards of DU and tranuranics (see below), I believe a 10 nCi/g Class A concentration limit for DU is appropriate. For the same reasons, I believe a 100 nCi/g Class C limit for DU is also appropriate.

Radiological Hazard Comparison – DU vs Transuranics

The radiological hazard from DU is primarily from the emission of alpha particles. In this respect, it is similar to transuranic isotopes, such as plutonium and americium. The table below compares the radiological hazards of Pu-239, Am-241, and DU (with and without decay products), based on the dose conversion factors for inhalation, ingestion, and external exposure. The dose conversion factors were taken from Federal Guidance Reports No. 11 and No. 12.

The table shows that for long time frames, following significant ingrowth of DU decay products, the radiological hazard of DU exceeds the hazard posed by Pu-239 or Am-241. Furthermore, because DU and its decay products are very long-lived, its hazard initially increases and then remains almost constant (after secular equilibrium is reestablished), while the hazards from the transuranics decrease through radioactive decay. Given the similar magnitudes of their long-term radiological hazards, I believe it is appropriate to regulate DU similarly to the transuranics (i.e., 10 nCi/g Class A limit; 100 nCi/g Class C limit). A risk-based approach for classifying DU suggests that it should be subject to the same concentration-based limits as the tranuranics in the current 10CFR61 classification system.

Table 1. Comparison of DU and transuranic dose conversion factors

Pathway	Pu-239	Am-241	DU	DU + decay products
Inhalation (Sv/Bq)	1.16E-04	1.20E-04	3.20E-05 28% of Pu-239	1.64E-04 1.4 times Pu-239
Ingestion (Sv/Bq)	9.56E-07	9.84E-07	7.25E-08 8% of Pu-239	2.62E-06 2.7 times Pu-239
External gamma (Sv/s per Bq/m^3)	1.58E-21	2.34E-19	6.10E-19 390 times Pu-239	6.05E-17 38,000 times Pu-239

Finally, I believe it is essential that NRC maintain its long history of scientific integrity and leadership in developing risk-based standards for radioactive waste disposal. I am optimistic that the NRC can properly evaluate the technical and scientific issues necessary to form a sound and consistent technical basis for disposal of low-level waste.

74 FR 30175
6/24/09
(27)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4ea61
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0017
Comment on FR Doc # E9-14820

Submitter Information

Name: Kelsey Nunez
Address:
3602 W. Taft St.
Boise,
Submitter's Representative: n/a
Organization: n/a

General Comment

• The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive.

• The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository.

• It is inappropriate to license any new uranium enrichment facility until regulations are in place governing disposal of depleted uranium and disposal facilities have implemented those regulations.

• Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal. Instead, the NRC should focus on reevaluating its decision that shallow land burial is adequate for depleted uranium disposal.

• The U.S. already has a massive inventory of depleted uranium still mixed with hexafluoride, so it cannot be disposed of. Once that separation occurs, the size of the waste stream and the fact that DU grows more radioactive over the course of one million years prohibits DU disposal at any of the current or pending low-level waste disposal facilities.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

74 FR 30175
6/24/09
(28)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4dc90
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0018
Comment on FR Doc # E9-14820

Submitter Information

Name: Arjun Makhijani
Address:
Institute for Energy and Environmental Research
6935 Laurel Ave, #201
Takoma Park, MD, 20912
Organization: Institute for Energy and Environmental Research

General Comment

Please find attached the following:
"IEER Comments on the Nuclear Regulatory Commission's
Rulemaking Regarding the "Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium" / by Arjun Makhijani, October 30, 2009

Attachments

NRC-2009-0257-DRAFT-0018.1: Comment on FR Doc # E9-14820

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

ieer

INSTITUTE FOR ENERGY AND ENVIRONMENTAL RESEARCH

6935 Laurel Avenue, Suite 201
Takoma Park, MD 20912

Phone: (301) 270-5500
FAX: (301) 270-3029
e-mail: ieer@ieer.org
http://www.ieer.org

IEER Comments on the Nuclear Regulatory Commission's Rulemaking Regarding the "Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium"[1]

Arjun Makhijani
October 30, 2009

On March 18, the Nuclear Regulatory Commission (NRC) directed its staff to proceed with a rulemaking to amend the low-level waste rule to take into account the gap in the existing rule,[2] which does not address depleted uranium waste created in large amounts, such as at uranium enrichment plants. This followed the preparation by the staff of a paper, SECY-08-147,[3] which presented the Commission with four options. The March 18, 2009, decision was to proceed with Option 2 as specified in SECY-08-147.

> Previously, in the adjudicatory proceeding for the Louisiana Enrichment Services (LES) license application, the Commission determined that depleted uranium is properly classified as low-level radioactive waste. Although the Commission stated that a literal reading of 10 CFR 61.55(a)(6) would render depleted uranium a Class A waste, it recognized that the analysis supporting this section did not address the disposal of large quantities of depleted uranium. Outside of the adjudication, the staff was tasked to evaluate this complex issue and provide specific recommendations to the Commission. SECY-08-0147 is the result of the Commission's direction and provides recommendations for a path forward.

---

[1] U.S. Nuclear Regulatory Commission, "Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium," *Federal Register* v.74, no.120 (June 24, 2009), pages 30175-30179, on the Web at http://edocket.access.gpo.gov/2009/pdf/E9-14820.pdf. Hereafter referred to as NRC FR Notice 2009. Hereafter NRC FR Notice 2009.

[2] Annette L. Vietti-Cook (Secretary [of the Commission]), Memorandum to R. W. Borchardt (Executive Director for Operations), *Staff Requirements – SECY-08-0147 – Response to Commission Order CLI-05-20 Regarding Depleted Uranium*, Nuclear Regulatory Commission, March 18, 2009, on the Web at http://www.nrc.gov/reading-rm/doc-collections/commission/srm/2008/2008-0147srm.pdf. The Commission's approval of the staff's recommendation was not unanimous. Commissioner Gregory Jaczko dissented. See below.

[3] R.W. Borchardt (Executive Director for Operations), to the Commissioners [of the NRC], *Response to Commission Order CLI-05-20 Regarding Depleted Uranium*, Rulemaking Issue, SECY-08-0147, October 7, 2008, on the Web at http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2008/secy2008-0147/2008-0147scy.pdf. Hereafter referred to as SECY-08-0147 2008.

> As an initial approach to addressing this complicated issue, the Commission has approved the staff's recommended Option 2 to 1) proceed with rulemaking in 10 CFR Part 61 to specify a requirement for a site-specific analysis for the disposal of large quantities of depleted uranium (DU) and the technical requirements for such an analysis; and 2) to develop a guidance document for public comment that outlines the parameters and assumptions to be used in conducting such site-specific analyses.
>
> In revising 10 CFR 61.55(a)(6) in this limited scope rulemaking, the Commission is not proposing to alter the waste classification of depleted uranium. Eventual changes to waste classification designations in the regulations must be analyzed in light of the total amount of depleted uranium being disposed of at any given site. However, the Commission is stating that for waste streams consisting of significant amounts of depleted uranium, there may be a need to place additional restrictions on the disposal of the depleted uranium at a specific site or deny such disposal based on unique site characteristics and those restrictions should be determined by a site specific analysis which satisfies the requirements of the proposed new 61.55(a)(9). This thought should be clearly indicated in the proposed rulemaking package seeking public comment. As part of this rulemaking, the staff should promptly conduct a public workshop inviting all potentially affected stakeholders, including licensees, state regulators and federal agencies. At this workshop, the staff should discuss the issues associated with the disposal of depleted uranium, the potential issues to be considered in rulemaking, and technical parameters of concern in the analysis so that informed decisions can be made in the interim period until the rulemaking is final.[4]

The first thing to note here is that the Commission is proposing only to revise 10 CFR 61.55(a)(6) and to add a new paragraph 10 CFR 61.55(a)(9), which does not now exist. Specifically, it is *not* proposing within this limited rulemaking to modify any part of 10 CFR 61 outside of 10 CFR 61.55(a). This intention is also clear from the Federal Register notice announcing the workshops.[5] The second critical thing to note is that the vote was not unanimous. Commissioner Jaczko, who has since been appointed the Chairman of the NRC, voted against Option 2, having earlier stated his preference for Option 3:

> In my original vote on SECY-08-0147, I approved Option 3 (determine classification for depleted uranium within existing classification framework) and I disapproved the staff's recommendation for Option 2 (rulemaking to specify requirement for site-specific analyses for the disposal of large quantities of depleted uranium). Since that vote, which was dated November 3, 2008, more information has come to light that I would like to address in my vote.
>
> The disposal of large quantities of depleted uranium (DU) is a unique challenge because, unlike typical low-level waste, the doses increase over time rather than decrease. The technical analysis included with SECY-08-0147 indicates that

---

[4] Annette L. Vietti-Cook (Secretary [of the Commission]), Memorandum to R. W. Borchardt (Executive Director for Operations), *Staff Requirements – SECY-08-0147 – Response to Commission Order CLI-05-20 Regarding Depleted Uranium*, Nuclear Regulatory Commission, March 18, 2009, on the Web at http://www.nrc.gov/reading-rm/doc-collections/commission/srm/2008/2008-0147srm.pdf.

[5] NRC FR Notice 2009.

> additional requirements are likely needed for disposal of large quantities of DU in order to protect public health and safety; for example, increased waste disposal depth or robust radon barriers may be required. However, Option 2 does not explicitly change the classification of DU as presently provided for in 10 CFR 61.55 and therefore the waste would remain classified as Class A. I do not believe that it is logical to argue that that waste that requires additional requirements for disposal (similar to those required for Class C waste) can still be labeled as Class A waste.[6]

As directed by the Commission, , the NRC staff held a two day workshop in Bethesda, Maryland, in which I was an invited participant, as well as one in Salt Lake City.[7] The proceedings were transcribed. The transcript and slide presentations have been posted on the NRC's website.

I will first provide comments on the DU portion of the rulemaking and then provide briefer comments relating to other unique waste forms and the NRC's proposal for a longer term risk-informed revision of the entire low-level waste rule.

A. SECY-08-147 Is Fundamentally Deficient in Concept

Option 2, as described in SECY-08-147, is to keep the existing designation of DU as Class A waste based on the default paragraph in the low-level waste rule 10 CFR 61.55(a)(6). This paragraph states: "If radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A." Since this was recognized as insufficient for ensuring health and safety, Option 2 proposes the addition of a new paragraph. The proposal is summed up in SECY-08-147 as follows:

> Proposed Change: Modify paragraph 61.55(a)(6) to include a statement that, for unique waste streams including, but not limited to, large quantities of depleted uranium, the requirements of § 61.55(a)(9) of this part must be met. Section 61.55(a) would then be modified to include a paragraph (a)(9), which would include a requirement that *the disposal facility licensee must perform, and the Commission must approve, a site specific analysis demonstrating that the unique waste stream, including large quantities of depleted uranium, can be disposed of at the site in conformance with the performance objectives in subpart C to Part 61.*[8]

---

[6] *Commissioner Jaczko's Revised Comments on SECY-08-0147 Response to Commission Order CLI-05-20 Regarding Depleted Uranium*, March 6, 2009, on the Web at http://www.nrc.gov/reading-rm/doc-collections/commission/cvr/2008/2008-0147vtr.pdf. See pdf pp. 7 and 8.

[7] The transcripts for both the Maryland (September 2 and 3, 2009) and the Utah (September 23 and 24, 2009) Workshops, the slide presentations, and background documents are available on the NRC's web page: *Unique Waste Streams*, on the Web at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams.html. Hereafter cited as NRC DU meeting transcript, September 2, 2009, and NRC DU meeting transcript September 3, 2009.

[8] SECY-08-0147 2008, p. 8. Italics, in the original, provide the text of the proposed new paragraph.

There are is a fundamental problem with this paragraph. It *assumes* that there exist sites that can comply with the performance requirements of 10 CFR 61, Subpart C. SECY-08-0147 provides no site-specific analysis to prove this in even one case. As we will see, the generic analysis of various types of sites and scenarios performed are fundamentally deficient in their assumptions and in their modeling. The NRC staff did not take into account even the possibility that no site would be found suitable under the performance requirements of Subpart C. Option 2 contains no fallback provision to examine alternative methods of managing large amounts of DU that could meet the performance requirements. Specifically, it does not consider deep disposal.

But the problem goes even deeper. The NRC staff failed even in its generic and deficient analysis to examine whether shallow land burial (at sufficient depth but less than 30 meters) could meet the performance requirements of Subpart C. So far as limiting dose to the general public are concerned, those performance requirements are specified at 10 CFR 61.41 as follows:

> Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

SECY-08-0147 did not calculate organ doses at all despite the fact that the main radionuclides in question – uranium-238, uranium-234, thorium-230, radium-226, radon-222 (and its daughters) – have dose conversion factors for particular organs that are much greater than for the equivalent dose to the whole body. For instance, the bone surface dose due to radium-226 per unit intake by ingestion is about 44 times larger than the whole body dose equivalent. As another example, the target organ for radon-222 (and its decay products) is the lung and other organs get minimal doses. When organ dose to whole body equivalent ratios for inhalation are considered (important in case waste is uncovered by erosion, especially in dry areas), the differences can be even greater. The ratio of bone surface dose to the whole body effective dose equivalent for inhalation of medium solubility thorium-230 is more than 50.[9]

Other examples are easy to provide. For instance, the bone surface dose from drinking water contaminated with lead-210 (a decay product of radon-222) is more than 30 times bigger than the committed whole body equivalent dose.

At the Bethesda, Maryland, workshop, I asked why the performance assessment was not according to the criteria in 10 CFR 61 Subpart C. Dr. Esh, the principal author of the analysis in SECY-08-147, stated that the NRC staff had used a "modern" approach and used TEDE as the performance criterion:

> Primarily because in more recent evaluations; in particular, for waste incidental to reprocessing, we have had direction from the Commission to use more modern methods, instead of those old methods. So we followed that direction. [10]

[9] Dose conversion factors are from EPA's Federal Guidance Report 13.
[10] NRC DU meeting transcript, September 2, 2009, p. 104.

I pointed out that human beings still have organs, and 10 CFR 61 Subpart C requires organ dose calculations, so it is not a question of "modern" methods of calculation. Further, the most recent EPA method of internal dose calculation, published as Federal Guidance Report 13, allows for both organ dose and whole body effective dose equivalent calculations. So it is not even a question of "modern" methods versus obsolete methods.

Also, whether a certain method is "modern" or not or whether only whole body equivalent doses are used in other parts of the NRC's work is irrelevant. The plain language of the present DU rulemaking process requires an evaluation relative to the performance requirements of 10 CFR 61, and those requirements are in Subpart C. In turn, Subpart C requires, among other things, limitation of organ dose. Hence, in every circumstance where organ dose may exceed whole body effective dose equivalent, as is the case with DU disposal, the rule *requires the calculation dose to the critical or most exposed organ.*

As noted above, the Commission is proposing only to revise 10 CFR 61.55(a)(6) and add a new paragraph that would specify disposal requirements for DU. The Commission has not authorized modification of 10 CFR 61 Subpart C. Specifically, it has not anywhere mentioned that the organ dose requirement of 10 CFR 61.41, which is in Subpart C, is to be ignored or changed. Further, SECY-08-0147 itself states that it will examine whether compliance with 10 CFR 61 Subpart C can be achieved with shallow land burial:

> The technical analysis addressed whether amendments to § 61.55(a) are necessary to assure large quantities of DU are disposed of in a manner that meets the performance objectives in Subpart C of 10 CFR Part 61.[11]

Dr. Esh, the principal NRC staff author of SECY-08-0147, explicitly stated during the Bethesda, Maryland, workshop that the NRC was not proposing to modify Subpart C.[12]

But SECY-08-0147 did not evaluate performance of DU disposal in shallow land facilities according to a principal element of the requirements of Subpart C. Rather SECY-08-0147 entirely ignored the organ dose calculation requirements of Subpart C as specified in 10 CFR 61.41. This is a central problem with the present proceeding without any other factor. Further, were organ doses to be calculated, even with the fundamentally deficient modeling in SECY-08-0147 (see below), that, contrary to the conclusions of the SECY-08-0147, the model may show that the performance requirements of Subpart C would not be met by shallow land disposal.

The decision of the NRC instructing the staff to proceed with the rulemaking based on Option 2 is basically flawed since it depends centrally on the technical analysis of the NRC staff in SECY-08-0147 actually showing that it was, at least in theory, possible that some imaginable shallow land configuration could meet the performance requirements of Subpart C. But SECY-08-0147 is fundamentally incomplete since it did not even attempt to calculate organ doses, which are most important, under the circumstances, for evaluating disposal performance.

---

[11] SECY-08-0147 2008, p. 1.

[12] NRC DU meeting transcript, September 2, 2009, p. 105.

Recommendation 1: Since the entire premise of proceeding is fundamentally flawed in regard to the performance requirements of Subpart C, and since the staff paper on which the NRC made its decision to proceed with this rulemaking did not even attempt to calculate organ doses, as required by Subpart C, the NRC should stop the present process immediately and begin a new rulemaking that properly specifies the parts of the rule that are being considered for revision and that provides the relevant NRC analysis to the public so that it may comment upon it.

B. Scientific Deficiencies in SECY-08-0147

The main technical premise on which the proposed rule change in regard to disposal of significant amounts of DU as Class A waste is that it can be shown that certain low-level waste shallow land disposal facilities would meet the performance requirements of 10 CFR 61. In this section we will leave aside the basic problem that SECY-08-147 did not evaluate the most important part of the performance requirement (dose to the critical organ) and focus on the model and the assumptions that the staff used in SECY-08-147 to analyze performance.

The following are features of the analysis of performance in SECY-08-0147:

- It considers sites in various climatic zones, but is not site specific.
- It assessed doses for one million years – the approximate period during which the decay products of U-238, the main ingredient of DU, continue to build up. This approximates a peak dose calculation.
- As radium-226 builds up over thousands of years, radon-222 emissions increase. Radon-222 doses were included in the analysis. A clay layer that would inhibit radon migration was included. Given the assumption of no erosion, this layer would essentially stay intact over a million years.
- Shallow burial (defined as less than 30 meters depth) at various depths was considered.
- Chronic intruder as well as offsite resident doses were considered.
- Various exposure pathways were considered.
- Both air and water induced erosion were assumed to be zero for one million years.
- An ad hoc model, consisting of a commercial Monte Carlo package and an in-house spreadsheet, was developed.
- The dose assessment was based on TEDE, which is Total Effective Dose Equivalent (defined as the sum of deep external dose and committed effective dose equivalent for internal dose).
- For the offsite resident a 25 millirem annual TEDE dose limit was applied as the performance objective. For the chronic intruder who builds a house above the disposal site, a 500 millirem annual dose limit (TEDE) was applied as the performance objective.[13]

[13] It should be noted that 10 CFR 61 requires assurance that an inadvertent intruder be protected after institutional control expires, but does not specify a dose limit. 10 CFR 61.42 states in its entirety: "Design, operation, and closure of the land disposal facility must ensure protection of any individual inadvertently intruding into the disposal

The results of the modeling were as follows:

- Using the TEDE approach, the analysis concluded that shallow land burial, less than 3 meters deep, was not suitable for DU, except for "small quantities" defined as 1 to 10 metric tons.[14]
- Disposal of DU in large amounts at humid sites "with viable water pathways is probably not appropriate."[15]
- For disposal at 5 meters or deeper, up to 30 meters, SECY-08-0147 concluded that disposal at arid sites could meet performance criteria:

> Depleted uranium can be disposed of under arid conditions and meet the Part 61 performance objectives for 1,000 to 1 million years performance periods, if the waste disposal depth is large, or robust barriers are in place to mitigate radon.[16]

Besides the failure to evaluate doses to organs, the following limitations of the analysis should be noted (most came up during the presentations or the discussion at the Bethesda, Maryland, workshop):

1. Climate change was not considered – that is, a constant climate was assumed for one million years.
2. Changes to the chemical form of uranium over one million years were not considered.
3. Colloidal transport of radionuclides was not included.
4. The clay barrier to radon migration into a home built over or near the disposal area was assumed to stay intact over a million years (e.g., no cracks would develop that may allow more migration of radon into the house). The effects of aeolian or fluvial erosion were not considered. The assumption was that the site would be stable for one million years. (The assumption is stated as follows in SECY-08-0147: "Site stability requirements would be achieved. There will not be significant releases of waste to the environment from fluvial or aeolian erosion."[17]

Let us consider these problems one by one.

1. Climate change

It is scientifically unsound and contrary to the available data to assume that climate will not change for one million years. Even without the anthropogenic emissions that are currently accelerating climate change, climate has changed naturally on times scales of thousands of years. For instance, Dr. Peter Burns of the University of Notre Dame, a geochemist invited by the NRC to participate in both workshops, and who participated in both of them, noted that Death Valley

---

site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed." A figure of 500 mrem per year is often used for performance assessment.

[14] SECY-08-0147 2008, Enclosure 1, p. 16.

[15] SECY-08-0147 2008, Enclosure 1, p. 16.

[16] SECY-08-0147 2008, Enclosure 1, p. 16. Emphasis in the original.

[17] SECY-08-0147 2008, Enclosure 1, p. 9.

was underwater 10,000 years ago and that climate projections could not be relied on for 10,000 or 100,000 or 1 million years.

Climate affects practically every environmental factor relevant to the performance assessment from the integrity of the cap to erosion rates to dilution of radionuclides in groundwater. As one example, the model results in SECY-08-0147 show that "[r]adon fluxes to the environment are very sensitive to the long-term moisture state of the system."[18] Since rainfall is one critical parameter to vary in climate, the radon dose results would evidently also be affected. Similarly, radon dose results would be affected if the integrity of the clay liner is damaged or destroyed by variations in rain, snow, temperature, and/or wind that are greater than those assumed in the modeling. (SECY-08-0147 assumes no erosion even from the present climate – see below).

In fact, the record of the Bethesda, Maryland, workshop shows that even the NRC staff agreed that ignoring climate change for such long periods was not appropriate. The terms "silly" and "silliness" came up in the context of trying to describe attempts to model shallow land burial for a million years, but it was suggested by the moderator, Chip Cameron, that this was perhaps not the best language to use in a regulatory context.[19] Whatever, the term used to describe the fact that the modeling ignored climate change, the essence of the matter is that there was general agreement that climate change should not be ignored for shallow land burial for periods much shorter than one million years – for instance over 10,000 years. This is not as important in the context of radionuclides with half-lives that are much shorter than 10,000 years, but in a context of DU, where the specific activity of the material is growing due to the build up of daughter products, it is essential to consider climate change.

Recommendation 2: Future modeling for disposal of significant amounts of DU should include climate change.

2. Chemical changes to the form of DU

SECY-08-0147 considered only shallow land burial, with a clay cap being put over the waste. By its very nature, the environment of the DU would be oxidizing. Elementary considerations show that there would be considerable chemical changes, especially over long periods of time in the proposed waste form, U_3O_8, that the NRC has accepted as suitable for disposal in its licensing process of the two uranium enrichment plants (LES and USEC) that were granted licenses in 2006 and 2007 respectively. Ignoring chemical changes in U_3O_8 in an oxidizing environment is not only scientifically unsound, but it also leads to potential underestimates of uranium mobilization in groundwater. Such mobilization may be enhanced by the presence of complexing compounds. The dose estimates in SECY-08-0147 may therefore be considerable underestimates, notably via the water pathway (including radon via the water pathway).

Recommendation 3: A technical discussion of the expected changes in chemical forms in the specific environment in which disposal is proposed is essential. Specifically, the effects of an oxidizing environment on the specific waste form proposed, including U_3O_8, needs to be analyzed in detail.

[18] SECY-08-0147 2008, Enclosure 1, p. 15.
[19] NRC DU meeting transcript September 2, 2009, at various places in pp. 98 to 116 and also pp. 185, 195, and 251.

3. Colloidal transport

In the modeling in SECY-08-0147, the principal pathways for radionuclides to reach the human environment are diffusion of radon through the clay barrier and dissolution of radionuclides in groundwater and from that various other water related pathways, such as ingestion of contaminated food irrigated with contaminated water. However, colloidal transport of radionuclides was not considered. This could be a significant pathway, especially for insoluble forms of uranium and its decay products.

Recommendation 4: Colloidal transport needs to be included in the modeling of DU disposal.

4. The assumption of long-term stability

The model assumes that the disposal site, including the clay cap, will be stable for one million years. Erosion is ignored. It is assumed that the clay liner will not crack for one million years. This is a critical factor in the performance modeling results. Cracks would provide a fast path for radon migration. Assuming that a clay liner will stay intact therefore results in spuriously low radon dose estimates. Of course, considering a thinning of the cap or a complete erosion of the cap prior to dissolution of the waste would result in very large long term doses. For instance, uncovering of the waste by aeolian erosion in a few thousand years would expose intruders to large external gamma doses from radium-226. These doses would be very small if the cap stays intact, which is the assumption in SECY-08-0147. It can be expected that large doses would result from shallow land burial even at the depths at which SECY-08-0147 derives low doses in dry climate if there any significant erosion. This has been demonstrated in straightforward modeling exercises by the Institute for Energy and Environmental Research which were introduced into testimony during the LES licensing proceedings.[20]

Recommendation 5: A realistic modeling of the shallow land burial needs to be done that would include fluvial and aeolian erosion, the effects of compromises of the integrity of the clay cap via the development of cracks, etc.

5. Conclusions regarding modeling in SECY-08-0147

Several of the modeling assumptions that play large roles in the conclusion of SECY-08-0147 that there could exist shallow land disposal sites where doses would be small (less than 25 millirem per year whole body effective dose equivalent) are scientifically unsound. A realistic

---

[20] Arjun Makhijani and Brice Smith, *Costs and Risks of Management and Disposal of Depleted Uranium from the National Enrichment Facility Proposed to be Built in Lea County New Mexico by LES,* Takoma Park, MD: Institute for Energy and Environmental Research, November 24, 2004. Version for public release redacted on Feb. 1, 2005, on the Web at http://www.ieer.org/reports/du/lesrpt.pdf, p. 24 (Hereafter Makhijani and Smith 2004/2005) and Arjun Makhijani and Brice Smith, "Update to *Costs and Risks of Management and Disposal of Depleted Uranium from the National Enrichment Facility Proposed to be Built in Lea County New Mexico by LES by Arjun Makhijani, PhD. and Brice Smith, Ph.D. based on information obtained since November 2004,*" Takoma Park, MD: Institute for Energy and Environmental Research, July 5, 2005. Version for public release redacted on Aug. 10, 2005, on the Web at http://www.ieer.org/reports/du/LESrptupdate.pdf, p. 16. Hereafter Makhijani and Smith 2005.

analysis that took such factors as climate, clay cap stability, and geochemical considerations into account would lead to three potential conclusions. First, there is no reliable way to estimate long term performance of DU in shallow land disposal facilities. Second, radiation doses from shallow land burial under even modestly realistic assumptions are likely to be well over the performance requirements of Subpart C. Third, the uncertainties in such dose estimates would be so high that they would be reasonably considered unreliable.

It is reasonable to conclude that a scientifically reliable assessment of DU disposal in shallow land disposal facilities cannot be made for the time periods at which peak doses from DU would be expected, or even much shorter time periods of 10,000 or more years.

C. Period of Performance

The Federal Register notice seeks comment on whether the period for which the performance requirements in regard to dose be limited. There is at present no limitation for period of performance in 10 CFR 61. Specifically, Subpart C has no time limitation in it. The Federal Register notice explains the situation as follows:

> NRC continues to consider 10,000 years a sufficient period, with some exceptions, to capture (i) the risk from the short-lived radionuclides, which comprise the bulk of the activity disposed; and (ii) the peak radiological doses from the more mobile long-lived radionuclides, which tend to bound the potential radiological doses at time frames greater than 10,000 years ....As part of a planned rulemaking, NRC is soliciting stakeholder views regarding a time period to evaluate the performance of near-surface disposal of unique waste streams.[21]

Neither condition that normally applies the customary period of 10,000 years for which NRC considers it suitable to estimate performance applies to significant amounts of DU. The first condition obviously does not apply since all three isotopes of uranium in DU (U-234, U-235, and U-238) are very long-lived. The second condition also does not apply. DU from enrichment plants or other similarly pure or nearly pure DU (in any common chemical form) has a specific activity that is far greater than the 100 nanocuries per gram associated with the limit for Class C waste containing transuranic alpha emitters. Under dry climatic conditions, should they persist (as is assumed in some scenarios in SECY-08-0147), the DU would not be expected to be mobile enough for most of it to migrate away from the site. This is indicated by the peak dose analyses in SECY-08-0147.

I have argued in expert testimony before the NRC that DU from enrichment plants is much like (GTCC) waste containing long-lived alpha-emitting transuranic radionuclides at concentrations greater than 100 nanocuries per gram. This conclusion finds support in a National Research Council publication as well.

> If disposal [of depleted uranium oxide] is necessary, it is not likely to be simple. The alpha activity of DU is 200 to 300 nanocuries per gram. Geological disposal is required for transuranic waste with alpha activity above 100 nanocuries per

[21] NRC FR Notice 2009, pp. 30176-30177.

> gram. If uranium were a transuranic element, it would require disposal in the Waste Isolation Pilot Plant (WIPP) based on its radioactivity. The chemical toxicity of this very large amount of material would certainly become a problem as well. One option suggested by the U.S. Nuclear Regulatory Commission (USNRC) is disposal in a mined cavity or former uranium mine. Challenges for this option would include understanding the fundamental differences between uranium ore (see Sidebar 6.1) and the bulk uranium oxide powder.[22]

The peak doses from DU disposal are expected to occur after thousands of years, hundreds of thousands of years, or even a million or more years, depending on the chemical form, disposal site characteristics, etc. Hence, the normal criteria of the NRC limiting performance evaluation to 10,000 years do not apply.

The staff's position in SECY-08-0147 regarding the period of performance is ambiguous:

> Considering the technical aspects of the problem, the performance assessment staff recommends a performance period of *10,000 years* for the analysis of *DU* disposal. However, analyses should be performed to peak impact, and if those impacts are significantly larger than the impacts realized within 10,000 years, then the longer term impacts should be included in the site environmental evaluation.[23]

It is unclear from this whether or not the staff intends for the peak dose to meet Subpart C criteria or not. However, unless Subpart C is sought to be changed, the performance assessment must be carried to the time of peak dose and the dose criteria of 10 CFR 61.41, including organ dose, must be met. But it should be noted in this context that the NRC staff itself does not consider the analysis in SECY-08-147 to be conservative.

Specifically, SECY-08-0147 and its Enclosure 1, states that the staff developed a "screening model" to do a "screening analysis" whose purpose "was to evaluate key variables such as disposal configurations (disposal depth and barriers), performance periods, institutional control periods, waste forms, site conditions, pathways, and scenarios."[24]

During the Bethesda, Maryland, workshop, I asked whether the term "screening" was being used to indicate a conservative analysis – that is, an analysis that would give an upper bound for the dose estimate, so that one could be reasonably assured that a more realistic analysis would yield a lower dose estimate. In other words, such a screening analysis would lead to an assurance that the conclusion that DU could be disposed of in shallow land burial and meet specified performance criteria was robust.

---

[22] National Research Council, Board on Radioactive Waste Management, Committee on Improving the Scientific Basis for Managing Nuclear Materials and Spent Nuclear Fuel through the Environmental Management Science Program, *Improving the Scientific Basis for Managing DOE's Excess Nuclear Materials and Spent Nuclear Fuel*, National Academies Press, Washington, DC, 2003. On the Web at http://books.nap.edu/books/0309087228/html/index.html., p. 67 as quoted in Makhijani and Smith 2004/2005, pp. 7-8.

[23] SECY-08-0147 2008, Enclosure 1, p. 21. Emphasis in original.

[24] SECY-08-0147 2008, Enclosure 1, pp. 8-9.

Dr. Esh indicated that the term "screening analysis" was not used in that sense in the paper. He agreed with the suggestion that the screening model in SECY-08-0147 "wasn't conservative."[25]

Conclusion regarding period of performance: The conclusion from the above is that if the NRC wishes to assess performance of disposal of DU in significant amounts according to Subpart C, which contains no time limits, then a limit on the period of performance to 10,000 years is entirely inappropriate. The stated goal of the proposed rulemaking exercise is to limit consideration of changes to 10 CFR 61.55(a). Therefore, a limitation on the period of performance cannot be used for disposal of significant quantities of DU within the context of the present rulemaking. An entirely new rulemaking proceeding would be needed, since restricting performance evaluation to anything short of peak dose in this case would be a de facto change in Subpart C.

One may conclude the following by examining the transcripts of the Bethesda, Maryland, workshop (as well as the Salt Lake City workshop):

- Uncertainties become very large over periods as long as 10,000 to one million or more years,
- Modeling shallow land burial over periods as long as a million years or more quantitatively with some confidence appears infeasible, and
- The main radiological problems in dry areas, other than those that might be associated with uncovering the waste, appear over the long term (thousands of years or more), presuming the areas remain dry.

During the Bethesda, Maryland, workshop, there were several suggestions about restricting the period of performance. One was to use the period now required for mill tailings (1,000 years); another was to use the period required under 40 CFR 191 for deep geologic disposal, for instance at the Waste Isolation Pilot Plant (10,000 years). However, none of these suggestions can be legitimately considered under in the present rulemaking. If the NRC wants to consider limiting the period of performance for significant amounts of DU, then it must start a new proceeding and propose changes in Subpart C, along with the rationale for those changes.

The rationale for limiting the period of performance cannot be simply to protect the industry or provide the industry with a way to get rid of DU from enrichment plants or even that it is difficult to do a modeling exercise to the time of peak dose. Since it is the NRC's mandate to protect public health, and since public health can be much better protected with appropriate deep disposal similar to geologic disposal at WIPP, the NRC must first consider such deep disposal before it considers any relaxation of Subpart C. This would also require a different rulemaking from the one that the NRC is now embarked upon.

In the context of deep geologic disposal, where estimating performance can be done on a better scientific foundation, the NRC might consider adopting the approach taken in the French high-level waste rule. That rule recognizes that the uncertainties increase greatly beyond 10,000

[25] NRC DU meeting transcript, September 2, 2009, p. 83.

years. But instead of changing the dose performance standard, it changes the method by which the modeling is done:

- For up to 10,000 years, the uncertainties in the parameters are specified explicitly and probability distributions are provided. This gives a realistic set of estimates of what the performance would be, assuming the parameters are well characterized.
- Beyond 10,000 years the conservative, fixed values are used for parameters so as to calculate an upper limit of the dose. The same dose reference number is maintained but now we have what would be a bounding value for the long term, presuming the upper bound parameters: climate, geological, and others can be specified in a scientifically defensible way.[26]

D. Some Other Matters

It is important to note that SECY-08-0147 did not analyze performance of above-ground structures, such as those used at the EnergySolutions facility in Utah. Hence, any rule change would not apply to disposal at that site, unless the NRC actually develops modeling approaches for above ground structures for a million years. This would be an even more unrealistic task than the one undertaken in SECY-08-0147 to estimate performance in below ground shallow disposal.

E. Other "Unique" Waste Forms

Like significant amounts of DU, there are several other waste streams that do not clearly fall into the present structure of 10 CFR 61.55(a) as is recognized now by the NRC. These could include significant amounts uranium recovered during reprocessing for instance. Such uranium is typically contaminated with transuranic radionuclides and some fission products.

DU in large amounts is in many ways the best characterized and known of such potential waste streams. There should be no consideration of other waste streams within the present proposed rulemaking to revise 10 CFR 61.55(a)(6) and add a new para 10 CFR 61.55(a)(9).

F. The Rights of Agreement States

States that regulate civilian nuclear licensees under agreement with the NRC ("Agreement States") are required to meet a complex set of "compatibility" requirements to ensure that NRC requirements are being met. The regulation and enforcement is done at the state level in such cases. But the NRC has the responsibility to ensure that there is compliance with applicable federal regulations. The industry and state regulator sentiment is for the NRC to give the

[26] Règle N° III.2.f (10 juin 1991) *Règles fondamentales de sûreté relatives aux installations nucléaires de base autres que reacteurs Tome III: production, contrôle et traitement des effluents et déchets. Chapitre 2: Déchets solides*, on the Web at http://www.asn.fr/index.php/Les-actions-de-l-ASN/La-reglementation/Reglementation-associee/Regles-fondamentales-de-surete-et-guides-de-l-ASN/RFS-III.2.f-abrogee-par-le-guide-de-surete-relatif-au-stockage-definitif-des-dechets-radioactifs-en-formation-geologique-profonde-du-12.02.08.

maximum possible leeway to state authorities. States can generally set more conservative standards than those at the federal level.

During the Bethesda, Maryland, workshop I expressed concerns as to whether there was adequate oversight regarding the two sites that may, in the near future, dispose of DU from enrichment plants – Utah (EnergySolutions site) and Texas (Waste Control Specialists (WCS) site). Specifically, I raised the issue of whether the NRC was adequately exercising its oversight responsibilities. I had raised the same issue during my testimony as an expert witness for the intervenors in the National Enrichment Facility licensing case.

Specifically, I found that some of the results of the modeling done in a performance assessment that underlies the EnergySolutions license contained physically impossible numbers. For instance, more uranium-238 was proposed to be disposed of per gram of Utah soil than the weight of the Earth. I was asked during the Bethesda, Maryland, workshop whether I was comfortable with the State of Texas agreeing to a DU concentration limit for the WCS site. I said that the last time I looked at the WCS issue, which was four years ago, I was not convinced that WCS was even qualified to receive radioactive waste – since, among other things, their license application at that time proposed to dispose of more U-235 as waste than had ever been mined.[27]

If the NRC and the state of Utah has failed to require a correction of such evident scientific problems, even though it has been formally put on the table, how could one be confident of the process for licensing and enforcing DU disposal regulations? Neither has the NRC responded to my comment regarding WCS during the workshop.

I also pointed out that IEER has done the only independent site specific analysis of DU disposal by shallow land burial for the WCS site and of a site with parameters corresponding to the Utah site. Our analysis had shown that doses would be exceeded at both sites by large margins in well under one million years and in most cases on times scales on the order of 10,000 years. I was told, informally, that NRC staff would look into the record of the LES proceeding. In response, I told them I would supply the IEER LES reports to the staff. IEER has sent the URLs for the reports to the moderator Chip Cameron.[28]

Expectation of IEER: We expect that before any draft rule is promulgated that the NRC will respond specifically to the above problems in regard to WCS and EnergySolutions and also make clear whether it intends to be more vigilant in regard to elementary matters of science when it comes to oversight of agreement states.

---

[27] See Makhijani and Smith 2005, for instance at p. 2 and p. 20.

[28] Post-workshop note: IEER sent the URLs to the moderator Chip Cameron on September 21, 2009. These are also cited in footnote 21, above.

G. Conclusions

The present rulemaking is based on the false premise that SECY-08-0147 has demonstrated the feasibility of adequate performance relative to Subpart C of some shallow land disposal facilities. SECY-08-0147 did not actually calculate performance relative to the most important requirement of Subpart C – organ dose. It is also fundamentally flawed in its science and in its assumptions. The suggestions as to limitation of period of performance are, given the NRC's own normal criteria, entirely out of order in this proposed rulemaking.

The Federal Register Notice as well as the NRC instruction to the staff was to consider a very limited change to the low-level waste rule. Specifically, the Commission directed the staff to consider a revision of 10 CFR 61.55(a)(6) and to add a new paragraph 10 CFR 61.55(a)(9) that would specify how a site specific analysis for depleted uranium (and possibly other "unique waste streams") should be done. Associated guidance was also to be developed. The NRC did not state that performance requirements specified in 10 CFR 61 Subpart C would be modified. On the contrary, both the NRC and the NRC staff have represented that the intent is not to modify Subpart C but to assess performance with respect to the requirements of Subpart C.

The analysis of SECY-08-0147 did not assess performance according to all the requirements of Subpart C. Specifically, organ doses were not estimated. There were also explicit suggestions that the period of performance for disposal of significant quantities of DU might be limited in some way. This would also be a material change to Subpart C in the context of disposal of large amounts of DU.

The proposed rulemaking cannot change Subpart C either explicitly or implicitly – for instance by omitting organ dose calculations or limiting the period of performance. The NRC has not provided any estimate of the changes in health damage that may be expected as a result of changes in Subpart C. As a result, the public has been provided with no opportunity to comment specifically on the changes that would be made to their protection of their health aspects as a result of any explicit or implicit changes in Subpart C.

A change to Subpart C, where the core public health provisions of the low-level waste regulations are specified, would be a major change to the regulation. The Atomic Energy Act requires the NRC to have public health protection as one its primary purposes and it empowers the NRC to take action accordingly. A change to Subpart C, which is central to the health protections provided by the low-level waste rule, would therefore be a major federal action. It would violate the Administrative Procedures Act if Subpart C were to be changed in the context of the present proposed rulemaking, where no analysis for changing Subpart C has been provided. .

IEER therefore strongly recommends that:

- The present rulemaking be stopped.
- A new rulemaking that corresponds to Option 3 should be initiated for significant amounts of DU.

- The possibility that DU will fall into the Greater than Class C category of low level waste should be explicitly included.
- The option of deep geologic disposal should be considered – indeed, given the text of the low-level waste rule as it now stands, this would the normal mode of disposal of significant amounts of DU.
- Performance standards as set forth in Subpart C should be maintained.
- There should be no limit on the period of performance.
- A change in the method by which performance is evaluated could be considered along the lines that are specified in the French high-level waste rule cited above.
- The NRC should ensure that sound and defensible scientific assumptions, methods, and analytical tools are used and that input data represent conditions that might reasonably be expected, or that would put an upper limit to dose calculations.
- The NRC should exercise more oversight over agreement states to ensure that the methods, data, conclusions, analyses, computer models, and parameter values meet at least minimal tests of scientific soundness.

74 FR 30175
6/24/09
(99)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4dc96
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0019
Comment on FR Doc # E9-14820

Submitter Information

Name: Stephen Nelson
Address:
Dept. of Geological Sciences
S-389 ESC
Provo, UT, 84602
Organization: Brigham Young University

General Comment

Please see attached file.

Attachments

NRC-2009-0257-DRAFT-0019.1: Comment on FR Doc # E9-14820

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

October 30, 2009

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Stop TWB 5B01M
Washington D.C. 20555-001
Submitted online via: http://www.regulations.gov

Re: NRC-2009-0257; Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium; Federal Register, Vol. 74, No. 120, June 24, 2009, p. 30,175-30,179.

Dear NRC Staff and Committee:

Introduction

We submit the following comments in order to facilitate consideration of factors that must be taken into account when determining whether depleted uranium (DU) can be disposed of safely in shallow engineered landfills in general, and at the EnergySolutions Utah site in particular. A brief biographical sketch of each signatory is attached to this letter so that you will be familiar with our qualifications.

To begin, contextual commentary regarding the length of the performance period for DU disposal is provided, and we return to this issue in a subsequent section of this letter. In order to maintain environmental protection, the performance period required for a site-specific analysis for DU and its decay products should extend to the time of peak dose or 1,000,000 years, whichever comes first. This is both based upon common sense and consistency with other regulatory programs for nuclear waste. Our view is partially consistent with the paper on depleted uranium prepared by NRC staff last year, which reads in part:

> *"Considering the technical aspects of the problem, the performance assessment staff recommends a performance period of 10,000 years for the analysis of DU disposal. However, analyses should be performed to peak impact, and if those impacts are significantly larger than the impacts realized within 10,000 years, then the longer term impacts should be included in the site environmental evaluation."*

A simpler philosophy, and one that is more consistent with parallel regulatory programs is that the performance period should be long enough to include the time of peak dose.

We take issue, however, with another conclusion from the NRC paper:

> *"Potentially high doses relative to the performance objectives could occur within a timeframe longer than 10,000 years from the disposal of large quantities of DU. However, the majority of sites, waste forms, and disposal configurations that can meet the performance objectives at 10,000 years* ***will continue to meet the performance objectives at longer time periods.*** *A simple approach that should be considered to ensure the eventual risk of radon is managed to* ***select a waste disposal depth and cover thickness based on the projected peak in-growth of the daughter species, rather than the in-growth over the performance period. [emphasis added]"***

Our discomfort with this statement arises from the fact that virtually no shallow engineered disposal system can be envisaged to persist, intact, for periods of up to 1,000,000 years, the timeframe of peak doses. NRC's statement appears to make the implicit assumption that climate and tectonic factors will remain static over these time frames. With respect to climate and attendant consequences to landforms by erosion and deposition, enough is known about natural climate variation that this assumption is false *everywhere at the earth's surface*. NRC's assertion is simply wrong for any shallow, engineered site.

In this letter, we discuss just one aspect of climate change for the EnergySolutions Utah disposal site that makes it inappropriate for DU disposal. As experienced earth scientists with wide-ranging expertise, we believe that rising lake levels associated with glacial and even inter-glacial climate change will likely lead to eventual inundation and wholesale erosion of the EnergySolutions Utah disposal facility.

Any modeling that does not take into account well-understood geological and climatologic patterns displayed in the Lake Bonneville basin will grossly under- and mis-estimate the long-term hazards of exposure from DU and its decay products. Clearly, we believe that any new rule and any associated guidance related to site-specific analysis of DU should require modeling that includes climatic variation, out to the time of peak dose. If that is done for the EnergySolutions site in particular, we are led back to one inevitable conclusion: Over the relevant time frames for DU disposal, the probability that the Clive site will be flooded approaches 100%. Given that near-certainty, we believe that a proper site-specific analysis will also inevitably conclude that the EnergySolutions site is not appropriate or safe for DU disposal.

The remainder of this letter is organized as follows. For context, we review the nature of depleted uranium (DU) in comparison to "conventional" low-level waste (LLW). This is followed by additional discussion of the appropriate regulatory philosophy, and then by more consideration of the suitability (or lack thereof) of engineered landfills to accept and isolate DU, and the EnergySolutions Clive facility in particular. Included in the discussion of the Clive facility are site- and region-specific analyses of the geology and forward models of lake-level perturbations and erosion related to climate change.

Nature of DU

Although you are aware of the nature of DU, there are three properties that we wish to re-emphasize for context. First, DU has an extremely long half-life (4.5×10^9 yr) such that it effectively lasts "forever." Second, as it evolves back toward secular equilibrium with its progeny, it becomes many times more radioactive and at the time of emplacement its activity exceeds that of Class A waste[1]. Such material will emit alpha, beta, and gamma radiation. Third, the daughter products have geochemical properties that are, in many instances, greatly divergent from that of ^{238}U. Since each of the daughters will eventually acquire an activity equal to that of the ^{238}U parent, it is just as important to understand the site-specific geochemical behavior of <u>*each daughter radionuclide*</u> as it is to understand the behavior of U. In fact, the geochemical behavior of ^{234}Th and ^{234}Pa must be understood at the time of emplacement[1]. And as we are sure you are aware, U itself can be quite mobile in aqueous solutions, especially those with an elevated Eh (U^{6+}) and high carbonate content. As discussed below, future natural climate variation will almost certainly inundate the Clive, Utah site with waters that may very well exhibit these characteristics.

Applicable Regulatory Philosophy

The typical control period for LLW is a few to several hundred years, depending upon its nature. Clearly, the philosophy is to provide reasonable assurance of isolation from the environment by *in situ* decay <u>*until the radiological hazard has largely passed*</u>. The Clive site was developed for these types of materials, not DU.

In the high-level waste (HLW) arena, you are aware that the US EPA sets performance standards. Congress charged the EPA with the adoption of a dose-based standard and further directed the EPA to consider guidance by the National Academy of Sciences (NAS) in developing its rule (40CFR197). EPA had set a compliance period of 10,000 years. We trust that you are aware that a competent Federal Court set aside the EPA rule in 2004 for failure on the part of EPA to adhere to NAS recommendations that the compliance period extend <u>*to 1,000,000 years or until peak doses occurred*</u>. The rule was remanded back to the EPA. A final rule, presumably consistent with NAS recommendations[2], was adopted in Oct. 2008.

---

[1] *Using long-lived alpha emitting transuranic nuclides as a yardstick, pure <u>metallic</u> DU would exceed limits in Table 1 of 10CFR61.55 <u>at the time of emplacement</u>. "Dilution" with oxygen in oxide forms places DU only modestly below the limit. However, it is easily shown that within a year of processing, the rapid ingrowth of ^{234}Th and ^{234}Pa result in DU having three times the activity it had when processed.*

[2] *We presume the rule is consistent with NAS guidance, not because of the content of the rule, but because as far as we are aware it has not been challenged.*

Thus, the overarching regulatory philosophy must be that control of radioactive wastes is maintained *until the radiological hazard has largely passed, regardless of the timescale or the nature of the waste*. The NAS accepted that 1,000,000 years might be an appropriate upper temporal limit for HLW where *geologic* disposal is required because of the inherent long-lived nature of spent fuel and military wastes.

We cannot overemphasize the difference between engineered disposal (e.g., LLW) and geologic disposal (e.g., HLW). Geologic disposal contains the inherent recognition that the nature of the hazard is sufficiently long-lived that natural barriers are required to mitigate risks. Engineered solutions (i.e., landfills) alone are inadequate. DU is, by its very nature, the longest of the long-lived waste streams and after a few tens of thousands of years (let alone at the time of emplacement) it is hardly benign. Regulatory philosophy and common sense *demand geologic disposal*. DU, at face value, is entirely inconsistent with disposal in any shallow, engineered landfill.

The NRC must resist the environmental narcissism (i.e., "I won't be around when it becomes a problem") evidenced by entertaining the notion of DU disposal in a shallow landfill. All classification issues of DU aside, disposal in engineered landfills is simply wrong.

Suitability of Shallow Engineered Disposal

The nature of DU combined with existing regulatory philosophy should foreclose shallow, engineered disposal on its face. That said, we wish to provide *site-specific* evidence of the unsuitability of the EnergySolutions Clive, Utah facility for *proposed* and *existing* DU disposal.

Effects of Past Climate Variation: Figure 1 shows the approximate location of the Clive facility, well within the Bonneville basin. Clive was under water during the entire existence of Lake Bonneville, a time period extending from approximately 31,000 until 11,500 years ago. Although the Clive site is approximately 25 meters above the current elevation of the Great Salt Lake, it is about 60 meters *below the lowest* of the 3 major still stands of Lake Bonneville. Figure 2 illustrates some of the shoreline features that developed in response to that lake.

Although the extent, depth and history of Lake Bonneville are well understood, the detailed histories of the lakes that preceded it are not as well documented due to a paucity of well-dated, well-studied, and well-preserved lake cores. Such lakes are known to have existed, however. Oviatt et al. (1999) proposed there were four deep lakes in the Bonneville basin during the last 780,000 years, whereas Eardley et al. (1973) suggested there may have been 17 deep lake cycles over that time interval. Whether there were 4 or 17 deep lakes is not particularly important. Both studies illustrate that based on the past, future repeated flooding of Clive is inevitable.

Link et al. (1999) noted that *"...the permanent addition of Bear River water to Lake Bonneville likely occurred 50 ± 10 ka (Bouchard et al., 1998), increasing the total discharge into the Bonneville basin by ~33%. This addition, coupled with cool, moist conditions during late Wisconsin time, is generally thought to have been responsible for the lake reaching its all-time high during the last (Bonneville) lake cycle (Bright, 1963; McCoy, 1987; Bouchard et al., 1998)."*

It is important to understand the consequences of the piracy of the Bear River into the Bonneville basin. Increasing the catchment area without changing the size of the basin may *amplify* lake level responses to climate change. Since this event occurred late in the 780,000 year record discussed by Eardley et al. (1973) and Oviatt et al. (1999), past studies of the Bonneville basin may, in fact, under-predict future lake-level fluctuations.

At the Clive locality in particular, inspection of an excavation near the EnergySolutions site by one of us (Oviatt) in the 1980s revealed that Bonneville clays are underlain by oolitic sands approximately 3 m thick. The implication of this observation is clear. Prior to the expansion of Lake Bonneville the Clive site was submerged by shallow water for an extended period of time in order to permit the formation of these deposits.

Owens Lake, CA, is a relevant proxy for climate change in the Great Basin. Owens Lake periodically filled expanded portions of the Owens Valley on the eastern slope of the Sierra Nevada. In fact, due to climate variation, Bischoff et al. (1997) suggested that there were seven distinct episodes over the last 500,000 years (Fig. 3) during which Owens Lake levels rose such that it spilled out of its basin into China Lake, Panamint Valley, and into Death Valley. The timeframe is entirely consistent with 40CFR197 and the period of interest surrounding DU. Bischoff et al. (1997) further suggested that the lake was large and deep enough to spill out of the Owens Valley 34% of the time, or 170,000 of the last 500,000 years. To

a first approximation, natural climate variation may have produced similar cyclical inundations of the Clive site.

As mentioned above, the elevation of Clive is significantly below that of the lowest of the three major still stands of Lake Bonneville, so it seems likely that flooding might occur at the Clive site in response to relatively small climate changes. In fact, the low elevation of the Clive site guarantees inundation with a much greater frequency than the complete filling of the Bonneville basin to its spill point into the Snake River drainage.

Effects of Future Climate Variation: The cycles of rising and falling lakes in the enclosed topographic basins of the Great Basin will continue in the future. We can reasonably expect several lake cycles to inundate the Clive site over the next 500,000 years due to natural climate variation, and we can hardly imagine that anyone would consider the return of a pluvial lake to the Clive site to be consistent with waste isolation[3].

We suspect that that there would be nearly complete unanimity that expanded lakes will return in the future in response to climate variation if you polled geologists, geographers, and paleo-climatologists working in or familiar with the Bonneville basin. Even worse, large climate changes may not be requisite to flood the site. For example, the elevation of the Great Salt Lake has varied by six meters just since 1873 (Tarboton, 2006).

Changes in climate required to increase the level of the Great Salt Lake to that of Clive are extremely small when compared to current understanding of natural climate variability over the Holocene Epoch and the last full glacial cycle. We have conducted simple forward models of lake elevation changes. All else being equal, precipitation only has to increase ~3-6 mm/yr for 1000 years to raise the level of the Great Salt Lake to that of Clive.

Mean lake level does not have to reach Clive in order to cause problems. Given reasonable interannual variability in climate, the mean lake level only has to reach 15-20 m above modern day Great Salt Lake. At this level, it is highly probable that the variability about mean lake level will drown Clive for several hundred years out of every 5,000-10,000 years (see amplitude of variability in Fig. 4). The mean shift in precipitation required to achieve this is well within reasonable natural or anthropogenic changes in the climate system. Exposure to shoreline erosion over a few hundred years can conservatively erode several meters of bedrock (Fig. 5). Engineered disposal cells above grade can hardly be expected to resist erosion in a large lake with large fetch.

The implications for the Clive site are clear. Clive has been inundated repeatedly in the past. Clive will be inundated in the future, and the mean changes in climate required to flood and destroy the emplacement piles are small. We estimate that the probability of the EnergySolutions site being flooded in the next 100,000 years is close to 100%. Sandquist (2009) maintains that there are 330 tons of natural uranium currently in the 1700 mi^2 Great Salt Lake. The Clive site, by contrast, could release on the order of 1,000,000 tons of DU from a landfill with a ½ mi^2 footprint.

The consequences in the vicinity of Salt Lake City for lake level rise to the elevation of the Clive site (1305 m) are illustrated in Figure 6. Much of what is now the northwestern part of the valley will be below water, including downtown Salt Lake City. However, what may be more important are the areas that are not flooded. Large areas will remain habitable. No one can predict what the state of society will be when the lake returns to this elevation, but there is every expectation that humans will be inhabiting large portions of the Salt Lake Valley and perhaps relying on lake resources. The almost certain release of hundreds of thousands of tons of DU into their future environment can be foreseen today.

Summary

DU is, at face value, an inappropriate waste stream for any shallow, engineered disposal site. Its very nature requires geologic disposal. Shallow disposal simply does not pass the "laugh test." We suggest that a model exists for proper DU disposal. The operational WIPP site for transuranic waste illustrates that the geological, geochemical, and engineering knowledge needed for safe DU disposal is already mature.

Specifically, the Clive facility could be an appropriate site for the disposal of "conventional" LLW from a purely technical perspective. A control period of a few hundred years for Class A LLW can

---

[3] *There is also considerable irony in the fact that the lacustrine clays [marls, really] from which cells are constructed at the Clive site, combined with underlying oolitic sands, are primary evidence of its unsuitability for DU disposal because they are direct evidence of past inundation.*

probably be met without significant risk given appropriate monitoring and other controls. However, the notion that hundreds of thousands of tons of concentrated DU can be emplaced in this facility (or any other shallow landfill) and releases controlled or prevented over long but relevant time-scales is patently absurd.

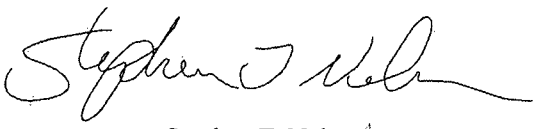
Our analysis also reveals a fundamental and we believe fatal flaw in your proposed rulemaking. NRC asks about minimum and maximum quantities, regulatory time frames, inadvertent intrusion, source terms and geochemical modeling, all of which are important issues. However, you have failed to ask two critical questions. First, you do not ask whether shallow disposal is proper to begin with. You seem to assume that it is. Our analysis shows that it is not. Second, you do not ask the types of questions that would raise the issues surrounding the Clive site that we have addressed. If this is true of Clive, then there are probably fatal flaws at most if not all shallow disposal facilities, albeit for different specific reasons, that are related to the inherent nature of surface geological processes over long time scales.

Some of us attended a Radiation Control Board meeting on July 14 in Salt Lake City where many of the objections to DU disposal discussed in this letter were presented. After hearing a presentation by EnergySolutions, the driving force behind this rulemaking has become clear. EnergySolutions suggested that in the coming decades as much as 700,000 tons of DU will require disposal. This is a staggering sum.

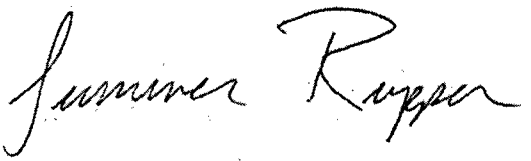
If we are not mistaken, current federal statute would permit up to 77,000 tons of HLW to be disposed at Yucca Mountain, or a little more than 10% of the 700,000 tons of DU. Although this is an apples to oranges comparison, it places the scale of the DU problem in perspective. Geologic disposal of DU represents a daunting engineering task. The need to dispose of massive quantities of DU *"somewhere"* is not a justification to dispose of it *"anywhere."* Yet, the need for disposal is clearly driving this action. A programmatic failure on the part of US Government agencies to plan for the ultimate disposition of DU, however, is not a justification for improper (i.e., shallow) disposal. It is not a justification for endangering the future health of the Utah environment, or the environment of any other state even if it is over a long time scale. It is not a justification for the adoption of a regulatory philosophy that is inconsistent with other programs.

We have learned through the media that tens of thousands of tons of DU may have already been emplaced at the Clive facility. It came here under the rubric of "Class A" waste, through a literal but unfortunate reading of the regulations; in fact, an appropriate analysis has never been done. The Utah Board of Radiation Control should have been informed that large amounts of DU were never adequately analyzed under the Federal waste classification scheme at a time when state leaders were still in a position to comment or stop these historical shipments. While there is blame to go around for this state of affairs, including Utah state officials who are responsible for running our Agreement State program, we expect more from the NRC. In this regard, we believe the NRC owes the citizens of Utah an apology for this serious oversight.

Sincerely,



Stephen T. Nelson[4]
Professor of Geochemistry



Summer B. Rupper[4]
Professor of Climate and Paleoclimate

Charles G. Oviatt
Professor of Geology

---

[4] *Because the issues in this letter address both technical and public policy matters, Brigham Young University policy requires that its faculty make clear that their views are their own and not those of the University or its sponsoring institution. No individual or organization has the right to state or imply otherwise.*

Stephen T. Nelson

Professor
Department of Geological Sciences
Brigham Young University
S389 ESC
Provo, Utah 84602

voice: 801-422-8688
e-mail: steve_nelson@byu.edu

Charles G. Oviatt

Professor
Department of Geology
Kansas State University
108 Thompson Hall
Manhattan, KS 66506-3201

voice: 785-532-6724
e-mail: joviatt@ksu.edu

Summer B. Rupper

Assistant Professor
Department of Geological Sciences
Brigham Young University
S318 ESC
Provo, Utah 84602

voice: 801-422-6946
e-mail: summer_rupper@byu.edu

Cc:
Utah Governor Gary M. Herbert
Ms. Amanda Smith, Executive Director, Utah Department of Environmental Quality
Mr. Dane Finerfrock, Director, Utah Division of Radiation Control
Dr. Inés Triay, Assistant Director for Environmental Management, US Department of Energy
Utah Radiation Control Board members
Rep. Rob Bishop
Rep. Jim Matheson
Rep. Jason Chaffetz
Sen. Bob Bennett
Sen. Orrin Hatch
Ms. Judy Fahys, Salt Lake Tribune
Ms. Amy Joi O'Donoghue, Deseret News
Mr. Tim Gillie, Tooele Transcript Bulletin
Mr. Don Porter, Ogden Standard Examiner
Mr. Donald Meyers, Provo Daily Herald
Mr. Todd Siefert, St. George Spectrum

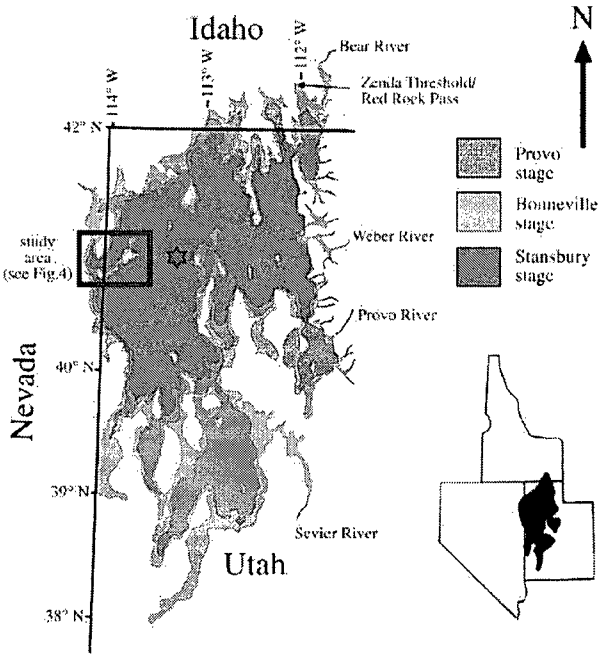
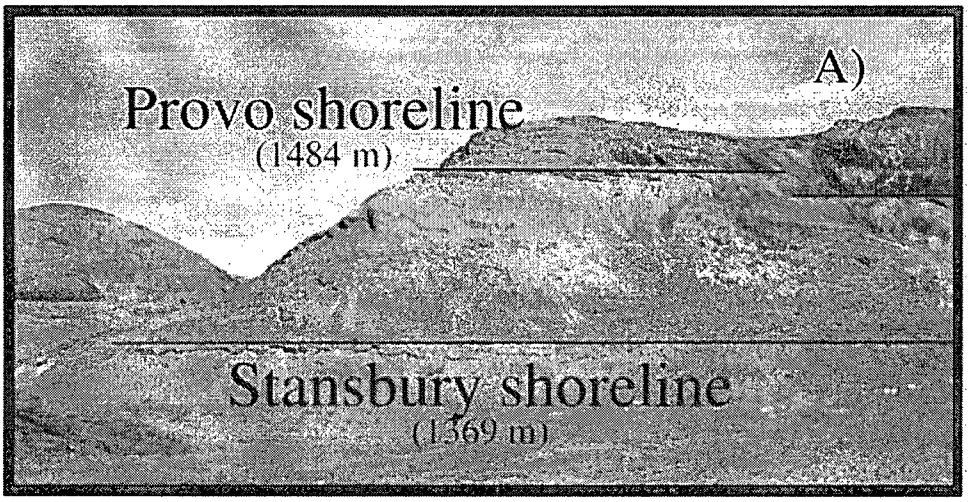


Figure 1. Map indicating the main Lake Bonneville highstands and the approximate location of the EnergySolutions Clive, Utah facility. The Stansbury stage lasted from about 25,000 to 24,000 years ago, whereas the Bonneville and Provo Stages lasted from about 18,300 to 14,500 years ago. Modified from Nelson et al. (2005).



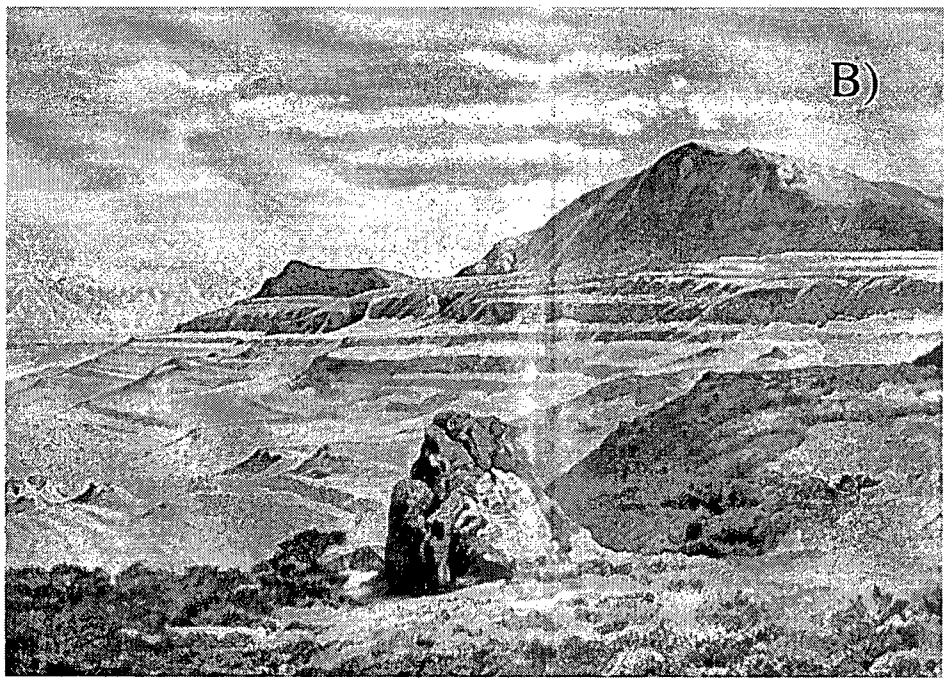


Figure 2. Illustrations of Lake Bonneville shorelines. A) represents shorelines developed in the Pilot Valley area north of Wendover, UT. Modified from Nelson et al. (2005). B) represents an illustration by G.K. Gilbert's illustrator W.H. Holmes in the 1880's of numerous shorelines at the north end of the Oquirrh Mountains prior to being largely obscured by human activity. The familiar Wasatch Mountain skyline can be seen in the distance.

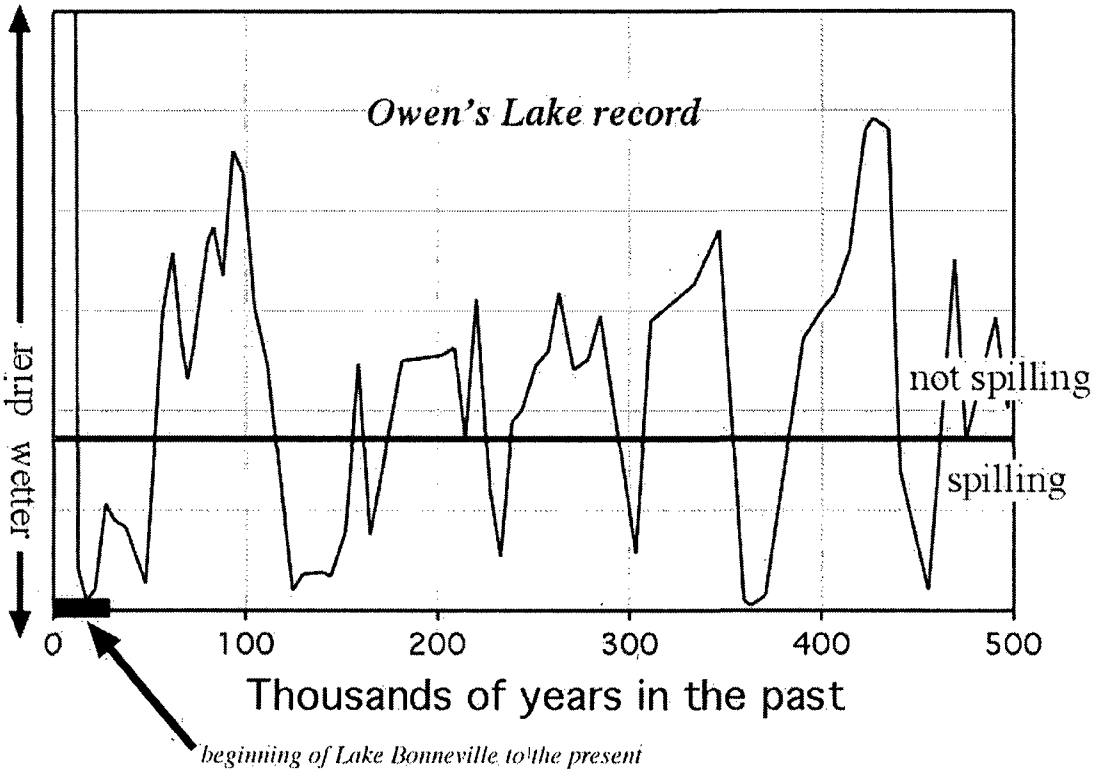


Figure 3. Lake level/climate history for Owens Lake modified from Bischoff et al. (1997). Note that over the last 500,000 years that the lake has expanded and spilled its basin repeatedly. Lake Bonneville has likely experienced similar expansion and contraction in the past and will experience similar episodes in the future.

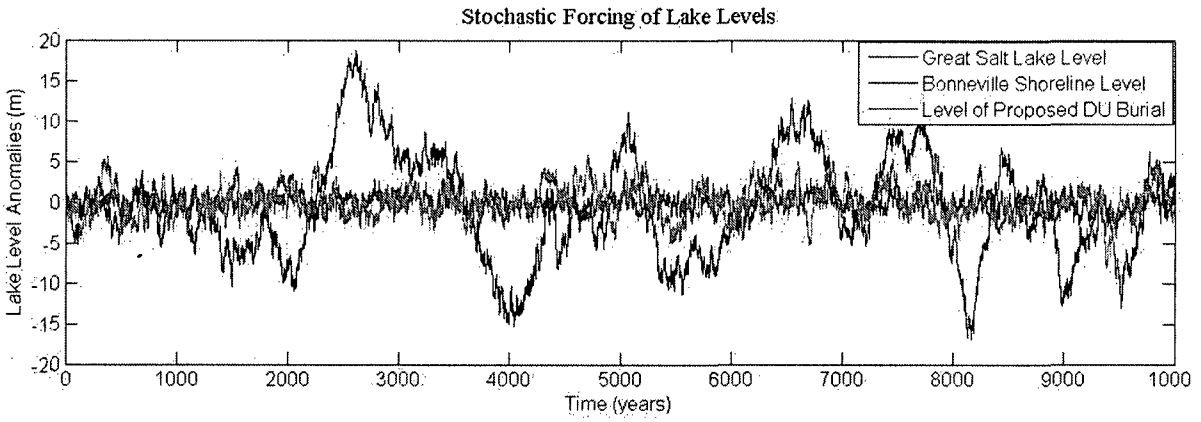


Figure 4: Lake level variability forced by present-day interannual variability in precipitation and temperature, but no change in the mean climate state. The inherent memory of a lake results in integration of the stochastic (white noise) variability in climate variables, resulting in red noise variability in lake levels. This integration of noise depends strongly on lake size. Smaller lakes have rapid and smaller lake level anomalies; conversely, larger lakes have slower and larger lake level anomalies. In summary, lake level can vary even in the absence of a change in climate.

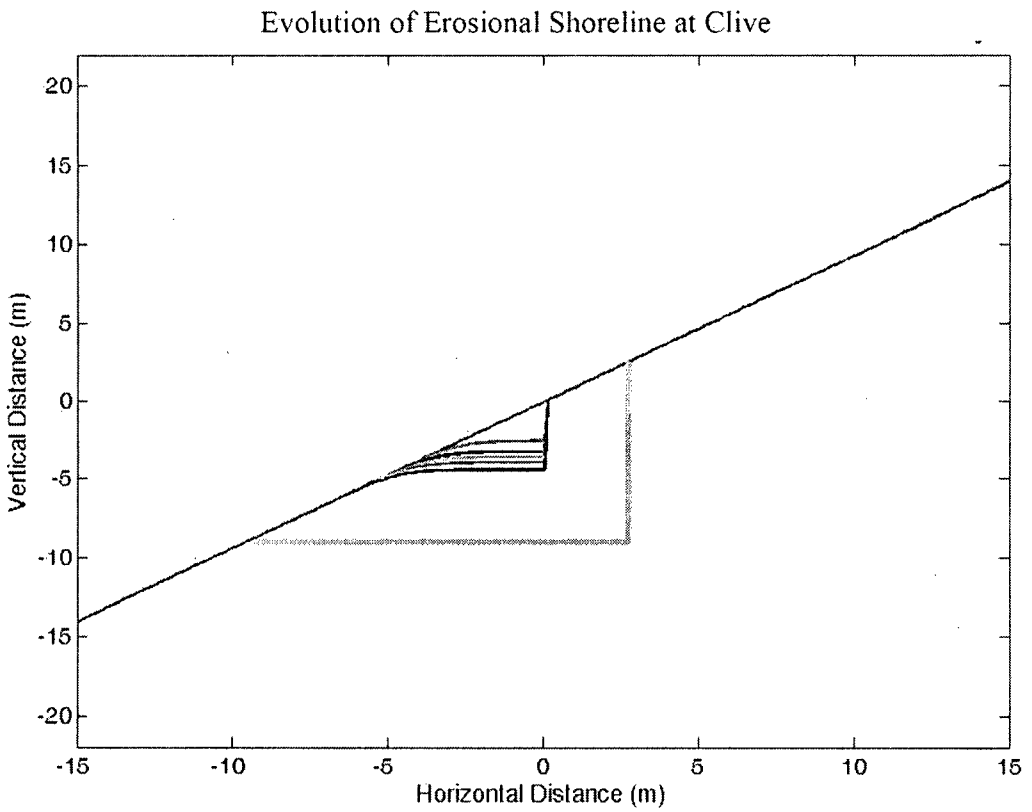


Figure 5: Modeled shoreline erosion over time at Clive for a steady-state lake level. The starting profile for the slope at Clive is in blue. Each successive colored line represents a snapshot in time during the erosion process: magenta=100 years, black=1000 years, green = 2000 years, red = 4000 years, yellow = 7000 years, and blue equals 10000 years. All climate variables and wave generation in the erosion model are based on present day conditions and solid rock. The grey line represents the equilibrium erosion profile after 10000 years when rednoise lake variability is included. Note that in all simulations, the majority of the evolution towards an equilibrium shoreline profile occurs in the first 1000 years.

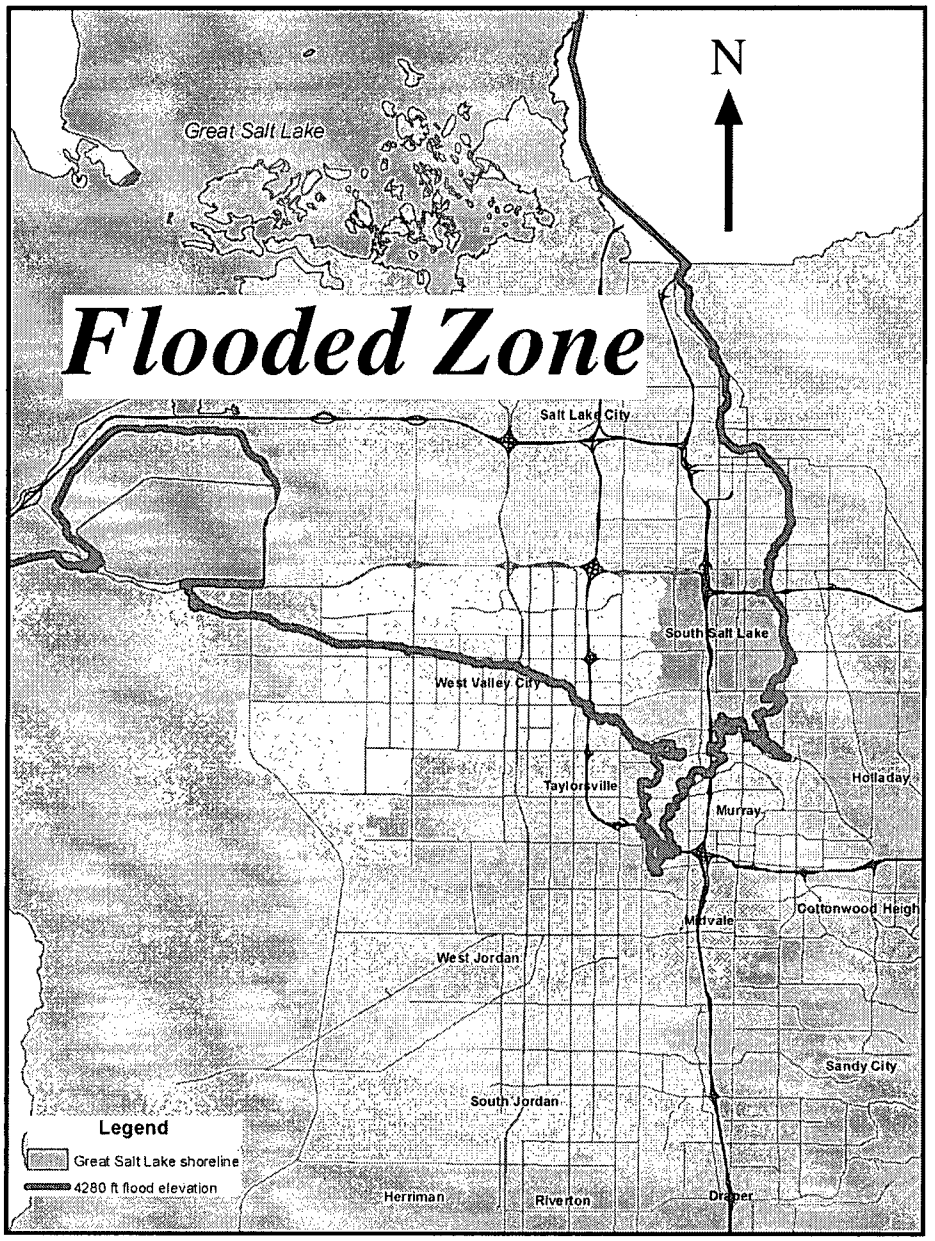


Figure 6. Map showing the extent of flooding relative to the current urban corridor of the Salt Lake Valley should Great Salt Lake levels rise to the elevation of the EnergySolutions Clive site (4280 ft or 1305 m).

References:

Bischoff, J.L, Fitts, J.P., and Fitzpatrick, J.A., 1997, Responses of sediment geochemistry to climate change in Owens Lake sediment: An 800-k.y. record of saline/fresh cycles in core OL-93: Geological Society of America Special Paper 317, p. 37-47

Bright, R.C., 1963, Pleistocene lakes Thatcher and Bonneville, southeastern Idaho. PhD dissertation, University of Minnesota, Minneapolis, 171 p.

Brouchard, D.P., Kaufman, D.S., Hochberg, A., and Quade, J., 1998, Quaternary history of the Thatcher Basin, Idaho, reconstructed from the $^{87}Sr/^{86}Sr$ and amino acid composition of lacustrine fossils: implications for the diversion of the Bear River into the Bonneville Basin: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 141, p. 95-114.

Eardley, A.J., Shuey, R.T., Gvosdetsky, V., Nash, W.P., Picard, M.D., Grey, D.C., and Kukla, G.J., 1973, Lake cycles in the Bonneville Basin, Utah: Geological Society of America Bulletin, v. 84, p. 211-216.

Gilbert, G.K., 1890, Lake Bonneville, U.S. Geological Survey Report M 0001, 438 p.

Link, P.K., Kaufman, D.S., and Thackray, G.D., 1999, Field Guide to Pleistocene Lakes Thatcher and Bonneville and the Bonneville Flood, southeastern Idaho, *in* Hughes, S.S., and Thackray, G.D., eds., Guidebook to the Geology of Eastern Idaho: Idaho Museum of Natural History, p. 251-266.

McCoy, W.D., 1987, Quaternary aminostratigraphy of the Bonneville Basin, western United States: Geological Society of America Bulletin, v. 98, p. 99-112.

Nelson, S.T., Wood, M.J., Mayo, A.L., Tingey, D.G., and Eggett, D.L., 2005, Shoreline Tufa and Tufaglomerate from Pleistocene Lake Bonneville, Utah, USA: stable isotopic and mineralogical records of lake conditions, processes, and climate: Journal of Quaternary Science, v. 20, p. 3-19.

Oviatt, C.G., Thompson, R.S., Kaufmann, D.S., Bright, J., and Forester, R.M., 1999, Reinterpretation of the Burmester Core, Bonneville Basin, Utah: Quaternary Research, v. 52, p. 180-184.

Rupper, S., 2009, Stochastic climate forcing of Pleistocene Lake Bonneville: Geological Society of America Abstracts With Programs, v. 41, p. 3.

Sandquist, Gary, 2009, Uranium in GSL, Public Forum, Salt Lake Tribune, Oct. 21, 2009. *(The author of this letter is almost certainly a former Univ. of Utah nuclear engineering professor)*

Tarboton, D.G., 2006, What makes the Great Salt Lake level go up and down: Geological Society of America Abstracts With Programs, v. 37, p. 162.

BIOGRAPHICAL SKETCHES

Stephen T. Nelson, Qualifications:

I am a professor of geochemistry at a major university where I have taught and engaged in research for the last 12 ½ years. My area of teaching and research expertise includes isotope geochemistry. I have established a light stable isotope laboratory, ^{3}H, and ^{14}C liquid scintillation counting facilities, as well as an alpha spectroscopy laboratory for U-series measurements in naturally-occurring matrices. I teach a graduate course in isotope geochemistry and team-teach a graduate course in contaminant hydrogeology. Much of my research includes the response of arid regions to climate change.

From July 1998 to July 2008 I was a member, vice chair, and chair of the Utah Radiation Control Board. From March 1993 to Dec. 1996 I worked under the Management and Operating Contract for the US DOE Yucca Mountain Project. I participated in the management of volcanic hazard, mineralogy and petrology, and geochemistry studies as part of the characterization effort for that site. I also have direct research experience and interests in the Bonneville basin, which includes the EnergySolutions Clive, Utah site. In summary, I have considerable experience and insight relevant to the issue of DU disposal in general and at Clive, Utah in particular.

Charles G. Oviatt, Qualifications:

I am a professor of geology at Kansas State University, in Manhattan, KS. I began studying Lake Bonneville as a graduate student at the University of Utah in 1977, and I am continuing that work today. During the eight years I lived in Salt Lake City, I was employed by the Utah Division of State History, the U.S. Geological Survey, and the Utah Geological Survey, and in each of these positions I continued to work on Lake Bonneville. In 1985 I moved to Kansas State University to teach geology, and have returned to Utah to study Lake Bonneville every year (primarily during summers) since then. I have published numerous scientific articles, maps, reports, and abstracts related to Lake Bonneville. These include: over 20 peer-reviewed scientific journal articles or book chapters, over 40 abstracts of presentations at scientific conferences, and over 30 other reports, maps, and guidebooks.

Summer B. Rupper, Qualifications:

I am a professor of climate and paleoclimate at a major university, and have been studying the Earth's climate system for almost a decade. My specific area of research expertise is in quantifying the interactions between climate and earth's surface, with emphasis on glaciers and lakes. Recently this has included numerical modeling of the lake-level variability of the Great Salt Lake and glacial Lake Bonneville, impacts of that variability on erosion rates and shoreline evolution, and the associated feedbacks and forcings between lakes and regional climate over short and long time-scales. I have published more than 20 scientific articles, proceedings, book chapters, and abstracts related to climate and paleoclimate; served as a reviewer and guest editor for top-tier climate and paleoclimate journals; and served as a reviewer and panelist for climate, glaciology, and geomorphology divisions of major grant funding agencies.

74 FR 30175
6/24/09
(30)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4dcc7
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0020
Comment on FR Doc # E9-14820

Submitter Information

Name: Liz Woodruff
Address:
PO Box 1731
Boise,, ID, 83701
Organization: Snake River Alliance

General Comment

PLEASE SEE THE ATTACHED FILE FOR OUR COMPLETE SUBMITTAL
Thank you for the opportunity to provide comments regarding the rulemaking process for depleted uranium (DU) and other unique waste streams. These comments are respectfully submitted on behalf of the Snake River Alliance, Idaho's Nuclear Watchdog and Advocate for Clean Energy. As our Program Director Beatrice Brailsford has indicated in communications with Patricia Bubar, the Alliance will be submitting additional comments as soon as Ms. Brailsford's unexpected computer difficulties have been resolved.

The Snake River Alliance is closely monitoring this rule making process, since the finalized rule will directly impact how the proposed Areva uranium enrichment facility will deal with the waste it will potentially produce here in Idaho. The outcome of this rule will directly impact whether DU will be stored in Idaho and we are therefore concerned about risks to public safety and the integrity of Idaho's environment and natural resources associated with potential storage. More broadly, all stakeholders have an interest in ensuring that the NRC determines an appropriate disposal pathway for DU that adequately addresses its widely acknowledged unique characteristics associated with the long life and increasing threat posed by this waste over extended periods of time that go beyond the scope of scientific predictability.

It is our position that the current classification of depleted uranium as low-level waste (LLW) is inappropriate, and we are pleased that the NRC is creating a more robust and meaningful rule regarding the disposal of DU. Nevertheless, we believe the NRC should consider creating a different classification system for DU and other "unique" waste streams, and hope that this possibility is being seriously considered within this rulemaking process. We also believe that disposal in a deep geologic repository is the only responsible conclusion of this rulemaking procedure.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2), B. Traynham (bnt1)
P. Yadav (ppy)

Attachments

NRC-2009-0257-DRAFT-0020.1: Comment on FR Doc # E9-14820

SNAKE RIVER
ALLIANCE
IDAHO'S NUCLEAR WATCHDOG
& CLEAN ENERGY ADVOCATE
www.snakeriveralliance.org

October 30th, 2009

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M
Washington, DC
20555–0001

RE: Federal Register Notice, June 24th, 2009, pgs 30175-30179—Notice of Public Workshops on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium.

To Whom it May Concern;

Thank you for the opportunity to provide comments regarding the rulemaking process for depleted uranium (DU) and other unique waste streams. These comments are respectfully submitted on behalf of the Snake River Alliance, Idaho's Nuclear Watchdog and Advocate for Clean Energy. As our Program Director Beatrice Brailsford has indicated in communications with Patricia Bubar, the Alliance will be submitting additional comments as soon as Ms. Brailsford's unexpected computer difficulties have been resolved.

The Snake River Alliance is closely monitoring this rule making process, since the finalized rule will directly impact how the proposed Areva uranium enrichment facility will deal with the waste it will potentially produce here in Idaho. The outcome of this rule will directly impact whether DU will be stored in Idaho and we are therefore concerned about risks to public safety and the integrity of Idaho's environment and natural resources associated with potential storage. More broadly, all stakeholders have an interest in ensuring that the NRC determines an appropriate disposal pathway for DU that adequately addresses its widely acknowledged unique characteristics associated with the long life and increasing threat posed by this waste over extended periods of time that go beyond the scope of scientific predictability.

It is our position that the current classification of depleted uranium as low-level waste (LLW) is inappropriate, and we are pleased that the NRC is creating a more robust and meaningful rule regarding

the disposal of DU. Nevertheless, we believe the NRC should consider creating a different classification system for DU and other "unique" waste streams, and hope that this possibility is being seriously considered within this rulemaking process. We also believe that disposal in a deep geologic repository is the only responsible conclusion of this rulemaking procedure and we urge the NRC to seriously consider that outcome. Each of these points will be addressed in more detail below, in addition to various other concerns and comments regarding rules for the disposal of depleted uranium.

The Unique Characteristics of DU Make Low-Level Waste Sites Inappropriate for Disposal

The NRC erred when it decided to formulate guidelines for depleted uranium disposal in a low-level waste disposal facility. That decision did not take into account the hundreds of thousands of years over which DU grows more radioactive. Because LLW disposal requirements assume only a 100-year time in which the waste remains a threat to public safety, the characteristics of DU clearly exceed the scope of LLW regulations. Any adequate rule will necessarily:

- Require modeling that extends beyond 10,000 years in site assessment criteria. While workshop comments include the assertion that modeling beyond 10,000 years is difficult, this indicates less that that modeling should ignore this issue and more that DU requires highly stringent rules and methods of evaluation than the LLW category provides.

- Evaluate the potential impacts of climate change and geologic activity on any given disposal sites viability. As Dr. Arjun Makhijani indicated in his comments at the first workshop, climate modeling in particular has been absent from the current considered relevant factors surrounding DU's disposal and must be incorporated in future modeling relevant to any site assessments. Since a site's suitability requires it to be a dry site and since climate changes would clearly have an impact on the long-term potential for a currently dry site remaining dry over the extended life of this waste stream, this essential point should be a priority of any finalized rules and guidelines.

- Acknowledge the potential inadequacy of any hard cover requirement for a near surface disposal site given the potential for erosion over a time-frame where DU increases in radioactivity and poses the greatest danger in its millionth year. The potential for erosion of a hard cover must be addressed and reflected in any regulation.

- Until the NRC is able to provide a clear description of "other unique waste streams," it must not attempt to formulate rules governing their disposal. Instead, the NRC should focus on re-evaluating its decision that shallow land burial is adequate for depleted uranium disposal.

- The NRC must, as part of this rulemaking, prepare an environmental impact statement that fully evaluates DU disposal in a deep geologic repository. It is only through disposal in a deep geologic repository that the unique characteristics and subsequent threats posed by depleted uranium can adequately be addressed. Additionally, any current disposal of DU in LLW sites should immediately be halted, and future disposal should be limited to a deep geologic repository.

Continued Production of DU Waste Should Be Limited

Because the United States does not have a deep geologic repository for commercial waste streams, any additional production of DU should be severely limited. It would be irresponsible and inappropriate for the NRC to license any new enrichment facilities at least until this rule-making process is complete and even then a demonstrated need for new enrichment must be proven prior to the NRC granting a license that would result in the further production of DU. Currently, assertions that the expanded manufacturing of enriched uranium is necessary are based on the tenuous premise that a "nuclear renaissance" will massively increase demand for enriched uranium. This premise is severely undercut by the following factors:

- The current economic downturn and the exorbitant costs associated with the construction and operational viability of a new fleet of U.S. reactors has resulted in significant financing delays and even cancellations of several proposed "next generation" nuclear reactors

- Recent production slow-downs at various current reactors throughout the United States indicate that the industry is not, in fact, growing.

- Given the extent to which the nuclear industry relies on subsidization from the federal government for the financing of any new construction of nuclear reactors, uncertainty over which energy sources will be prioritized and supported in upcoming federal climate legislation destabilizes and mitigates the viability of increased nuclear energy production.

- Current supplies of fuel for reactors via the "Megatons to Megawatts" down-blending program operated by USEC remain adequate to meet the fuel requirements of U.S. reactors. There is every indication that this program will be extended beyond 2013 and unless the need for additional supplies of enriched uranium are verifiably demonstrated, the burdens associated with the disposal of depleted uranium outweigh the risks associated with the licensing, funding , construction and operation of any proposed U.S. enrichment facility.

Delays in the Completion of De-conversion Facilities Should be Assessed in terms of the Impact on Potential Storage of DU

Beyond issues associated with what would constitute adequate disposal of depleted uranium and the imperative of halting further licensing of proposed enrichment facilities, the Snake River Alliance would appreciate an assessment in the NRC's rule making determinations regarding the potential impacts of delays in the construction of de-conversion facilities that are a must-take step in the ability to dispose of DU. How long can we expect any new enrichment facilities to store waste on-site while de-conversion facilities are built? If de-conversion facilities are delayed or never constructed how will the NRC address the disposal of DU? Is it appropriate to license new enrichment facilities given the uncertain time-frames associated with the completion of de-conversion facilities?

Conclusion

As the workshops on this rule making procedure have indicated, depleted uranium is uniquely difficult to regulate and poses a series of insurmountable uncertainties and risks that will require extensive reforms to the way its disposal has been handled in the past and the criteria by which its disposal is currently being evaluated. At this time, we remain gravely concerned with that the outcome of this rulemaking process will potentially allow shallow-land disposal and we will continue to insist that the models being used for site assessment criteria are missing key factors that should be included in the final rules governing the final disposal methodology associated with DU. Based on the unique characteristics of and time-frames associated with DU, it is clear that a deep geologic repository would be the only adequate disposal method. Because an appropriate repository for commercial waste does not exist and because no de-conversion facilities are operational, DU will, by necessity, be stored indefinitely on the sites at which it is produced. For all of these reasons we remain adamant that the NRC should not license new enrichment facilities until this rule is complete and the uncertainties addressed in these comments are adequately resolved.

Sincerely,

Liz Woodruff
Energy Policy Analyst
Snake River Alliance
350 N. 9th Street, Suite B10
Boise, ID 83702
Phone: (208) 344-9161
Fax: (208) 331-0885
lwoodruff@snakeriveralliance.org
www.snakeriveralliance.org

74 FR 30175
6/24/09
(31)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4ebe7
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0021
Comment on FR Doc # E9-14820

Submitter Information

Name: Rebecca Chavez-Houck
Address:
643 East 16th Avenue
Salt Lake City, UT, 84103
Government Agency Type: Local
Government Agency: Utah State Legislature

General Comment

October 30, 2009

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration, U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M, Washington, DC 20555-0001

Subject: Reference ID: NRC-2009-0257. Appeared in June 24, 2009 Federal Register, pg. 30175

Submitted online at http://www.regulations.gov

To Whom it May Concern:

I am writing to express my concerns about your proposed rulemaking on depleted uranium.

1. Significant quantities of depleted uranium have a hazard comparable to transuranic waste; therefore, depleted uranium should not be allowed for disposal in a near-surface facility. i

Depleted uranium is a long-lived alpha emitter. In terms of its radiological hazard, it is similar to the transuranic isotopes. Transuranic wastes are currently disposed of at the Waste Isolation Pilot Plant (WIPP),

P. Yadav (PPY)

SUNSI Review Complete
Template = ADM-013
E-RIDS = ADM-03
Add: C. Grossman (cjg2), B. Traynham (bnt1)

thousands of feet below the Earth's surface. Deep burial of this kind affords greater stability and protection from potential disturbance of the waste over the many tens of thousands of years that it will be hazardous.

Given the similarity between significant amounts of depleted uranium and the transuranic isotopes, deep geologic disposal should be the minimum acceptable disposal for depleted uranium. I urge you to revise your proposed rulemaking to require deep geologic disposal of depleted uranium.

2. The proposed rule should examine the peak hazard from depleted uranium; shortening the "period of performance" will artificially lower the perceived hazard.

If your Agency continues to develop a rule for the near-surface disposal of depleted uranium, as is now envisioned, then the site-specific analysis required should have to examine the peak hazard posed by depleted uranium.

3. Current performance assessments showing disposal of depleted uranium is safe may not be adequate; disposal of additional significant quantities of depleted uranium should be suspended pending updates to performance assessments.

Repres

74 FR 30175
6/24/09
(32)

PUBLIC SUBMISSION

As of: November 05, 2009
Received: October 30, 2009
Status: Pending_Post
Tracking No. 80a4ed1d
Comments Due: October 30, 2009
Submission Type: Web

Docket: NRC-2009-0257
Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Comment On: NRC-2009-0257-0001
Public Workshop: Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium

Document: NRC-2009-0257-DRAFT-0022
Comment on FR Doc # E9-14820

Submitter Information

Name: Christopher Thomas
Address:
HEAL Utah
68 S. Main Street, Suite 400
Salt Lake City, UT, 84101
Organization: HEAL Utah

General Comment

Please consider the uploaded comments on NRC-2009-0257-0001 submitted by the Healthy Environment Alliance of Utah (HEAL Utah). Please feel free to contact me if you have any questions or difficulty receiving our submission.

Attachments

NRC-2009-0257-DRAFT-0022.1: Comment on FR Doc # E9-14820

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add: C. Grossman (cjg2)
B. Traynham (bnt1)
P. Yadav (ppy)

October 30, 2009

Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration, U.S. Nuclear Regulatory Commission
Mail Stop TWB 5B01M, Washington, DC 20555–0001

Reference ID: NRC–2009–0257; Federal Register published June 24, 2009. See page 30175.

Submitted online at http://www.regulations.gov

To Whom it May Concern:

I am writing on behalf of the Health Environment Alliance of Utah (HEAL Utah) and our supporters to express several concerns and suggestions regarding your proposed rulemaking related to the safe disposal of depleted uranium.

HEAL Utah is a public interest group dedicated to protecting public health that advocates on nuclear power, nuclear waste, and toxic waste issues. HEAL Utah is supported by nearly 600 active contributing members and maintains an email distribution list of over 4,000. We have worked on many issues involving radioactive waste disposal in Utah, including the disposal of foreign nuclear waste, Class B and C nuclear waste, waste from the Fernald, Ohio, cleanup, and the high-level waste Private Fuel Storage (PFS) proposal.

Please consider the following comments:

1) Unique waste streams should be given a new regulatory definition of "unclassified," rather than grouped under the rubric of "Class A" waste. This "unclassified" group should be defined to include all kinds, volumes, and concentrations of waste not explicitly covered in the "Final Environmental Impact Statement on 10 CFR Part 61 Licensing Requirements for Land Disposal of Radioactive Waste," NUREG–0945, 1982. For all such waste streams, a scientifically defensible site-specific performance assessment demonstrating compliance with the performance objectives of 10 CFR Part 61 subpart C must be required prior to disposal in a near-surface facility. Significant quantities of depleted uranium would fall into this "unclassified" category.

2) Uranium waste streams resulting from the reprocessing of spent nuclear fuel must fall under the "unclassified" rubric and must be specifically prohibited from near-surface disposal pending site-specific analysis.

3) At the workshop held in Salt Lake City on this topic, several participants remarked that significant quantities of depleted uranium are materially different than waste that currently falls under the "Class A" rubric. For example, Dr. David Kocher, from SENES Oak Ridge, said, "It's increasingly clear that DU really is a different beast in the following way. I think everybody in this room would admit that if DU were submitted to waste classification in the same way that other stuff was 30 years ago, it's not Class A waste."[1] He went on to say that it's not really Class C waste, either, since Class C wastes were conceived to be small in volume. He concluded that significant quantities of depleted uranium cannot be adequately covered by the current classification system.

---

[1] See NRC transcript at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams/workshop-2-transcripts-day2.pdf, p. 188

4) Federal regulations define Class A waste as presenting "an acceptable hazard" to an intruder after 100 years (see **10 CFR § 61.7 Concepts.**) Significant quantities of depleted uranium will continue to present a significant hazard far beyond 100 years. On its face, then, depleted uranium cannot be considered a "Class A" waste under the existing Federal definition and framework.

5) The time period of performance for a performance analysis on "unclassified" waste streams, including significant quantities of depleted uranium, should be to the time of peak activity or the time of peak dose. The state of Texas has adopted this approach in their rules. **See Texas Rule §336.709 - Technical and Environmental Analyses.** The NRC reviewed this rule without comment in 2003. If the NRC artificially limits the period of performance, agreement states should be able to require a longer period of performance.

6) If the NRC defines a period of performance shorter than the time of peak dose or peak activity, this would represent a significant change to the Federal radiation protection standards. See **10 CFR § 61.41 Protection of the general population from releases of radioactivity**. Such a change would necessitate that the current rulemaking be abandoned and two new rulemaking procedures be conducted in tandem, one to deal with depleted uranium and unique waste streams, and another to deal with changes to Subpart C radiation protection standards.

7) Currently, Federal standards limit organ dosea to 25 millirems (mrem) annually. See **10 CFR § 61.41 Protection of the general population from releases of radioactivity.** The NRC staff analysis on depleted uranium released in October of 2008 (part of SECY-08-0147) did not adequately calculate doses to organs. In other words, doses to organs were only considered insofar as they contributed to an overall body dose. In this framework used by NRC staff, an organ could receive greater than a 25 mrem dose in a year, yet the performance objective as measured to the whole-body would still be *under* 25 mrem per year. As a result, the NRC staff analysis on depleted uranium likely under-estimated the hazard of depleted uranium buried in a near-surface disposal facility.

8) NRC staff's analysis in SECY-08-0147 suffers another major flaw when it comes to considering changes in climate. For instance, NRC staff assumed that the near-surface disposal facility would continue to function as designed over the period of performance, even over a period of one million years. Design features such as waste stability, cover, and disposal depth of depleted uranium were assumed to remain constant. This approach directly contradicts staff guidance provided in SECY-96-103. In that 1996 memo, Executive Director for Operations James M. Taylor writes, "Significant uncertainty exists in predicting long-term design life and degradation rates of engineered barriers. Staff recommends that typical engineered barriers be assumed to be physically degraded after 500 years after site closure." Such an assumption as articulated in 1996 appears consistent with the overall regulatory framework for near-surface disposal facilities, namely that they should present "an acceptable hazard" after 100 years and that the site should not require "active maintenance" following closure. That NRC staff would subsequently prepare an analysis in 2008 that assumes a near-surface disposal site continues to function as designed in perpetuity defies logic and good sense. As a result, the NRC staff's October 2008 analysis likely underestimates the hazard associated with depleted uranium disposed in a near-surface facility.

9) NRC staff's SECY-08-0147 was likewise flawed because it did not take into account dramatic changes in climate that can take place over the timeframes examined (thousands to millions of years). Dr. Peter Burns from Notre Dame University observed the following: "It's kind of funny in

a way to listen to people say it's dumb to model a million years. I agree. It's probably almost as dumb to model 10,000 years in reality because the climate change cycles etc. that we talk about in a million years they all happen in 10,000 years as well. In 10,000 years we could well be under 1,500 feet of water or some ludicrous thing here as we're in another glacial period and we have a pluvial lake on top of Salt Lake City and who knows?[2]" Defensible modeling of impacts requires that assumptions be made about the climate. But over long time periods, from 10,000 to 1 million years, the climate can dramatically change. Such dramatic changes in climate may actually preclude defensible modeling over such long timeframes nearly everywhere at the Earth's surface. Therefore, the long-lived hazard posed by significant quantities of depleted uranium may naturally preclude near-surface disposal nearly everywhere at the Earth's surface.

10) Federal rules require that areas be avoided where surface geologic processes "may preclude defensible modeling and prediction of long-term impacts." See **10 CFR § 61.50 Disposal site suitability requirements for land disposal.** HEAL Utah hereby incorporates comments submitted by Dr. Steve Nelson, Dr. Charles G. Oviatt, and Dr. Summer B. Rupper on the present rulemaking that indicate a nearly 100% likelihood that one such near-surface disposal facility in Utah will be inundated and washed away by rising lake levels sometime in the next 100,000 years. Such a finding should preclude this specific facility and any other similarly-susceptible facilities from receiving significant quantities of depleted uranium for disposal. Dr. Peter Burns from Notre Dame University appeared to concur in the following comment: "I was outside at lunch and I was looking up at that hill over there and being a geologist I could easily figure out what the erosion rate is on that hill and I could figure out okay so we're going to have some climate change and ... I could bury the depleted uranium in a location where it's fine for 10,000 years but at 15,000 years it's exposed and gone. So you absolutely have to have a consideration of peak dose. You can't put it somewhere where you know that in 20,000 years or whatever it will not be there.[3]"

11) The way the Commission has framed the proposed depleted uranium rulemaking is artificially narrow and appears to point to a pre-determined outcome. Dr. Kocher seemed to get at this when he noted, "A comment that has kind of opened my eyes here is that there seems to be an implicit understanding here that we're developing a rule for near surface disposal and I'm pretty convinced from what I've heard that the NRC should open the possibility that near surface disposal may simply not be appropriate for this stuff, for whatever reason. I mean it's conceivable that you might reach such a decision.[4]" We believe that any proposed rulemaking should allow for the possibility of a requirement that significant quantities of depleted uranium be disposed in deep geologic disposal.

12) If uranium were defined as a transuranic element, then significant quantities of depleted uranium would require deep geologic disposal based upon the radiological properties of uranium. Transuranic wastes are currently disposed thousands of feet underground at the Waste Isolation Pilot Plant (WIPP) in New Mexico. We believe that, based on its physical properties and toxicity, significant quantities of depleted uranium must be treated under the transuranic waste regulatory framework, if disposed as a waste.

---

[2] See NRC transcript at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams/workshop-2-transcripts-day1.pdf, page 226

[3] See NRC transcript at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams/workshop-2-transcripts-day1.pdf, page 225

[4] See NRC transcript at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams/workshop-2-transcripts-day1.pdf, page 239

13) Chemical toxicity of significant quantities of depleted uranium must be considered in the required site-specific performance analysis. Dr. Kocher raised this issue: "The issue I want to raise is about chemical toxicity of depleted uranium. One of the frequently asked questions in the communication plan raised this issue and basically the answer was the NRC is not going to deal with this. I would suggest that's not an enlightened approach. It may turn out that chemical toxicity is not more important than radiation dose from depleted uranium, but it may not, the opposite may be true."[5] If the NRC does not require an analysis of the chemical toxicity associated with depleted uranium, then any such analysis could grossly underestimate health impacts associated with depleted uranium disposal in a near-surface facility. The most recent toxicological information on depleted uranium must be included in such analyses. If the NRC does not conduct this analysis, Agreement States should require this type of analysis prior to disposal of significant quantities of depleted uranium.

14) The performance assessment must consider the physical and chemical form of the depleted uranium, and whether the disposal facility constitutes a reducing or oxidizing environment.

15) Compliance with Environmental Protection Agency (EPA) standards for airborne releases of radionuclides must also be demonstrated over the relevant timeframes during which significant quantities of depleted uranium remain hazardous.

16) The performance assessment must include an on-site intruder scenario in order to adequately account for the radiological impacts to an inadvertent intruder; Federal rules require as much: "Design, operation, and closure of the land disposal facility must ensure protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed." **See 10 CFR § 61.42 Protection of individuals from inadvertent intrusion.** The inadvertent intruder should be protected at a level of 25 mrem per year.

17) As some point in the next 10,000 years it is perfectly plausible that an attempt will be made to recover energy-producing material from our current waste sites. It is difficult to model this type of intrusion in a standard risk assessment, but that does not mean that the risk of deliberate intrusion should be ignored during the rulemaking.

18) The new proposed rule for depleted uranium must require that a site be owned in perpetuity by either a State or Federal agency, prior to any proposed disposal of significant quantities of depleted uranium in a near-surface facility. Because depleted uranium will remain hazardous over timeframes that companies cannot be expected to survive (thousands to millions of years), and near-surface disposal facilities can reasonably be expected to degrade after 500 years, a viable long-term custodian must be identified who will actively manage and repair the disposal site and its hazardous constituents. As a side-note, this new requirement would be in direct conflict with current regulation, which state, in part: "The analyses must provide reasonable assurance that there will not be a need for ongoing active maintenance of the disposal site following closure." **See 10 CFR § 61.13 Technical analyses.**

19) The performance assessment must examine the effects of all decay-chain radionuclides resulting from depleted uranium, most especially including radium-226 and radon gas. A radon-flux standard is not sufficient to ensure performance objectives are met.

---

[5] See NRC transcript at http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/uw-streams/workshop-2-transcripts-day2.pdf, page 263

20) Permitting the disposal of significant quantities of depleted uranium, as the proposed rule does, constitutes a major Federal action and triggers requirements under the National Environmental Policy Act (NEPA). An Environmental Impact Statement (EIS) must be conducted and allow for an examination of all relevant alternatives for depleted uranium management, including deep geologic disposal and monitored retrievable storage, among others.

21) Colloidal transport of radionuclides must be considered in a site-specific performance assessment.

22) Most radioactive material cleanups today are the result of bad technological and policy decisions made in the last 50-70 years. It is highly likely that the DU disposal being done now will seem inappropriate within the next few centuries. Thus, retrievability and the possibility of future site cleanups should be considered in any site-specific analysis.

Please feel free to contact me if you have any questions or wish to speak with me further.

Sincerely,

Christopher Thomas
Policy Director, HEAL Utah
801-355-5055

WASTE CONTROL
SPECIALISTS LLC

October 30, 2009

6/24/09
74FR30175
33

U.S. Nuclear Regulatory Commission
Chief, Rulemaking and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop TWB 5B01M
Washington, DC 20555-0001

RECEIVED
2009 NOV 10 AM 9:29
RULES AND DIRECTIVES BRANCH

References: (1) Radioactive Material License No. R04100

(2) Letter from William P. Dornsife, P.E. (WCS), to Dale Klein, Ph.D. (NRC), re "Information for Consideration by the Commission at Scheduled 04/17/09 Briefing on Low-Level Radioactive Waste", dated April 6, 2009

(3) Federal Register, Volume 74, Number 120, pp. 30175-30170, published on June 24, 2009

Subject: Comments Regarding Potential Rulemaking For Safe Disposal Of Unique Waste Streams Including Significant Quantities Of Depleted Uranium

Dear Sir or Madam:

Waste Control Specialists LLC (WCS) has already submitted comments for consideration by the Commission pertaining to depleted uranium as well as other topics on Low-Level Radioactive Waste (LLW) policy (Reference 2). We were invited and participated in subsequent public workshops that were held on this matter in Rockville, Maryland, and Salt Lake City, Utah. WCS today respectfully submits additional comments on the subject rulemaking initiative for disposal of unique waste streams, including significant quantities of depleted uranium, as requested by Reference 3. These comments are intended to reinforce and supplement the previous comments in Reference 2 and those provided as a participant in the workshops.

WCS received a final license (Reference 1) to dispose of LLW from the Texas Commission on Environmental Quality (TCEQ) on September 10, 2009. This is the only disposal license issued in the U.S. that was fully reviewed under 10 CFR Part 61 requirements and technical standards. The performance assessment (described below) that supported the issuance of the license considered significant depleted uranium waste streams and demonstrated that human health and the environment would be protected not just for the next 1,000 years, but for hundreds of thousands of years into the future. However, TCEQ was reluctant to authorize disposal of these significant depleted uranium waste streams while NRC is considering

SUNSI Review Complete

E-RIDS = ADM-03

Corporate
5430 LBJ Freeway, Ste. 1700
Three Lincoln Centre
Dallas, TX 75240
Ph. 972.715.9800
Fx. 972.448.1419

Facility
P.O. Box 1129
Andrews, TX 79714
Ph. 888.789.2783
Fx. 505.394.3427

Template = ADM-013

Cell = C. Grossman (CSB2)
P. Yadav (PPY)

rulemaking in this regard. As a result, the final LLW disposal license that TCEQ issued to WCS allows for the disposal of only certain limited waste streams of depleted uranium.

WCS believes that the technical issues associated with the disposal of significant quantities of depleted uranium, as identified in the documentation associated with this potential rulemaking and discussed in detail at the public workshops, have been fully resolved for its facility in Andrews County, Texas. We therefore encourage NRC to proceed expeditiously with this rulemaking, so that Texas as an Agreement State can promptly establish conforming regulations, thus allowing WCS to pursue a license amendment to authorize the disposal of depleted uranium at its facility.

More importantly however, in the interim, WCS encourages NRC to work with its Agreement States to ensure consistent nationwide implementation of either (1) existing regulations or (2) a uniform depleted uranium disposal ban pending completion of the NRC's rulemaking and issuance of subsequent Agreement State conforming regulations and issuance of appropriate conforming license amendments by individual Agreement States to their licensees.

GENERAL COMMENTS

As the Commission contemplates moving forward with a rulemaking on this topic, significant effort will be needed to understand the regulatory philosophy of each of the Agreement States that currently host radioactive waste disposal facilities. NRC needs to ensure that the rule addresses potential differences in regulatory philosophies by requiring strict compatibility with the rules that are promulgated and strong oversight on uniform implementation of guidance. As such, WCS strongly encourages NRC to provide specific directions to the licensed community on how to proceed in the interim. Specifically, NRC should provide written guidance on how licensees and Agreement States should proceed to determine whether or not a performance assessment is sufficient to allow for the timely disposal of significant quantities of depleted uranium until such time rulemakings by both NRC and Agreement States are finalized.

SPECIFIC COMMENTS

II. Issues With Disposal Of Unique Waste Streams

Issue II–1. Definition of Unique Waste Streams

WCS Comment: WCS does not believe that a definition for a unique waste stream is needed. However, NRC should evaluate all other waste streams assessed in the *Final Environmental Impact Statement on 10 CFR 61 Licensing Requirements for Land Disposal of Radioactive*

Waste (NUREG-0945) containing long-lived radionuclides to determine if other unique waste streams exist that may require additional measures to protect public health and the environment. One such waste stream that should be evaluated is other source material waste streams that exhibit the same long-term hazards as depleted uranium.

Issue II–2. Time Period of Performance

WCS Comment: WCS strongly believes that NRC should promulgate a time period of performance as part of the rulemaking to address the long-term hazards unique to large quantities of depleted uranium. In defining the time period of performance, NRC is encouraged to promote environmental fate and transport models that preferably requires a quantitative and at least qualitative assessment of the impacts to human health and the environment. Given that the hazards associated with depleted uranium do not peak until long after 10,000 years, the time period of performance should be at least 10,000 years and include additional quantitative or qualitative analysis or requirements to address the period beyond.

WCS encourages NRC to consider the philosophy used by the TCEQ to license[1] WCS' LLW disposal facility in Andrews County, Texas. In its licensing review, TCEQ regulations require a minimum period of performance[2] of 1,000 years after site closure or the period where peak dose occurs, whichever is longer. Under these provisions, WCS was required to demonstrate that the site characteristics were suitably analyzed for a period of 50,000 years, inclusive of climate changes (specifically assuming twice the rainfall), and included in the performance assessment a requirement to evaluate peak dose to infinity. Accordingly, WCS believes that it has demonstrated that its site in Andrews County, Texas, is protective of the long-lived hazards posed by large quantities of depleted uranium (including waste from deconversion processes) to public health and the environment. WCS believes that the approach taken in Texas should serve as a model for the nation.

Issue II–3. Exposure Scenarios for a Site-Specific Analysis

WCS Comment: WCS encourages NRC to require consideration of generic exposure scenarios, such as an intruder scenario, in the rulemaking. WCS again requests NRC to evaluate the licensing process used by TCEQ to license our facility in Andrews County, Texas. During this review, it was determined that disposal of depleted uranium would require placement in reinforced concrete canisters. Use of grout was also required to ensure stabilization of depleted uranium within the concrete canisters. Additionally, the design

[1] On September 10, 2009, TCEQ issued Radioactive Material License No. R04100 to conditionally authorize land disposal of low-level radioactive wastes by WCS.

[2] See Title 30 of the Texas Administrative Code (TAC), Chapter 337.709.

approved for WCS includes an additional concrete liner around the disposal cell as well as a minimum cover thickness of about 10 meters. These measures were specifically required to address the inadvertent intruder scenario.

While WCS encourages NRC to specify in the rulemaking generic exposure scenarios as part of a performance assessment, we recognize that additional information, such as determining fate and transport modeling parameters, should be addressed in regulatory guidance and not rulemaking. In developing regulatory guidance, NRC should build upon its experience related to development of radiological exposure scenarios that have been used to support radiological dose assessments in support of past rulemaking and license reviews involving the License Termination Rule (10 CFR Part 20, Subpart E).

III. ISSUES WITH DISPOSAL OF SIGNIFICANT QUANTITIES OF DEPLETED URANIUM

Issue III–1. Definition of Significant Quantities

WCS Comment: We encourage NRC to define "significant quantities" in the rulemaking in a graded and risk-informed manner. For example, WCS is authorized in Radioactive Material License R04100 to dispose of depleted uranium, excluding depleted uranium from deconversion of UF6, at concentrations less than 10 nCi/g. As previously mentioned, WCS demonstrated in a performance assessment that depleted uranium in large quantities and much larger concentrations could be safely disposed of for a time period much longer than 10,000 years into the future. TCEQ elected to pose this additional concentration-based restriction of 10 nCi/g limiting waste form of depleted uranium authorized for disposal until such time that NRC and then the State complete rulemakings. However, WCS believes conceptually that a similar trigger level could be useful in defining a threshold requiring more rigorous requirements that may be needed to protect public health and the environment from the hazards associated with depleted uranium.

Issue III–2. Time Period of Performance for a Site-Specific Analysis

See WCS comments pertaining to *Issue II–2. Time Period of Performance.*

Issue III–3. Exposure Scenario(s) for a Site-Specific Analysis

See WCS comments pertaining to *Issue II–3. Exposure Scenarios for a Site-Specific Analysis.*

Issue III–4. Source Term Issues for a Site-Specific Analysis

WCS Comment: In regulatory guidance, NRC should clarify that only stable forms (and not UF6) of unique waste streams, including depleted uranium, may be disposed of by shallow land burial. NRC should also provide details in their regulatory guidance on acceptable approaches to determine and quantify source terms that may be used in a site-specific analysis.

Issue III–5. Modeling of Uranium Geochemistry in a Site-Specific Analysis

WCS Comment: WCS believes that NRC should clarify acceptable approaches for modeling of uranium geochemistry in regulatory guidance.

Issue III–6. Modeling of Radon in the Environment in a Site-Specific Analysis

WCS Comment: To address the hazard of radon that decays from the ^{238}U parent over time, NRC should utilize the existing radon flux standard of 20 pCi/m^2-sec as codified in 40 CFR §192, *Standards for the Control of Residual Radioactive Materials from Inactive Uranium Processing Sites.*

WCS appreciates that opportunity to comment on this important rulemaking initiative and hopes that are perspective on this subject is helpful as NRC proceeds forward. WCS requests that a copy of all correspondence regarding this matter be directly faxed (717-540-5102) or emailed (wdornsife@verizon.net) to my attention as soon as possible after issuance. If you have any questions or need additional information please call me at 717-540-5220.

Sincerely,

William P Dornsife

William P. Dornsife, P.E.
Executive Vice President, Licensing and Regulatory Affairs

cc: Larry W. Camper, NRC
Patrice M. Bubar, NRC
Jeffrey M. Skov, WCS
J. Scott Kirk, CHP, WCS
Linda Beach, P.E., WCS
Mike Woodward, Hance Scarborough
Pam Giblin, Baker Botts

From: Grossman, Christopher

Sent: Thursday, June 10, 2010 9:47 AM

To: Miller, Debra

Cc: Pinkston, Karen

Subject: FW: NRC to Hold Public Workshops in Maryland and Utah on Safe Disposal of Depleted Uranium and Other

Deb-

Please place the following e-mail into ADAMS. It should be profiled as publicly available.

Chris

From: Dirk A Dunning [mailto:dirk.a.dunning@state.or.us]
Sent: Thursday, August 20, 2009 2:40 PM
To: Pinkston, Karen
Subject: Re: NRC to Hold Public Workshops in Maryland and Utah on Safe Disposal of Depleted Uranium and Other

Hi Karen,

My supervisor has asked me to participate in the Salt Lake City meeting. Please add me to the list. It would be helpful as early as possible to have a draft agenda, meeting location, etc...

Some issues that could/should be addressed include:

Mobility of uranium in various soils and how the regulations will deal with that
- In the presence of carbonate, and in oxidizing conditions uranium is highly mobile as oxo-complexed species

Chemistry of uranium and how that affects mobility
- Oxo-ion complexation (e.g. carbonate, hydroxide, others...)
- Colloid formation (Soderholm and Burns ...)
- Redeposition in riverine environments as carbonate levels fall and as redox conditions change (directly and indirectly with biological activity)

Recognition and handling of uranium's dual hazard (chemical and radiological)
- At very low U-235 content levels, the chemical hazard may exceed the radiological hazard
- At some enrichment levels, the risk from DU is additive (chemical toxicity plus radiological)

Ecological risks as distinct from human risks
Inclusion of CERCLA's natural resource damage provisions and early mitigation of harms (not claims of irreversible and irretrievable impacts which can be avoided)
Tribal treaty reserved rights and distinct risk scenarios related to their different use of foods and the land
Environmental Justices issues apart from Tribal issues
Duration of the hazard (peak risk/dose) and regulating to and beyond the peak
Need for validated models if risk is to be used as a basis
Need for concentration standards to limit risk to acceptable levels if risk is not to be calculated on an individual site basis
Preferential transport in the vadose zone/subsurface
- Matrix transport
- Finger flow
- Funnel flow
- Capillary flow (horizontal and vertical)
- other preferential transport flows
Need for validated conceptual models and numeric simulation codes that faithfully emulate those concepts
Cap and Barrier failure (requirement to use validated performance estimation)
- bypassing (flow of water under the barriers via preferential pathway flow, e.g. layered/structured soils)
- natural forces (vegetative degradation, animal intrusion, natural force damage - water, wind, tornado, seismic, mass area flow such as landslides ...)
- man made forces (accidental intrusion - e.g. wells, excavation, exploration; intentional intrustion - excavation, exploration; exploitation - industrial construction, road construction, terrorism, etc...)
How to deal with uncertainty in the analysis (not just sensitivity analysis of parameter inputs, or selecting output values; but more importantly recognizing the inherent uncertainties in the actions, the future, and the results and assuring the safety of future generations). This might include a need for multi-model analysis (a la the Jupiter suite of codes created by USGS, Poeter et.al.)
Waste form durability and testing requirements

Dirk Dunning, P.E.
Oregon Department of Energy
Nuclear Safety and Energy Siting Division
625 Marion St. NE
Salem, Oregon 97301-3737

(503) 378-3187
(503) 378-6457 (Fax)
(800) 221-8035 (Oregon only 800#)
(503) 378-4040 (Receptionist)

Dirk.A.Dunning@state.or.us

>>> "opa administrators" <opa@nrc.gov> Thursday, August 20, 2009 8:01 AM >>>

NRC NEWS
U.S. NUCLEAR REGULATORY COMMISSION
Office of Public Affairs Telephone: 301/415-8200
Washington, D.C. 20555-0001
E-mail: opa.resource@nrc.gov
Site: http://www.nrc.gov

No. 09-138
August 20, 2009

NRC TO HOLD PUBLIC WORKSHOPS IN MARYLAND AND UTAH ON SAFE DISPOSAL OF DEPLETED URANIUM AND OTHER UNIQUE WASTE STREAMS

The Nuclear Regulatory Commission will conduct two public workshops in September to solicit public views on major issues for new regulations on shallow-land disposal of unique radioactive wastes, including significant quantities of depleted uranium.

The first workshop will be held Sept. 2-3 at the Hyatt Regency Bethesda, One Bethesda Metro Center, 7400 Wisconsin Ave., Bethesda, Md. The second workshop will be held Sept. 23-24 in Salt Lake City, Utah, at the Salt Lake City Marriott University Park, 480 Wakara Way. Both workshops will run from 8 a.m. to 5 p.m. each day.

The Commission directed the agency staff March 18 to initiate a rulemaking to specify a requirement for a site-specific analysis for the disposal of large quantities of depleted uranium, and other unique waste streams, such as reprocessing wastes and the technical requirements for such an analysis. The Commission also directed the staff to develop a guidance document for public comment that outlines the parameters and assumptions to be used in the site-specific analyses. The Commission said the staff should conduct a public workshop to discuss issues associated with disposal of depleted uranium and other unique waste streams, potential issues to be considered in rulemaking, and technical parameters of concern in the analysis so that informed decisions can be made in the interim before the rulemaking is final.

Earlier this summer, the NRC requested public comment on topics to be addressed at the workshops and the subsequent rulemaking. The agendas for the workshops are available on the NRC Web site at this address: , or Karen Pinkston, at (301) 415-3650, or by e-mail using docket ID NRC-2009-0257.

###