Application for Authorization to Use Radioactive Material

Date: 07/20/2022

Revision #: 04

**Applies To**: Proposed use of radioactive material that does **not** involve administration of radiation or radioactive material to or on humans.

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| **Purpose of this Application** | < Click Here to Make Selection > |

1. **Individual who will be responsible for all use of radioactive material used or procured under this authorization (the "Authorized User").**

|  |  |
| --- | --- |
| Name |  |
| Department |  | Phone No(s) |  |
| Email Address |  |
| University Mailing Address |  |
| University Job Classification of job applicant |  |

**NOTE**: Normally **only** members of the academic or research faculties will be approved as authorized users of radioactive material. This includes individuals holding the job titles of professor, associate professor, assistant professor, instructor, research scientist, associate research scientist, assistant research scientist, and research investigator. Requests for exception to this policy **must** be fully justified in writing and will be considered on a case-by-case basis.

1. **Name of individual who will be responsible for ensuring radiation safety in the absence of the Authorized User:**

|  |  |  |  |
| --- | --- | --- | --- |
| Print |  | Signature |  |
| Email Address of Secondary Contact |  |

1. **Approval is requested for use of the following radioactive material:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Radionuclide | Chemical and Physical Form | Order/Transfer Limit (mCi) | Possession Limit (mCi) | Max Amount Per Expt. (mCi) | Max Amount per Year (mCi) |
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1. **In the following table, list each individual who will be working with radioactive material under this authorization.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | UM ID Number (8 Digits) | Date of Birth | Univ. Job Classification | Date Completed RSS Safety Training |
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**NOTE**: **Every** individual working with radioactive material including Authorized Users **must** attend the RSS Radiation Safety Orientation Course

1. **In the following table list each physical space where radioactive material will be used or stored under this authorization. Examples of Room Use: Hot Lab, Counting Room, Storage, Freezer, Tissue Culture, etc**

|  |  |  |
| --- | --- | --- |
| Building | Room Number (S) | Room Use  |
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1. **In the space below, list and describe your proposed use of EACH radionuclide. Be as detailed as possible. Include a description of any special procedures which you and your staff will follow to ensure the safe use of radioactive material under this authorization.**

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1. **Do you propose to obtain radionuclides other than through RSS such as by transfer from another Authorized User, the PET Radiochemistry/Cyclotron facility, from the Medical Center Nuclear Pharmacy, or from another NRC licensee located outside the University? If Yes, list each such anticipated source of supply.**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |
|  |

1. **Do you intend to transfer radioactive material procured under this authorization to other Authorized Users within the University of Michigan or to individuals outside the university? If yes, list each such anticipated recipient.**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |
|  |

1. **Will radioactive material be administered to live animals under this authorization? If yes, please complete the following fields:**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |

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| --- | --- | --- |
| 1. IACUC Approval Number:
 |  |  |
| 1. Type of animals to be used:
 |  |  |
| 1. Radionuclide(s) administered:
 |  |  |
| 1. If animals will not be sacrificed immediately, then attach the following documents and information to the application:
* A description of procedures you will follow for storage and disposal of animal carcasses and tissues removed from animals. Describe any additional hazards presented during care of the animals or disposal after sacrifice (e.g. biohazards or chemical hazards) along with special instructions that animal care personnel should follow.
* A completed rss-101 supplementary 9 for animal use.
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1. **Will you perform iodinations or acquire and possess any single container of radioiodinated compounds holding 5 millicuries or greater of radioiodine? If yes, please complete the following fields.**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |
| 1. Radionuclide(s) involved
 |  |
| 1. Maximum activity that will be present in any container (mCi)
 |  |
| 1. Chemical form (sodium iodide, iodinated protein, etc.)
 |  |
| 1. Location (building and room number) of fume hood where iodinations will be performed or where any container holding five millicuries of any radioiodinated substance will be used or stored.
 |  |
| 1. If iodinations will be performed, attach the following documents and information to the application:
* A brief description of the procedure that will be followed including an estimate of the typical tagging efficiency you expect to achieve.
* A list of every individual who will be performing iodinations under this authorization or who will be handling any container with ten millicuries or more of any radioiodinated substance.
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1. **Will work will be done under this authorization involving (a) 100 millicuries or more of tritium as tritiated water and/or sodium borohydride or (b) 25 millicuries or more of organically bound tritium? If yes, please complete the following fields.**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |
| 1. Chemical form:
 |  |
| 1. Maximum activity that will be present in any container other than stock solution (mCi):
 |  |
| 1. Location (building and room number) of fume hood where work involving tritium above the levels specified will be performed.
 |  |
| 1. Attach the following documents and information:
* A description of the procedures you will follow to ensure that any spill of radioactive material is promptly detected and that appropriate steps are taken to prevent the spread of contamination.
* A list of every individual who will be handling any container with tritium at or above the levels specified above.
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1. **Will sealed and/or plated sources be fabricated under this authorization?**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |

If yes, attach a description of the procedure you will use, including the following information:

* A description of the procedures for minimizing extremity exposures.
* A description of the leak test method to be used to ensure source integrity.
1. **Will commercially available sealed sources be used under this authorization?**

If yes, then complete the following table regarding each source and their associated information.

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Isotope | ACtivity (mci) | CAlibration date | Manufacturer | Model Number | Location of the Sealed Source |
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1. **Will gas chromatograph devices containing radioactive material be used under this authorization?**

If yes, then complete the following table regarding each source and their associated information.

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| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |

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| --- | --- | --- | --- | --- | --- |
| Manufacturer | Model Number | Isotope  | ACtivity (mci) | Calibration Date | Location of GC Unit |
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1. **Will work will be done under this authorization involving phosphorus-32. If so, please complete the following fields.**

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| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |
| 1. Maximum activity that will be present in stock solution (mCi):
 |  |
| 1. Maximum activity that will be present in any container other than stock solution (mCi):
 |  |
| 1. If the work to be done involves phosphorus-32, then attach the following documents and information:
* A description of the procedures you will follow for manipulating P-32 so as to minimize extremity exposures, exposures to the eyes, and exposures to the whole body of any individual.
* A description and sketch (if appropriate) of any shielding that will be provided to minimize exposures from P-32 while in storage, while in use, and as waste material awaiting disposal.
* A list of each individual who will be handling 0.1 mCi or more of P-32 at any one time either as stock solution or at any other stage of the experiment
 |

1. **Chemicals associated with the use of radioactive materials.**

In the space below list all the chemicals specifically involved with your use of radioactive materials and describe the special precautions that will be taken to avoid exposure of persons to these hazards. Indicate whether special handling is required for waste generated due to these toxic chemicals. In addition, please indicate the % by volume of each chemical in your liquid radioactive waste.

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1. **Will there be any biohazardous materials associated with the use of radioactive materials?**

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | YES | [ ]  | NO |

If Yes, then list any biohazardous material (viruses, bacteria, etc.) Involved with your use of radioactive materials and describe the special precautions that will be taken to avoid exposure of persons to these hazards. Indicate whether special handling is required for waste generated due to these biohazards.

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1. **General Radiation Safety Program**

In the space below, outline the survey program you and your staff will follow on a day-by-day basis to ensure that any spill involving radioactive material is promptly identified, that contamination is not spread beyond the immediate area of the spill and that clean-up of the spill is successfully accomplished.

For more information, refer to “Safety Protocols” at: <https://ehs.umich.edu/research-clinical/radiation/>

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Also, outline precautions you and your staff will follow to ensure that external and internal radiation exposures are maintained as low as reasonably achievable. List the survey instruments you will use to ensure that this program is successfully implemented. Including type of instrument, manufacturer, model number, and sensitivity of each instrument to be used for surveying or monitoring. (attach additional sheets if necessary).

For more information, refer to “Safety Protocols” at: <https://ehs.umich.edu/research-clinical/radiation/>

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**19. Training and Experience of Applicant**

Applicants must have a minimum of 40 hours of training and experience using radionuclides of the type and form requested in Section 3 of this application to be approved as Authorized Users. Please provide the following information listing any formal training and other experience you have in the specific topics listed below.

I. Formal Classroom Education or Training.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Topic** | **Had Formal Training** | **Institution Name** | **Course Title** | **Hours or Credits** |
| General principles of radioactivity and radioactive materials. | Yes [ ] No [ ]  |  |  |  |
| Characteristics and types of ionizing radiation. | Yes [ ] No [ ]  |  |  |  |
| Units of radiation dose and radioactive material quantities. | Yes [ ] No [ ]  |  |  |  |
| Radiation detection instrumentation. | Yes [ ] No [ ]  |  |  |  |
| Biological hazards and effects of exposure to ionizing radiation. | Yes [ ] No [ ]  |  |  |  |
| General principles of radiation protection practices. | Yes [ ] No [ ]  |  |  |  |

II. Please identify the types of dispersible radioactive materials or sealed sources you have used.

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| --- | --- | --- | --- |
| **Radionuclide(s)** | **Chemical / Physical Form** | **Activity Used (mCi)** | **Years of Experience** |
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III. List radiation detection instrumentation you have used and the manner of used:

*Identify instrument by type; for example GM (Geiger) meter, LS counter, gamma counter, dose calibrator, etc*

*Examples of manner used: area radiation surveys, contamination surveys, sample analysis, instructional, etc.*

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| --- | --- | --- |
| **Instruments Used** | **Manner of Use** | **Years of experience** |
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**20. Certification of Compliance**

I understand that the Radiation Policy Committee (RPC) may approve, conditionally approve, or deny approval to any application submitted for use of radioactive materials. Further, I understand that RPC approval of this application imposes responsibilities upon me to: i) use radioactive materials consistent with the descriptions in this application, ii) be familiar with and to comply with any specific condition the RPC may impose as part of the approval, iii) comply with all applicable requirements for use of radioactive material made known to me by EHS-Radiation Safety Service, and iv) ensure those persons working under my approval are properly trained and supervised. The level of training and supervision provided will be commensurate with the experience of the individual user as well as the type and forms of material to be used.

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| --- | --- |
| Typed Name of Individual Submitting Application |  |
|  |  |
| Signature of Applicant |  | Date |  |

**Submit the completed form to Radiation Safety Service, EHS using one of the following methods:**

* Campus mail: 1239 Kipke Drive/CSSB 1010
* Email: EHSRadSafety@umich.edu