



# LIGHTBOX

LABORATORY-GROWN DIAMONDS

January 21, 2021

Shirley Xu  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Re: Request for exemption - Exempt Distribution License 36-35562-01E

Dear Ms. Xu:

As a direct result of the covid-19 pandemic, Lightbox is presently unable to perform its requirement to test no less than 2% of irradiated gemstones prior to distribution. We therefore request a temporary exemption from this test requirement while we identify and on-board an alternative testing provider, which we expect to be ready by the end of February. We would like this request to be expedited to avoid any commercially harmful impact to our revenue and/ or our relationship with our commercial customers, following an already challenging year.

Our sole gemstone testing provider, International Isotopes (Quali-Tech), temporarily closed their facilities for an extended period in 2020 as a result of the pandemic. During this period, Lightbox continued to set aside >2% of our irradiated diamonds to perform testing once they recommenced operations. However, upon re-opening of their facilities, International Isotopes declared they were permanently ceasing gemstone testing services on October 29<sup>th</sup>, 2020. As the primary service provider of irradiated gemstone testing in the US, this left us with very little time to identify an alternative and test the samples we needed to meet our >2% requirement before the end of 2020.

As a matter of urgency, we have contacted a number of suppliers in the US within various NRC Agreement States that have the capability to test our diamonds. We have set aside approximately 100 samples in our warehouse facilities in Jamaica, New York for testing. This quantity represents 4-5% of irradiated diamonds distributed by Lightbox in the US in 2020. We are hopeful that we will be able to test these samples by the end of February 2021, and we therefore request an exemption during this period.

I would also like to re-assure you that in the meantime, we do not believe there is any risk to US consumers. Lightbox uses electrons with energies not exceeding 10 MeV, ensuring that the carbon within the diamonds cannot become photoactivated during irradiation. Should photoactivation of the carbon or any of the most common trace impurities (Nitrogen and Hydrogen) occur, the half-times are 2 minutes or less. The lead time from irradiation to distribution in the US is no less than 4 weeks and typically exceeds 12 weeks. Furthermore, until we obtained our license in October 2019, we tested 100% of our irradiated gemstones distributed in the US, and no diamonds were found to exhibit any activity above background.

Going forward, Lightbox will seek to maintain a relationship with at least two US based laboratories to mitigate any repeat of the risks we experienced with International Isotopes in 2020. We will also look to perform testing ahead of distribution rather than testing on a quarterly basis as we had originally planned, which could lead to some batches being distributed prior to testing.

**Lightbox Jewelry Limited**

Registered office at 20 Carlton House Terrace, London, SW1Y 5AN.

A limited liability company incorporated in England and Wales with registered number 10965865



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Should you desire additional information, please contact me at [angelo@lightboxjewelry.com](mailto:angelo@lightboxjewelry.com), or Mr. Lawrence R. Jacobi, Jr., P.E., J.D. at [rjacobi@jacobiconsulting.net](mailto:rjacobi@jacobiconsulting.net) or at (512) 656-4765. Mr. Jacobi is a radiological consultant who is assisting us in the implementation of our program.

Regards,

Angelo Frangeskou, Ph.D

Technical Projects Manager

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