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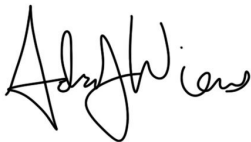
January 17, 2020

Don Lowman  
Health Physicist  
U.S. Nuclear Regulatory Commission  
NMSS/MSST/MSTB  
301-415-5452

Dear Mr. Lowman,  
Please find the responses to your latest questions in the attached files. Let me know if you have any questions. Thank you for your time.

Sincerely,

Adam Wiens

A handwritten signature in black ink, appearing to read 'Adam Wiens', with a stylized, cursive script.

1. (see attached revised items 5-11)

2. We will be using the source material to manufacture glass rods that are utilized by artists to make decorative glassware, jewelry, and artwork.

3. We do not currently sell any products with depleted uranium.

4. This is our process for fabricating the glass rods: Powdered glass batch (including up to 2% depleted uranium) is melted in a small crucible until glass is formed. The glass is then brought to an appropriate processing temperature and stirred well. Once mixed, the glass is slightly cooled to the correct viscosity so it can be drawn up and out of the crucible into a long rod approximately 7mm in diameter. Once cooled, these rods are then packaged and sold to glass artists for use in their artwork.

5. Source material will be accurately measured and mixed into powdered glass batch prior to melt. During the melting process, the glass is stirred with a high temperature stainless steel rod to ensure homogeneity throughout the batch. Once processed into glass rods, each rod is individually inspected to ensure there are no defects such as stones, air bubbles, or surface anomalies. Discarded glass pieces are simply recycled by re-melting and reprocessing.

6. This glass product contains depleted uranium and complies with NRC regulations for manufacture and distribution of glassware containing source material. For more information and a detailed analysis of exposure rates to a range of materials in this category, please refer to the following document:  
<https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1717/nureg-1717.pdf>

**Molten Aura Labs, LLC.**  
**30 Westgate Pkwy #310**  
**Asheville, NC 28806**  
**828-633-2553**

## **Application for Materials License, NRC 313 : Items 5-11**

5.

**Element:** Uranium, U-238

**Form:** Depleted Uranium Dioxide Powder

Used to make glass rods containing not more than 2% by weight source material.

Maximum requested possession limit is based off of the minimum amount we can order from supplier. This would be 500lbs which is roughly 2.81 gigabecquerels. The material is packaged in steel drums, with an estimated external dose rate of less than 5mr/hr at 1 meter.

6.

Our company manufactures borosilicate glass rods. The Depleted Uranium will be used as a modifying ingredient in certain glass formulas. The final glass composition will contain no more than 2% Depleted Uranium by weight in accordance with 10 CFR 40.13(c)(2)(iii).

7.

**RSO:** N/A

**Authorized Users:** N/A

8.

As owners, operators, and sole employees of Molten Aura Labs, Adam Wiens and Aaron Wiens have both completed a Radiation Safety Training course. The course is targeted to both radiological workers and non-radiological workers. This is for anyone who plays an active role in maintaining exposures to radiation and radioactive materials within regulatory (Nuclear Regulatory Commission or Agreement State) limits and in compliance with As Low As Reasonably Achievable (ALARA) principles.

The training covers:

- Fundamentals of Radiation and Radioactivity
- Radiation Biology
- Radiation Dose Limits and ALARA
- Personnel Monitoring
- Access Controls and Postings
- Emergency and Spill Procedures
- Contamination Control
- Employee Responsibilities

Both Adam and Aaron have a certificate of completion for the Radiation Safety Training. A copy of each certificate is enclosed.

9.

The glass production facility is a 5000 square foot steel building containing industrial grade ventilation and dust collection equipment. The material will be stored in a locked fire-proof cabinet accessible only to the radiation safety officers.

10.

**Radiation Safety Program:**

Audits will be performed every six months. The details of the audit program are included as a separate form Radiation Safety Checklist.

**Radiation Monitoring Instruments:**

We will use instruments that meet the radiation monitoring instrument specifications published in Appendix K to NUREG-1556, Vol. 12, 'Consolidated Guidance about Materials Licenses: Program-Specific Guidance About Possession Licenses for Manufacturing and Distribution.' We reserve the right to upgrade our survey instruments as necessary.

Currently, our main radiation detector is the SOEKS 01M – Radiation Meter. Measurements made with this device display exact background radiation levels in  $\mu\text{Sv/h}$  or  $\mu\text{R/h}$  along with a message describing the level of background radiation. This device provides a precision level from 5 to 100,000  $\mu\text{R/h}$ .

**Material Receipt and Accountability:**

Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.

**Occupational Dose:**

We have done a prospective evaluation and determined that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits in 10 CFR Part 20.

**Safe Use of Radionuclides and Emergency Procedures:**

We have developed and maintained a set of safe use procedures for working with the material. Emergency procedures have been developed for such things as minor spills, major spills, contamination, fires, injuries, or other emergency situations.

**Surveys:**

We will survey our facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix P to NUREG-1556, Vol. 12, 'Consolidated Guidance about Materials Licenses: Program Specific Guidance About Possession Licenses for Manufacturing and Distribution.' Leak tests will be performed at the intervals approved by NRC or an Agreement State and specified in the SSD Registration Certificate. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services to other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other

licensees and according to the sealed source or plated foil manufacturer's (distributor's) and kit supplier's instructions.

**Transportation:** N/A

11.

We will use the model waste procedures published in Appendix S to NUREG-1556, Vol. 12, 'Consolidated Guidance about Materials Licenses: Program-Specific Guidance About Possession Licenses for Manufacturing and Distribution.'

The amount of material we are measuring at any given time is quite small (less than 500 grams) so our main source of waste is paper towels used to clean measuring instruments and surfaces. These paper towels along with any residue are kept in closed plastic bags within sealed steel drums. The sealed drums are retrieved by a professional hazardous waste removal service. They can accept radioactive material. (<https://www.hazardouswasteexperts.com/hazardous-waste-transportation/>)

Hazardous Waste Experts  
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