



Office of Environmental Health and  
Safety  
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<http://www.oehs.wayne.edu>



June 23, 2021

Mr. Frank Tran  
Health Physicist / License Reviewer  
NRC Region III / Division of Nuclear Materials Safety

Subject: Response to your request of additional information for NRC License No. 21-00741-08

Dear Mr. Tran,

With reference to your email dated, May 27, 2021 please find my response to your questions below. Below is the information I presented to you during our discussions via phone and email in consultation with the researcher.

***Item 2 in letter dated March 19, 2018 said the pressure in the glove box fitted with HEPA / charcoal filter where DU will be used is positive. I think it should be negative (lower than the surrounding areas). Could you please help me understand more on this.***

A positive pressured glove box is required to maintain an oxygen/moisture free environment. An inert atmosphere with nitrogen is needed to conduct reactions with depleted uranium. While the concern of a leak from a positive pressured glove box is valid, the risk of oxygen in contact with the product is greater than the potential risk of leak outside the glove box. Hepa filter is fitted to the glove box, changed on periodic basis and disposed as radioactive waste.

As a part of glove box maintenance, a colorimetric detector fitted in the glove box is checked daily. If any change in color due to oxygen or moisture diffuse into the glove box (which is also an indicator that atmosphere is leaking out), the gloves are evaluated for pin holes and repaired or replaced immediately.

Though the reaction product is stored in powder form in a glass vial inside glove box, all reactions are performed in solution.

***Item 2 in letter dated May 5, 2021 said washing and drying DU will be performed in the chemical fume hood. Are the fume hood fitted with filters (if yes, are they HEPA / charcoal filters?) to mitigate the potential airborne or air effluent release?***

Depleted uranium (DU) purchased in chemical form as DU metal with uranium oxide - UO<sub>2</sub>/U<sub>3</sub>O<sub>8</sub> layer are in the form of solid metal shavings. The reactions occurring during washing of nitric acid happens in the chemical fume hood. Any vapor leaving the reaction is forced to exit via a glass tube fitted with the charcoal canister (bubbler). This canister is changed on a regular basis and disposed as radioactive waste. DU metal stays as metal shavings and the only depleted uranium contaminated waste is the liquid waste which gets collected as radioactive/hazardous waste. Therefore, a hepa filter is not needed for the chemical fume hood.

Hope this helps addressing your questions. Please feel free to reach me at 313-577-0019 or [mrsriniva@wayne.edu](mailto:mrsriniva@wayne.edu) if any more clarification needed.

Sincerely,



Maha Srinivasan

Health Physicist /RSO

**From:** [Tran, Frank](#)  
**To:** [Pavon, Sandy](#); [Willour, Jeffrey](#)  
**Cc:** [Tomczak, Tammy](#)  
**Subject:** FW: Response to your request for additional information for NRC License No. 21-00741-08  
**Date:** Thursday, June 24, 2021 2:15:00 PM  
**Attachments:** [WayneStateUdepleteduraniumuse62021.pdf](#)  
[NRC 665 Additional information.pdf](#)

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Dear IM Center:

Please help to add the attachment to ADAMS as additional information. A 665 form is also attached.

Please let me know if you have any questions.

Thank you,  
Frank

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**From:** M Srinivasan <[mrsriniva@wayne.edu](mailto:mrsriniva@wayne.edu)>  
**Sent:** Wednesday, June 23, 2021 8:41 AM  
**To:** Tran, Frank <[Frank.Tran@nrc.gov](mailto:Frank.Tran@nrc.gov)>  
**Subject:** [External\_Sender] Response to your request for additional information for NRC License No. 21-00741-08

Dear Mr. Tran,

Please find my written response about the use of depleted uranium clarifying your questions.

I appreciate you giving us opportunity to explain the process involved in depleted uranium use in our campus.

Thank you,  
Maha

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*Maha Srinivasan, MS*

*Health Physicist & Radiation Safety Officer*

Wayne State University

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Detroit, MI 48202

Phone: 313-577-0019

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**From:** Tran, Frank <[Frank.Tran@nrc.gov](mailto:Frank.Tran@nrc.gov)>  
**Sent:** Thursday, May 27, 2021 2:53 PM  
**To:** M Srinivasan <[msriniva@wayne.edu](mailto:msriniva@wayne.edu)>  
**Subject:** Request additional information for NRC License No. 21-00741-08

[EXTERNAL]

Dear Ms. Srinivasan:

We have reviewed the letters dated May 5, 2021 and March 19, 2018, as referenced. We will need the following information.

Item 2 in letter dated March 19, 2018 said the pressure in the glove box fitted with HEPA / charcoal filter where DU will be used is positive. I think it should be negative (lower than the surrounding areas). Could you please help me understand more on this.

Item 2 in letter dated May 5, 2021 said washing and drying DU will be performed in the chemical fume hood. Are the fume hood fitted with filters (if yes, are they HEPA / charcoal filters?) to mitigate the potential airborne or air effluent release?

To continue review of your application, we request that you submit your response with date and authorized signature to this correspondence within 30 calendar days from the date of this email. In your response, please refer the license number, docket number and Mail Control No. 625560.

If you have questions, require additional time to respond, or require clarification on any of the information stated above, please contact me at 630-829-9623 or reply to this email.

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this correspondence will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <https://www.nrc.gov/reading-rm/adams.html>.

Best regards,

*Frank Tran*

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*Protecting People and the Environment*