

INSTRUCTIONS: SEE THE CURRENT VOLUMES OF THE NUREG-1556 TECHNICAL REPORT SERIES ("CONSOLIDATED GUIDANCE ABOUT MATERIALS LICENSES") FOR DETAILED INSTRUCTIONS FOR COMPLETING THIS FORM: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/>. SEND TWO COPIES OF THE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

<p>APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:</p> <p>MATERIALS SAFETY LICENSING BRANCH DIVISION OF MATERIAL SAFETY, STATE, TRIBAL AND RULEMAKING PROGRAMS OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555-0001</p> <p>ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:</p> <p>IF YOU ARE LOCATED IN:</p> <p>ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,</p> <p>SEND APPLICATIONS TO:</p> <p>LICENSING ASSISTANCE TEAM DIVISION OF NUCLEAR MATERIALS SAFETY U.S. NUCLEAR REGULATORY COMMISSION, REGION I 2100 RENAISSANCE BOULEVARD, SUITE 100 KING OF PRUSSIA, PA 19406-2713</p>	<p>IF YOU ARE LOCATED IN:</p> <p>ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:</p> <p>MATERIALS LICENSING BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION III 2443 WARRENVILLE ROAD, SUITE 210 LISLE, IL 60532-4352</p> <p>IF YOU ARE LOCATED IN:</p> <p>ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING,</p> <p>SEND APPLICATIONS TO:</p> <p>NUCLEAR MATERIALS LICENSING BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION IV 1600 E. LAMAR BOULEVARD ARLINGTON, TX 76011-4511</p>
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PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

<p>1. THIS IS AN APPLICATION FOR (Check appropriate item)</p> <p><input type="checkbox"/> A. NEW LICENSE</p> <p><input checked="" type="checkbox"/> B. AMENDMENT TO LICENSE NUMBER <u>21-35314-01</u></p> <p><input type="checkbox"/> C. RENEWAL OF LICENSE NUMBER</p>	<p>2. NAME AND MAILING ADDRESS OF APPLICANT (Include zip code)</p> <p>Dr. Brian Kitchen H3D, INC 812 Aviz Dr Ann Arbor MI 48108</p>
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<p>3. ADDRESS WHERE LICENSED MATERIALS WILL BE USED OR POSSESSED</p> <p>812 Aviz Dr. Ann Arbor MI 48108</p>	<p>4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION</p> <p>Dr. Brian Kitchen</p> <table border="1"> <tr> <td>BUSINESS TELEPHONE NUMBER</td> <td>BUSINESS CELLULAR TELEPHONE NUMBER</td> </tr> <tr> <td>(734) 661-6416 x122</td> <td>(734) 210-0503</td> </tr> <tr> <td colspan="2">BUSINESS E-MAIL ADDRESS</td> </tr> <tr> <td colspan="2">brian@h3dgamma.com</td> </tr> </table>	BUSINESS TELEPHONE NUMBER	BUSINESS CELLULAR TELEPHONE NUMBER	(734) 661-6416 x122	(734) 210-0503	BUSINESS E-MAIL ADDRESS		brian@h3dgamma.com	
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SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

<p>5. RADIOACTIVE MATERIAL</p> <p>a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.</p>	<p>6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.</p>				
<p>8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.</p>	<p>7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.</p>				
<p>10. RADIATION SAFETY PROGRAM.</p>	<p>9. FACILITIES AND EQUIPMENT.</p>				
<p>12. LICENSE FEES (Fees required only for new applications, with few exceptions*) (See 10 CFR 170 and Section 170.31) *Amendments/Renewals that increase the scope of the existing license to a new or higher fee category will require a fee.</p>	<p>11. WASTE MANAGEMENT.</p> <table border="1"> <tr> <td>FEE CATEGORY</td> <td>AMOUNT ENCLOSED \$</td> </tr> <tr> <td></td> <td></td> </tr> </table>	FEE CATEGORY	AMOUNT ENCLOSED \$		
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PER THE DEBT COLLECTION IMPROVEMENT ACT OF 1996 (PUBLIC LAW 104-134), YOU ARE REQUIRED TO PROVIDE YOUR TAXPAYER IDENTIFICATION NUMBER. PROVIDE THIS INFORMATION BY COMPLETING NRC FORM 531: <https://www.nrc.gov/reading-rm/doc-collections/forms/nrc531info.html>

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 37, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

<p>CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE</p> <p>Dr. Brian Kitchen, RSO</p>	<p>SIGNATURE</p> 	<p>DATE</p> <p>08/03/2020</p>
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USE ONLY

License amendment request for license number 21-35314-01.

To whom it may concern,

This letter is addressing a requested change to the H3D, Inc. license. The requested changes include increasing the maximum per-source activity of selected isotopes.

H3D, Inc is requesting increased maximum activity on three source types: Co-57, Cs-137, and Eu-152. The request is due to a need for faster calibration (increased throughput through the calibration and characterization processes), and research on detector performance at higher dose-rates. H3D, Inc. manufactures CdZnTe based gamma-ray imaging-spectrometers for commercial and government use. As the H3D, Inc business has grown so have our source usage for calibration and characterization purposes.

The requested increase in Co-57 will lead to faster coded-aperture imaging mask-calibration, and faster directional characterization of detector response. Given our product can image the source-direction, better knowledge of the directional efficiency provides our customers with more accurate information for source quantification. These directional efficiency measurements are long measurements and the increased activity will allow much faster characterization. The increased source-term will allow for better studying detector response in high-count rate environments where we are trying to improve our capability. The requested increase in Cs-137, and Eu-152 are for the same reasons as Co-57 without the coded-aperture benefit. Eu-152 is the most important for these purposes as it has lines across the energy range which we typically calibrate our detector response (0.040 – 3 MeV). Cs-137 has additional value to us as a mono-energetic source where pile-up can be better studied.

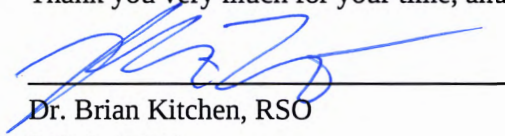
Given the greater activity of these requested sources their use will require additional training from workers at H3D, Inc. The additional training module will address additional shielding requirements for use and storage in order to limit dose to personnel, additional required dose-rate monitoring of the area, and signage to explicitly inform workers in the area of the increased source term. These sources will require specific approval for use whereas the standard 100 uCi sources only require training for general use within radiation areas. Areas with dose-rates greater than 2 mR/hr will be roped off with signage to indicate access is restricted to individuals involved in the current measurement.

The following table lists the increased activity H3D, Inc is requesting to modify on our current license.

<i>Isotope</i>	<i>Manufacturer</i>	<i>Model Number</i>	<i>Requested Activity</i>
Eu-152	Eckert and Ziegler	GF-152-D	500 uCi
Co-57	Eckert and Ziegler	GF-057-D	1 mCi
Cs-137	Eckert and Ziegler	GF-137-D	1 mCi

These requested source strengths being greater than 100 uCi will be added to our regular source-swipe program which currently monitors three Am-241 sources, and two Cf-252 sources.

Thank you very much for your time, and I look forward to further correspondence on this matter.



Dr. Brian Kitchen, RSO
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08/03/2020

Date

Dr. Brian Kitchen
H3D, Inc
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PM 11



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U.S. Nuclear Regulatory Commission, Region III
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