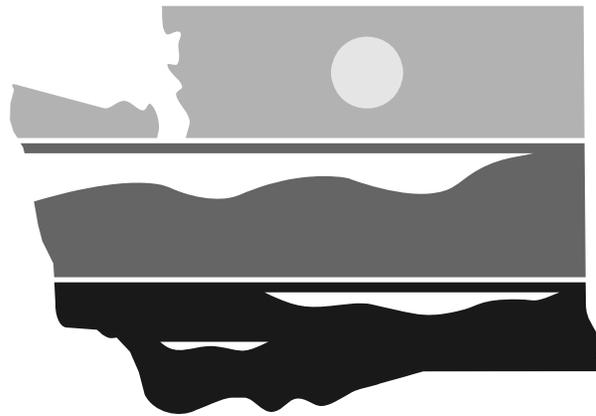


On Tentative Approval of a Variance  
To Land Disposal Restrictions at Hanford

Responsiveness Summary



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

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RESPONSIVENESS SUMMARY

Prepared by:

Doug Hendrickson, P.E.

Washington State Department of Ecology

Nuclear Waste Program

September 3, 2009

Publication Number: 09-05-010

*If you need this publication in an alternate format, please call the Nuclear Waste Program at 509-372-7950. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

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## Introduction

The Washington State Department of Ecology (Ecology) encouraged the public to comment on a proposed variance approval to Land Disposal Restrictions of the Dangerous Waste Regulations during a public comment period from July 20 through August 10, 2009.

The proposed action was to approve a site-specific variance to treatment standards of Washington Administrative Code (WAC) 173-303-140 for approximately five kilograms of highly radioactive waste. The waste had failed the barium treatment standard of 21 milligrams per liter in a toxicity characteristic leaching test after having been treated and macroencapsulated. In requesting variance to the standard, the United States Department of Energy (USDOE) proposed re-encapsulation of the waste material in a high-density polyethylene lined, U.S. Department of Transportation approved container and disposal at a Hanford Dangerous Waste-compliant mixed waste trench.

This responsiveness summary addresses comments received during the public comment period. We received four comments from the public upon the proposed variance approval. They commented upon the following issues:

- Recommendations for approval.
- Waste form selection.
- Receipt of off-site waste.
- Protection of the waters and shores of the State.

## Responsiveness Summary

### **Response to Comments**

1. Comment: *"Ecology plans to approve this variance request as we find it technically sound, protective of human health and the environment, and protective of the Hanford workers who are handling this waste."*

*I concur and approve of this variance request as it is technically sound.*

Response: Ecology agrees.

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2. Comment: *This request by the Fed to allow blended or modified nuclear waste to be dumped at Hanford is very disconcerting and that is because our Federal government has insisted the goal is to perfect a glassification or vitrification plant to dispose of secure volumes of nuclear waste for long term storage. But after thirty plus years and still, continued assurances of that goal no such process has commenced and the expected completion, is continually put off. Now the Fed is proposing to, basically diluting the waste within concrete that will make it more difficult for vitrification and that begs the question is the US Department of Energy knowingly lying to Washington State and the answer here, appears obvious at its face!*

*Now DOE is being asked to allow another variance for disposal at Hanford because it appears this mixed product attempt still dose not meet Ecology standards and still the State of*

*Washington says clean up the site before you dump more and that is not constructively occurring! In fact the Fed has only really tried to deal with the spread out low level wastes to consolidate while attempting such other as pumping fresh water into the ground strategically in hopes of stopping natural ground water flow to the Columbia River. Hanford is the most toxic waste dump in the western hemisphere and real constructive measures to control the nuclear waste on site must occur before more is allowed to be added!*

*Also apparently, the federal government believes Hanford is an all purpose dumping ground as it is also proposed as a repository for mercury and all we need, is an unfortunate accidental mixing. We can also, look at the Fed's failure to require liners for the landfill low lever waste disposal on site and that any other waste landfill in the state would have to comply with as another example after, example of failed Ecology requirement and oversight at Hanford. Washington State needs to put it's foot down or expose those directly who have allowed the disaster of Hanford to continue!*

*Bob Apple, Spokane City Council Member*

Response: Ecology offers the following. This waste stream is not significantly related to the large volumes of radioactive tank waste destined for vitrification. However, it is highly radioactive and its treatment history failed to adequately meet leach standards established by Ecology for one of the toxic metals.

Ecology objectives of protecting the environment have been considered in proposing approval of this variance request. The total barium content of the waste remains low. The total mass of the waste stream is approximately five kilograms. The waste will be repackaged inside a high-density polyethylene (HDPE) lined and sealed container. The HDPE-lined container will be additionally encased in concrete before placement in a lined disposal trench that has been constructed in compliance with and permitted according to the Dangerous Waste Regulations.

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3. Comment: *Our State Dept of Ecology employees and employees of Hanford are real troopers! They have worked like Trojans to protect all of us from nuclear waste. Our national legislators have had to fight tooth and nail over the last 8 to 10 years for the funds necessary to continue cleanup, even though they could demonstrate how very close leakages were getting (got?) to the Columbia River.*

*Their reward for working harder and being more competent than others in the U.S. is to be asked to take care of the waste from other sites! THANKS A LOT BUT NO THANKS!*

*Politically, I think it makes much more sense (for our State and the safety of everyone in the U.S.A.) for each site that creates nuclear waste to dispose of that waste on site LIKE WE HAVE HAD TO DO! It is no more unsafe for them to do so than for us to do so. But it will cost private enterprise, and local government, time, effort and money – just like in Washington State!*

*My understanding is that V.P. Cheney made sure that 19 new nuclear plant licenses were granted before he left office. Most will be built in the southern states. NO PROVISION FOR*

*DISPOSAL OF THE RESULTING WASTE has been factored in. The only way to force the issue is to refuse to take any waste from any other site.*

*I am convinced that, IF WE ALLOW DISPOSAL OF THIS ADDITIONAL WASTE AS REQUESTED, IT WILL OPEN THE DOOR FOR A LANDSLIDE OF FUTURE REQUESTS! THEN THEY'LL CUT OUR FUNDING AGAIN WHEN THINGS GET TOUGH. SO PLEASE DON'T GRANT THIS REQUEST.*

*With great respect for the work you do,  
Sharon Fasnacht*

*PS I've tried to keep current regarding nuclear waste disposal since living in the tri-cities in the late 60's and early 70's. I was told in a college class in 1981 not to worry any more because the waste was going to be "captured" (essentially) in glass, which could be safely buried. Well, that's still a pipe dream, and no other safe disposal has been developed. The logical conclusion should be to stop creating nuclear waste until we have figured out how to dispose of it safely. We will some day, but until then.....*

Response: Ecology offers the following. The wastes described in the variance request were generated at a radiological laboratory upon the Hanford site. As such, this action did not propose receipt of waste from other sites nor does it propose to open a door to other wastes presently undefined. We thank you for your thoughts.

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4. Comment: *Although this project is proposed inland and not within the direct jurisdiction of the state's Shoreline Management Act (RCW 90.58), it could affect the Columbia River, a shoreline of statewide significance, if spills, leaks or deterioration occur. There should be a protocol for addressing impacts to the river because the Shoreline Management Act policy is to "protect against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life". This protocol should include quick containment, cleanup, and restoration measures to avoid impacts to the river or other shorelines. The best available science and technology should be used for these.*

Response: Ecology offers the following. Our objectives to protect the environment have been considered as we propose to approve this variance request. The total barium content of the waste remains low. The total mass of the waste stream is approximately five kilograms. The waste will be repackaged inside a high-density polyethylene (HDPE). lined and sealed container. Also, the HDPE-lined container will be encased in concrete before it is placed in a lined disposal trench that has been constructed and permitted in compliance with the Dangerous Waste Regulations. We believe that placing this waste in a compliant burial trench following re-encapsulation will meet the best available science and technology for this waste.

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## **Summary of Public Involvement Actions**

We advised three separate list-serve groups of our proposed variance approval. The list serve notices reached approximately 3,736 subscribers. The Dangerous Waste Rules listserv has 816

subscribers, the Hanford-Info listserv has 636 subscribers, and the Ecology WAC Track listserv has 2,230 subscribers. The list serve notices announced the comment period and directed readers to the Ecology website for more information. We placed a notice of the comment period in the Ecology events calendar. We also announced the comment period in meetings with regional stakeholders. We did not schedule a public hearing, nor did we receive a request to do so.

## **Attachments**

### Comments Received

Carl Holder

Bob Apple

Sharon Fasnacht

Sandra Lange

### Listserv Notices

ECOLOGY-WAC-TRACK

DW-RULES

Hanford-Info

### Issued Variance Approval

**From:** Carl Holder [holder.carl@gmail.com]  
**Sent:** Tuesday, July 21, 2009 8:50 AM  
**To:** Mandis, Michelle (ECY)  
**Subject:** Approval of a Variance - Public Comment - APPROVE

"Ecology plans to approve this variance request as we find it technically sound, protective of human health and the environment, and protective of the Hanford workers who are handling this waste."  
I concur and approve of this variance request as it is technically sound.

Carl Holder  
PO Box 1316  
Pasco WA 99301

**From:** Robert Apple [cometapple@msn.com]  
**Sent:** Tuesday, July 21, 2009 1:30 AM  
**To:** Mandis, Michelle (ECY)  
**Cc:** Bob Apple  
**Subject:** Comment period regarding variance to land restriction at Hanford site

Co Michelle Mandis:

This request by the Fed to allow blended or modified nuclear waste to be dumped at Hanford is very disconcerting and that is because our Federal government has insisted the goal is to perfect a glassification or vitrification plant to dispose of secure volumes of nuclear waste for long term storage. But after thirty plus years and still, continued assurances of that goal no such process has commenced and the expected completion, is continually put off. Now the Fed is proposing to, basically diluting the waste within concrete that will make it more difficult for vitrification and that begs the question is the US Department of Energy knowingly lying to Washington State and the answer here, appears obvious at its face!

Now DOE is being asked to allow another variance for disposal at Hanford because it appears this mixed product attempt still dose not meet Ecology standards and still the State of Washington says clean up the site before you dump more and that is not constructively occurring! In fact the Fed has only really tried to deal with the spread out low level wastes to consolidate while attempting such other as pumping fresh water into the ground strategically in hopes of stopping natural ground water flow to the Columbia River. Hanford is the most toxic waste dump in the western hemisphere and real constructive measures to control the nuclear waste on site must occur before more is allowed to be added!

Also apparently, the federal government believes Hanford is an all purpose dumping ground as it is also proposed as a repository for mercury and all we need, is an unfortunate accidental mixing. We can also, look at the Fed's failure to require liners for the landfill low lever waste disposal on site and that any other waste landfill in the state would have to comply with as another example after, example of failed Ecology requirement and oversight at Hanford. Washington State needs to put it's foot down or expose those directly who have allowed the disaster of Hanford to continue!

Bob Apple, Spokane City Council Member

**From:** Sharon [fasnacht@comcast.net]  
**Sent:** Monday, July 20, 2009 4:03 PM  
**To:** Mandis, Michelle (ECY)  
**Subject:** Public Comment

To: Michelle Mandis  
From: Sharon Fasnacht  
4006 113<sup>th</sup> Avenue SW  
Olympia, WA 98512  
(360) 753 8009

Re: PUBLIC COMMENT On Tentative Approval of a Variance To Land Disposal Restrictions at Hanford

Michelle,

Our State Dept of Ecology employees and employees of Hanford are real troopers! They have worked like Trojans to protect all of us from nuclear waste. Our national legislators have had to fight tooth and nail over the last 8 to 10 years for the funds necessary to continue cleanup, even though they could demonstrate how very close leakages were getting (got?) to the Columbia River.

Their reward for working harder and being more competent than others in the U.S. is to be asked to take care of the waste from other sites! THANKS A LOT BUT NO THANKS!

Politically, I think it makes much more sense (for our State and the safety of everyone in the U.S.A.) for each site that creates nuclear waste to dispose of that waste on site LIKE WE HAVE HAD TO DO! It is no more unsafe for them to do so than for us to do so. But it will cost private enterprise, and local government, time, effort and money – just like in Washington State!

My understanding is that V.P. Cheney made sure that 19 new nuclear plant licenses were granted before he left office. Most will be built in the southern states. NO PROVISION FOR DISPOSAL OF THE RESULTING WASTE has been factored in. The only way to force the issue is to refuse to take any waste from any other site.

I am convinced that, IF WE ALLOW DISPOSAL OF THIS ADDITIONAL WASTE AS REQUESTED, IT WILL OPEN THE DOOR FOR A LANDSLIDE OF FUTURE REQUESTS! THEN THEY'LL CUT OUR FUNDING AGAIN WHEN THINGS GET TOUGH. SO PLEASE DON'T GRANT THIS REQUEST.

With great respect for the work you do,  
Sharon Fasnacht

PS I've tried to keep current regarding nuclear waste disposal since living in the tri-cities in the late 60's and early 70's. I was told in a college class in 1981 not to worry any more because the waste was going to be "captured" (essentially) in glass, which could be safely buried. Well, that's still a pipe dream, and no other safe disposal has been developed. The logical conclusion should be to stop creating nuclear waste until we have figured out how to dispose of it safely. We will some day, but until then.....

**From:** Lange, Sandra (ECY)  
**Sent:** Thursday, July 23, 2009 9:01 AM  
**To:** Mandis, Michelle (ECY)  
**Subject:** Variance for nuclear material disposal

August 4, 2009 - SUBSTITUTE COMMENTS ON THIS PROPOSAL – Please replace my earlier comments with the paragraph below. Thank you.

Although this project is proposed inland and not within the direct jurisdiction of the state’s Shoreline Management Act (RCW 90.58), it could affect the Columbia River, a shoreline of statewide significance, if spills, leaks or deterioration occur. There should be a protocol for addressing impacts to the river because the Shoreline Management Act policy is to “protect against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life”. This protocol should include quick containment, cleanup, and restoration measures to avoid impacts to the river or other shorelines. The best available science and technology should be used for these.

*Sandra Lange, MS*  
Shoreline and Coastal Planner  
Washington Dept. of Ecology  
PO Box 47775  
Olympia, WA 98504-7775  
360-407-0242

[slan461@ecy.wa.gov](mailto:slan461@ecy.wa.gov)

**From:** Dumar, Laurie (ECY) [ldum461@ecy.wa.gov]  
**Sent:** Monday, July 20, 2009 4:37 PM  
**To:** ECOLOGY-WAC-TRACK@LISTSERV.WA.GOV  
**Subject:** PUBLIC COMMENT PERIOD - On Tentative Approval of a Variance to Land Disposal Restrictions at Hanford

**PUBLIC COMMENT PERIOD  
On Tentative Approval of a Variance  
To Land Disposal Restrictions at Hanford**

Washington State Department of Ecology has received a petition from the United States Department of Energy (USDOE) for a Land Disposal Restrictions (LDR) variance on about 5 kilograms of extremely radioactive waste. The comment period on Ecology's tentative decision to approve the petition starts July 20, 2009.

The radioactive waste has a very high dose rate of 27 Roentgens per hour. USDOE treated this waste for several heavy metals by mixing the radioactive waste with a sulfate solution and then mixing with cement. Unfortunately the process did not capture enough of the barium into the waste form to comply with Ecology's LDR standards.

To repeat the treatment process to absorb the barium would require crushing the cement and could unnecessarily expose workers to contaminants. USDOE would like to place the concrete waste form (from the first treatment phase) into a high-density polyethylene lined, Department of Transportation approved container. The polyethylene in the container would then be sealed by a resistive welding technique, macroencapsulating this waste. Before this waste form is disposed at Hanford's RCRA-compliant mixed waste trenches, it will be grouted again to address the radiological component of the waste. This will serve as a third macroencapsulated layer.

Ecology has the authority under Washington Administrative Code [WAC 173-303-140\(2\)\(a\)](#) and [40 CFR §268.44\(h\)\(2\)\(i\)](#) to consider and approve the USDOE petition. Ecology plans to approve this variance request as we find it technically sound, protective of human health and the environment, and protective of the Hanford workers who are handling this waste. We will be conducting a 21 day public comment period on USDOE's variance petition. The public comment period will begin July 20 and end on August 10, 2009. The USDOE variance petition is available on Ecology's website at [www.ecy.wa.gov](http://www.ecy.wa.gov); click on Nuclear Waste Program and look under the "what's new" column. You can also find the variance petition at Hanford's public information repositories (below).

Send comments to Michelle Mandis at:  
Nuclear Waste Program Office  
3100 Port of Benton Blvd.  
Nuclear Waste Program Office  
Richland, WA 99354  
[Mich461@ecy.wa.gov](mailto:Mich461@ecy.wa.gov)

HANFORD PUBLIC INFORMATION REPOSITORIES

**Portland**  
Portland State University

Branford Price Millar Library  
1875 SW Park Ave.  
Attn: Don Frank 503-725-4132

**Richland**

U.S. Department of Energy Reading Room  
Consolidated Information Center, Room 101-L  
2770 University Dr.  
Attn: Janice Parthree 509-372-7443

**Spokane**

Gonzaga University  
Foley Center  
502 E. Boone Ave.  
Attn: Linda Pierce 509-323-3834

**Seattle**

University of Washington  
Suzzallo Library  
Government Publications Division  
Attn: Eleanor Chase 206-543-4664

**From:** Rieck, Robert (ECY) [RORI461@ECY.WA.GOV]  
**Sent:** Monday, July 20, 2009 3:10 PM  
**To:** DW-RULES@LISTSERV.WA.GOV  
**Subject:** Opening of Public Comment Period for a Variance from LDR - Hanford Facility

PUBLIC COMMENT PERIOD  
On Tentative Approval of a Variance  
To Land Disposal Restrictions at Hanford

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To repeat the treatment process to absorb the barium would require crushing the cement and could unnecessarily expose workers to contaminants. USDOE would like to place the concrete waste form (from the first treatment phase) into a high-density polyethylene lined, Department of Transportation approved container. The polyethylene in the container would then be sealed by a resistive welding technique, macroencapsulating this waste. Before this waste form is disposed at Hanford's RCRA-compliant mixed waste trenches, it will be grouted again to address the radiological component of the waste. This will serve as a third macroencapsulated layer.

Ecology has the authority under Washington Administrative Code [WAC 173-303-140\(2\)\(a\)](#) and [40 CFR §268.44\(h\)\(2\)\(i\)](#) to consider and approve the USDOE petition. Ecology plans to approve this variance request as we find it technically sound, protective of human health and the environment, and protective of the Hanford workers who are handling this waste. We will be conducting a 21 day public comment period on USDOE's variance petition. The public comment period will begin July 20 and end on August 10, 2009. The USDOE variance petition is available on Ecology's website at [www.ecy.wa.gov](http://www.ecy.wa.gov); click on Nuclear Waste Program and look under the "what's new" column. You can also find the variance petition at Hanford's public information repositories (below).

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Attn: Eleanor Chase 206-543-4664

**From:** Brown, Madeleine (ECY)  
**Sent:** Monday, July 20, 2009 1:51 PM  
**To:** Hanford-Info@listserv.wa.gov  
**Subject:** public comment period starts today

This is a message from the Washington State Department of Ecology

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On Tentative Approval of a Variance  
To Land Disposal Restrictions at Hanford

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***Madeleine Cadbury Brown***

Washington State Department of Ecology  
Nuclear Waste Program  
(509) 372-7936  
[madeleine.brown@ecy.wa.gov](mailto:madeleine.brown@ecy.wa.gov)

*...America is great not because it is perfect but because it can always be made better--and ...the unfinished work of perfecting our union falls to each of us.*

President Barack Obama



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950

August 21, 2009

Mr. David A. Brockman, Manager  
Richland Operations Office  
United States Department of Energy  
P.O. Box 550, MSIN: A7-50  
Richland, Washington 99352

Re: Approval of Site-Specific Land Disposal Restrictions (LDR) Variance Request

Dear Mr. Brockman:

The Department of Ecology (Ecology) received a petition for an LDR site-specific variance pursuant to Washington Administration Code (WAC) 173-303-140(2)(a) from the United States Department of Energy (USDOE) - Richland Operations Office and Pacific Northwest National Laboratory.

Ecology understands that your method of treatment of the subject mixed waste was by sulfate precipitation and subsequent macroencapsulation. This treatment resulted in appropriate stabilization of all underlying hazardous constituents with the exception of barium. Approximately five kilograms of D005 mixed waste did not pass the LDR barium treatment standard of 21 milligrams per liter via toxicity characteristic leaching procedure laboratory analyses for nonwastewaters.

The variance criteria of 40 CFR §268.44(h) (incorporated by reference into WAC 173-303-140[2][a]) apply to the petition for site-specific variance. Under that criteria, Ecology is approving a site-specific variance as it is "inappropriate" to require the waste to be treated by the method specified by the treatment standard per 40 CFR §268.44(h) (incorporated by reference into WAC 173-303-140[2][a]). USDOE adequately demonstrated through their LDR Variance Request that the method specified by the treatment standard would be technically inappropriate.

The specified LDR treatment method would require the subject waste to be pulverized and re-macroencapsulated to achieve treatment standards. However, this is a highly radioactive waste originating from the radiochemical processing laboratory's hot cells. Pulverizing the waste will create unnecessary and excessive worker safety risks. Based on this, Ecology agrees that treatment to the LDR D005 barium standard for this waste is technically inappropriate.



Mr. David A. Brockman  
August 21, 2009  
Page 2

We accept that your proposed alternative of providing additional macroencapsulation will provide equivalent performance to the specified treatment method without creating such worker safety risks.

Ecology conducted a public notice and comment period under the requirements of WAC 173-303-910(c) regarding the proposed approval of your requested variance. The comment period was 21 days, July 21, 2009 through August 10, 2009. Responses to comments are provided in our Responsiveness Summary available at [www.ecy.wa.gov/giblio/nwp.html](http://www.ecy.wa.gov/giblio/nwp.html).

Ecology approves the USDOE's site-specific variance petition to encapsulate the subject waste in an additional high-density polyethylene-lined container system prior to disposal at the Hanford Site Low-Level Burial Grounds without further treatment.

If you have any questions, contact Michelle Mandis, CHMM, PE at 509-372-7970.

Sincerely,

*Jane Hedges by EP Annairland*

Jane A. Hedges  
Program Manager  
Nuclear Waste Program

mm/pll

cc:    Dave Bartus, EPA                      Cameron Andersen, PNNL  
      Dennis Faulk, EPA                     Harold Tilden, PNNL  
      Larry Gadbois, EPA                  Dan Goade, EnergX  
      Mike Collins, USDOE                 Gabriel Bohnee, NPT  
      Steve Weil, USDOE                  Lela Buck, Wanapum  
      Ty Blackford, CHPRC                 Russell Jim, YN  
      Dean Nester, CHPRC                 Susan Leckband, HAB  
      Rob Piippo, CHPRC                  Ken Niles, ODOE  
      Judy Vance, FFS                      Administrative Record: PNNL/LDR/LLBG/325  
      Chris Wollam, FH                     Environmental Portal  
      Stuart Harris, CTUIR