RUA Application Procedure

1. Purpose

The purpose of this procedure is to detail the Radiation Use Authorization (RUA) application process to Radiation Safety Officers (RSO), Research Compliance, Institutional Radiation Safety Committee (IRSC) members and applicants.

2. Scope

This procedure applies to all KAUST research spaces (i.e. this does not apply to the Innovation Cluster and the KAUST Research and Technology Park) where sources of ionizing radiation are used.

3. Definitions

IRSC	Institutional Radiation Safety Committee. The committee is responsible for ensuring the safe and appropriate use in research of all sources of ionizing radiation.
LSR	Laboratory Safety Representative is a laboratory user/worker that has been designated to communicate and promote exchange of information on safety hazards, concerns, and lessons learned as well as to report any problems to Health, Safety & Environment (HSE). The LSR provides an important link between the campus community and HSE.
PI	Principal Investigator is the person that oversees the research project involving the use of sources of ionizing radiation and that applies for the Radiation Use Authorization.
RCO	Research Compliance Office oversees all compliance requirements at the university related to research under one coordinated unit
RLCL	Radiation Labeling Core Lab. Laboratory where all work with unsealed radioactive substances takes place.
RSO	Radiation Safety Officer. S/He is a Lab safety Specialist who is responsible for the university's compliance with the ionizing radiation regulations in Saudi Arabia.
RUA	Radiation Use Authorization. It is a permit granted by the IRSC and required before the use of any sources of ionizing radiation.

4. RUA Application – *Equipment containing sources of ionizing radiation*

This includes radiation producing equipment and equipment containing sealed sources.
Once the equipment purchase has been approved and/or the equipment has been ordered (see Equipment Purchase Review Procedure) the PI/responsible person must apply for a Radiation Use Authorization (RUA). This will allow the PI/responsible person to use the equipment after it has been commissioned. The IRSC is responsible to grant RUA for all equipment containing sources of ionizing radiation, but it delegates its responsibility to the RSO for some types of equipment that are considered safe (see Table 1).

Table 1. Person/body responsible for the RUA approval of equipment containing sources of ionizing radiation at KAUST.

Type of ionizing radiation	Body/person approving the RUA
Radiation-producing equipment emitting x-rays with energy below 50 kV which are fully shielded *electron microscopes, x-ray analysis equipment, etc.*	RSO *(under delegation from IRSC)*
Radiation-producing equipment where the x-ray beam is fully enclosed and shielded and the x-ray energy exceeds 50 kV *computerized tomography, irradiator, etc.*	IRSC
Radiation-producing equipment with open x-ray beam (i.e. no shielded enclosure) *Portable x-ray diffraction analysis system*	IRSC
Equipment containing sealed sources *Gas chromatograph, liquid scintillation counter*	RSO *(under delegation from IRSC)*

The process to apply for a RUA for equipment containing sources of ionizing radiation is described below and in Figure 1.

Step 1:	The PI/responsible person completes the application form available on the Research Compliance webpage and sends it to IRSC@kaust.edu.sa.
Step 2:	RCO forwards the application to the RSO.
Step 3:	RSO decides within 2 days whether the RUA application needs to be reviewed and approved by the IRSC or if it only needs to be reviewed and approved by the RSO on behalf of the IRSC.

OPTION 1 - RUA application requires IRSC review and approval

Step 4:	RCO forwards the RUA application and associated documents to all IRSC members for consultation and review.
Step 5:	Chair of the IRSC decides whether the consultation and vote will be done via email within 10 days or at the next IRSC meeting.
Step 6:	IRSC members have 10 days or until the next IRSC meeting to review the RUA application and associated documents and ask any questions.
Step 7:	IRSC members vote (by day 10 or at the next IRSC meeting) whether they approve, reject or request amendments to the application. The vote can either occur during an IRSC meeting or via email consultation.
Step 8:	*Application rejected/requires amendments:* RCO sends a letter to the PI/responsible person stating the reasons for rejection or for requesting amendments.
Step 9a:	*Application approved:* RSO visits the laboratory to ensure warning signs (if required) are in place and discuss with the LSR and PI the required documentation.

Step 9b:	RCO sends the RUA approval letter to the PI/responsible person who becomes a RUA holder.
Step 10:	PI/Responsible person must submit to researchsafety@kaust.edu.sa the following documents within a month of receiving the RUA letter: – ***Local Rules*** – this document provides all the safety information related to the equipment such as RSO contact details, dosimetry requirement, safety measures in place (e.g. personal protective equipment, equipment is shielded, equipment has interlocks, etc.) and emergency procedures. A template of the Local Rules is available on the Research Compliance webpage; – ***Standard Operating Procedure -*** this document must provide detailed explanations on how to use the equipment. For example, how to load a sample, how to select the correct program, how to analyze samples, how to unload the sample, how to put the equipment on standby or how to switch-off the equipment, etc. A template and an example of SOP are available on the Research Compliance webpage; – ***Acceptance and Commissioning Documents*** – documents that are provided by the company that commissions and installs the equipment (this is only required for new equipment); – ***Maintenance Plan*** – the PI/responsible person must describe how the equipment will be maintained. For example, a full service contract is in place and covers all parts of the equipment, or LEM will carry out some maintenance but maintenance related to the x-ray tube will be performed when needed by the manufacturer, or no service contract in place and the equipment is only serviced when required by the manufacturer, etc. – ***Authorized User Form*** – only required for radiation-producing equipment which emits x-rays with energy above 50 kV and open x-ray beams. The users who have completed the required radiation safety training course (blackboard or live) as well as on-job training must fill the form and send it to the RSO (researchsafety@kaust.edu.sa). For new equipment, this can be provided once the equipment has been commissioned and installed. **Please note that if documents have not been submitted within one month of receiving the RUA letter, the IRSC will withdraw the RUA until all documentation is in place**.
Step 11:	RSO ensures that all documentation has been submitted within 1 month of the RUA approval. If documentation has not been submitted on time RSO informs all IRSC members and RCO of the delinquencies. Following discussion the RUA may be suspended until all documents are submitted.
Step 12:	If necessary RCO sends a letter to the PI/responsible person to suspend the RUA until all documentation is submitted to the RSO.

OPTION 2 – RUA application requires RSO review and approval

Step 4:	RSO has 10 days to review the RUA application and associated documents and ask any questions. RSO also prepares a summary report/notes for the IRSC members.

Step 5a:	*Application rejected/requires amendments:* RSO informs RCO and IRSC members and states the reasons for rejections or required amendments.
Step 5b:	RCO sends a letter to the PI/responsible person stating the reasons for rejection or for requesting amendments.
Step 6a:	*Application Approved:* RSO visits the laboratory to ensure warning signs (if required) are in place and discuss with the LSR and PI the required documentation.
Step 6b:	RSO sends a summary report/note to RCO and ask RCO to prepare the RUA approval letter.
Step 6c:	RCO sends the RUA approval letter to the PI/responsible person who becomes a RUA holder and distributes the summary report/note to all IRSC members for information.
Step 7:	PI/Responsible person must submit to researchsafety@kaust.edu.sa the following documents within a month of receiving the RUA letter: – ***Local Rules*** – this document provides all the safety information related to the equipment such as RSO contact details, dosimetry requirement, safety measures in place (e.g. personal protective equipment, equipment is shielded, equipment has interlocks, etc.) and emergency procedures. A template of the Local Rules is available on the Research Compliance webpage; – ***Standard Operating Procedure -*** this document must provide detailed explanations on how to use the equipment. For example, how to load a sample, how to select the correct program, how to analyze samples, how to unload the sample, how to put the equipment on standby or how to switch-off the equipment, etc. A template and an example of SOP are available on the Research Compliance webpage; – ***Acceptance and Commissioning Documents*** – documents that are provided by the company that commissions and installs the equipment (this is only required for new equipment); – ***Maintenance Plan*** – the PI/responsible person must describe how the equipment will be maintained. For example, a full service contract is in place and covers all parts of the equipment, or LEM will carry out some maintenance but maintenance related to the x-ray tube will be performed when needed by the manufacturer, or no service contract in place and the equipment is only serviced when required by the manufacturer, etc. – ***Authorized User Form*** – only required for radiation-producing equipment which emits x-rays with energy above 50 kV and open x-ray beams. The users who have completed the required radiation safety training course (blackboard or live) as well as on-job training must fill the form and send it to the RSO (researchsafety@kaust.edu.sa). For new equipment, this can be provided once the equipment has been commissioned and installed. **Please note that if documents have not been submitted within one month of receiving the RUA letter, the IRSC will withdraw the RUA until all documentation is in place**.

Step 8:	RSO ensures that all documentation has been submitted on time. If documentation has not been submitted on time RSO informs all IRSC members and RCO of the delinquencies. Following discussion the RUA may be suspended until all documents are submitted.
Step 9:	If necessary RCO sends a letter to the PI/responsible person to suspend the RUA until all documentation is submitted to the RSO.

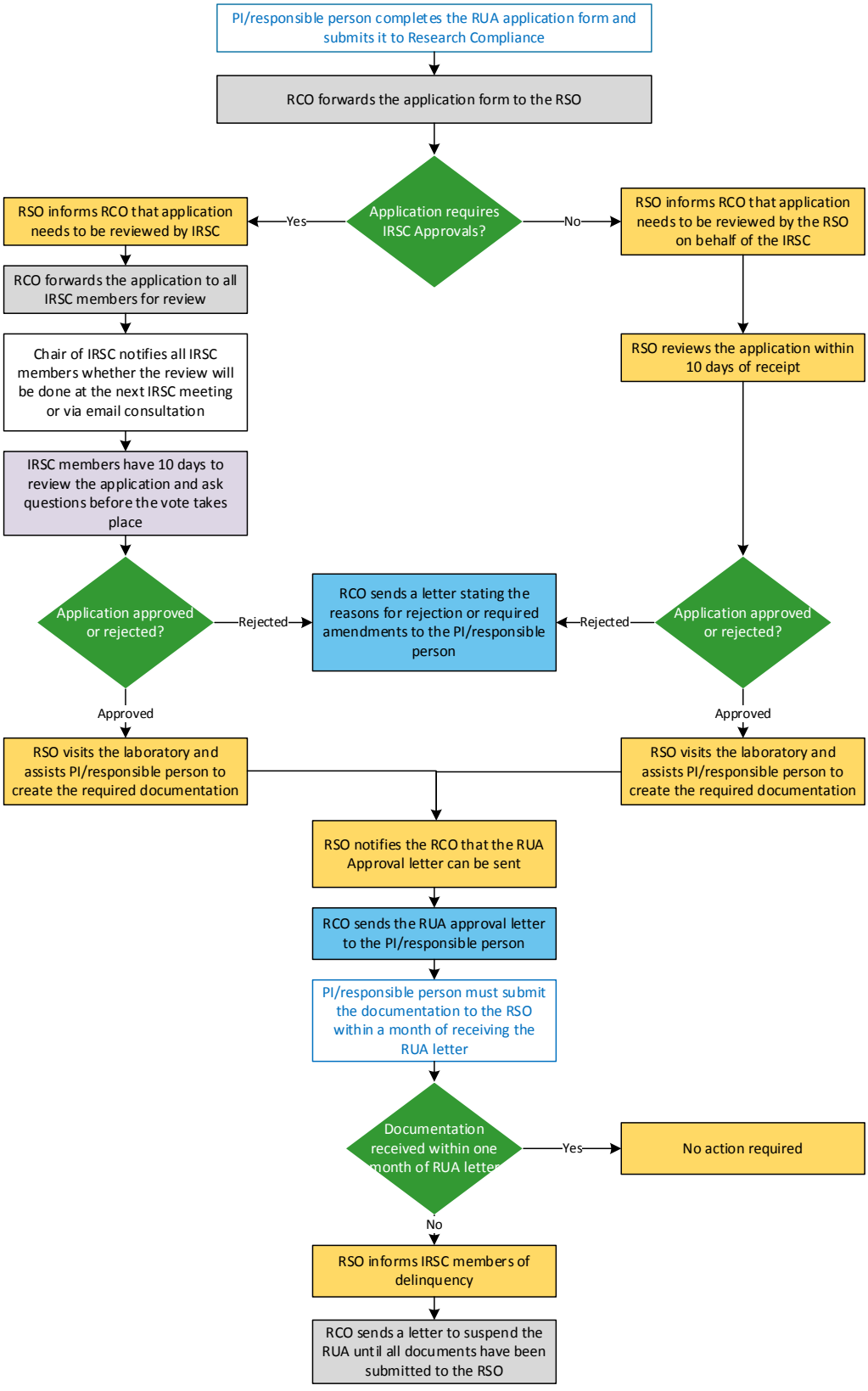

Figure 1. Radiation Use Authorization Application for radiation-producing equipment and equipment containing sealed sources.

5. RUA Application – *Stand-alone sealed sources and unsealed radioactive substances*

5.1. Unsealed radioactive substances

The use of unsealed radioactive substances is only allowed in the RLCL (except for the use of uranyl acetate). If a PI/responsible person decides to use any unsealed radioactive substances, s/he must coordinate with the RLCL management to ensure that the necessary equipment/consumables for the planned experiments are available (i.e. the particular experiment can be carried out in the RLCL). The PI must also apply for a RUA. The IRSC is responsible for granting the RUA that enables the PI/responsible person to use specific unsealed radioactive substances. The purchase of all open radioactive substances is done via the RLCL manager.
The process to apply for a RUA for radioactive substances (unsealed sources and stand-alone sealed sources) is described below and in Figure 2.

Step 1:	The PI/responsible person completes the application form available on the Research Compliance webpage and sends it to IRSC@kaust.edu.sa.
Step 2:	RCO forwards the application to the all IRSC members within 2 days of receipt.
Step 3:	Chair of the IRSC decides whether the consultation and vote will be done via email within 10 days or at the next IRSC meeting.
Step 4:	IRSC members have 10 days or until the next IRSC meeting to review the RUA application and associated documents and ask any question.
Step 5:	IRSC members vote (by day 10 or at the next IRSC meeting) whether they approve, reject or request amendments to the application. The vote can either occur during an IRSC meeting or via email consultation.
Step 6a:	*Application rejected/requires amendments:* RCO sends a letter to the PI/responsible person stating the reasons for rejection or for requesting amendments.
Step 6b:	*Application approved:* RSO contacts the PI/responsible person to complete and send the authorized user forms to researchsafety@kaust.edu.sa.
Step 7:	When all authorized user forms have been received by the RSO, s/he informs RCO that the RUA approval letter can be sent.
Step 8:	RCO sends the RUA approval letter to the PI/responsible person who becomes a RUA holder.
Step 9:	RUA holder submits the detailed SOP to RLCL management.

5.2. Stand-alone sealed sources

If a PI/responsible person wants to use stand-alone sealed sources s/he must first contact the RSO to discuss the requirements (e.g. use only within the RLCL or in other laboratories) and in particular whether such use is covered by the KAUST license. If the RSO pre-approves the use of a particular stand-alone sealed source the PI/responsible person must then apply for a RUA as detailed in the section above.

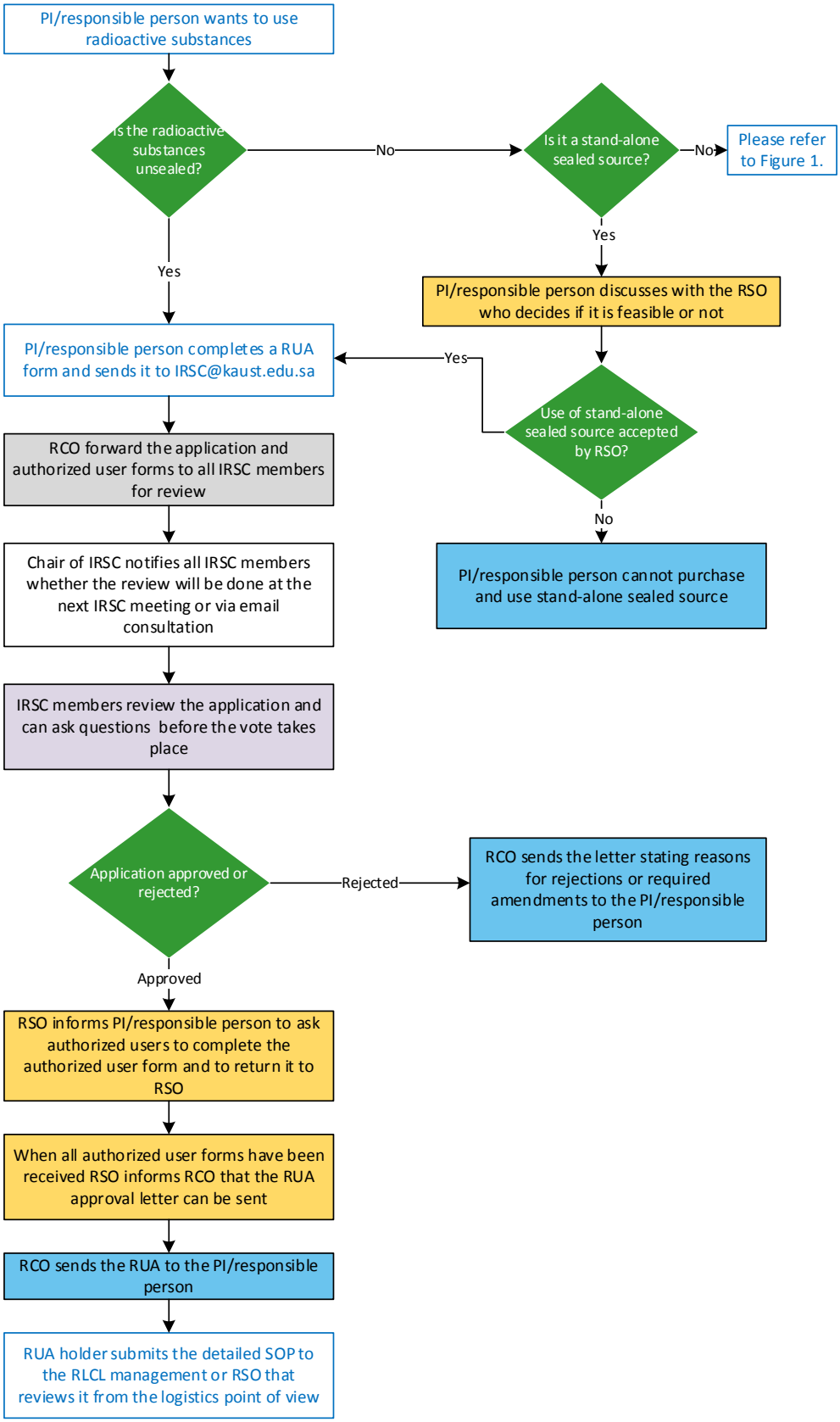

Figure 2. Radiation Use Authorization Application for stand-alone sealed sources and unsealed sources.

Document History

REV	DATE	PREPARED BY	DESCRIPTION
01	Dec. 2018	D. Darios	New document
02	Apr. 2019	D. Darios	Add Definition section RUA for equipment – no need for SOP when PI fills RUA Application, this will be submitted later and revised flowchart Acknowledge that uranyl acetate can be used outside RLCL
03	June 2019	D. Darios	In section 4 change so that all documents have to be submitted within one month of receiving the RUA letter In section 5.1 change so that authorized user forms can be returned after the RUA has been approved.