UMEÅ UNIVERSITET

Decomissioning plan for facilities used for work involving open radioactive sources

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[1] This document has been translated from Swedish into English. If the English version differs from the original, the Swedish version takes precedence.

Content

1. Description

This decommission plan describes the division of responsibilities and labor regarding the decommissioning of facilities at Umeå university that have been used for work involving open radioactive sources. This plan describes the final disposal of radioactive materials and waste, as well as which materials and facilities that could be classified as exempt from certain regulations in the Swedish Radiation Protection Act. This document is designed for the type of work conducted at Umeå university at the time of the document's creation. The document was created in compliance with the Swedish Radiation Safety Authority's regulations regarding the exemption of materials, facilities, and areas, from certain regulations in the Swedish Radiation Protection Act (SSMFS 2018:3). This plan will be updated as needed. This plan is part of the radiation protection management system at Umeå university.

2. Background

The purpose of the Swedish Radiation Protection Act is to protect the people and the environment from the harmful effects of radiation. Umeå University is classified by the Swedish Radiation Safety Authority as an agency subject to a permit, which means that the university must apply for, and be granted, a permit to work with ionizing radiation. The university has two permits: one group permit for scientific and educational purposes (SSM2019-1607, CU 08205, valid through 2024-03-12); and one for exposing human subjects to radiation for medical purposes (SSM2016-4122, Am-12069, valid through 2021-09-30).

The group permits cover open and sealed radioactive sources, as well as technical equipment that can produce ionizing radiation and that have been registered with the Swedish Radiation Safety Authority. The permits also cover discarded sources and radioactive waste.

The permit for exposing human subjects to radiation for medical purposes covers the transfer, lease, acquisition, holding, and use of X-ray equipment intended for medical diagnostic imaging. It also covers the Department of Public Health and Clinical Medicine's, and enheten för arbets- och miljömedicin's (the Unit for Occupational and Workplace Medicine, at the University Hospital of Umeå), work with iDXA and CT scanners.

The Vice-Chancellor of Umeå University is the permitholder, and thereby the utmost responsible for the work involving ionizing radiation at the university. The Vice-Chancellor is responsible for ensuring that departments working with ionizing radiation have access to qualified and properly educated staff and support functions.

To be granted a permit for work involving ionizing radiation, Umeå University must fulfill certain conditions. One of these conditions is that there must exist a decommissioning plan for the facilities where work involving open radioactive sources is conducted.

3. Definitions

The Swedish Radiation Safety Authority
The Swedish Radiation Safety Authority (SSM) is both a permit testing and supervisory authority. The authority sets regulations for work involving ionizing radiation, and they review agencies, such as Umeå University, to ensure that they are working responsibly and that they are following the rules and regulations. The authority also reviews applications and grants permits for work involving ionizing radiation.

Agency and local agency
In the permit granted by the Swedish Radiation Safety Authority, Umeå University is counted as one agency. Faculties, Departments or Research Centers are in this document referred to as local agencies, and they are subordinate to, and included, in the agency subjected to the permit.

Exempt status
Materials, facilities, and areas that have, or may have, been contaminated with radioactive waste from work involving ionizing radiation can either be classified as radioactive waste or, if the risks associated with the contamination are negligible, as exempt from certain regulations in the Swedish Radiation Safety Act (2018:396). The conditions that must be met to classify material, facilities, or areas as exempt is given by the Swedish Radiation Safety Authority regulation SSMFS 2018:3.

4. Final disposal of radioactive materials and waste

The Head of the Department/Director at the local agency is responsible for ensuring that radioactive materials and waste are disposed of according to the university common governing document *Code of rules and procedures for disposal of radioactive waste*. The document is available on Umeå University's website, under the *Legal Framework* tab.

5. Exempt status

5.1. Decontamination and assessment

The Head of the Department/Director at the local agency is responsible for decontamination and assessment of radioactive materials, facilities, and areas, before they can be classified as exempt.

Decontamination
Before a material of facility can be assessed, the radioactive decontamination must be removed as much as is reasonably possible.

Assessment
Materials and facilities that have or may have been contaminated with radioactive waste from work involving ionizing radiation, must be thoroughly assessed before they can be classified as exempt. The assessment can consist of direct measurements or calculations verified by measurements. The chosen method and scope of the assessment must be suited specifically for the suspected contamination and must account for the characteristics of the potentially contaminated materials and facilities.

Before an assessment can be performed an assessment protocol must be established. The protocol must contain detailed descriptions of:

- The materials and facilities that will be included in the assessment, and which radioactive materials that they have or may have been contaminated with.
- How the assessment will be conducted, including which methods and procedures that will be used.
- The expected use of materials and facilities after they have been classified as exempt.
- A quality assurance and documentation plan for the assessment procedure.

Prohibition against dilution
It is not allowed to dilute a radioactive material with the intent to prepare it for exemption assessment and classification.

5.2. The decision processes

Head of the Department/Director
The Head of the Department/Director has the authority to classify a material as exempt provided that the activity of the radioactive contamination is below certain limits given by the Swedish Radiation Safety Authority regulation SSMFS 2018:3, paragraphs 12-15.

Swedish Radiation Safety Authority
Only the Swedish Radiation Safety Authority can, after a request has been made by the Head of the Department/Director, classify facilities and areas as exempt, as well as materials contaminated with an activity exceeding the limits given by the Swedish Radiation Safety Authority regulation SSMFS 2018:3, paragraphs 12-15.

Using facilities that have not been classified as exempt
Facilities that have been decontaminated and properly assessed by the Head of the Department/Director can be used by the local agency for other purposes without first being classified as exempt by the Swedish Radiation Safety Authority, provided that the activity of any remaining radioactive contamination does not exceed the limits given by appendix 4 in the Swedish Radiation Safety Authority regulation 2018:3. However, a request for exempt status must be made to the Swedish Radiation Safety Authority when the local agency no longer wants to make use of the facility.

5.3. Examples of materials and facilities that might come under consideration for exempt status

Materials
Fume cupboards, work benches, fridges, and freezers, are examples of materials that might come under consideration for exempt status. The Head of the Department/Director is responsible for ensuring that all such materials are listed in the local agency's decommissioning plan.

Facilities
All facilities at Umeå university where work involving ionizing radiation is conducted might come under consideration for exempt status. The Head of the Department/Director is responsible for ensuring that all such facilities are listed in the local agency's decommissioning plan.

6. Documentation

The Head of the Department/Director is responsible for ensuring that assessment and decision process, as well as the taken measures, are properly documented. The documentation must be saved for 10 years after the decision to grant exempt status was made, or for as long as specified by the Swedish Radiation Safety Authority. The documentation must include detailed descriptions of:

- What was assessed, how it was assessed, and by whom.
- Any radioactive contamination that was found and its activity.
- The quality assurance of the assessment and decision process, as well as of any taken measures.

- Who made the decision to grant exempt status to waste that has been sent away to be incinerated or for final disposal, as well as who the recipient was.

7. Local decommissioning plan

The Head of the Department/Director is responsible for ensuring that there exists a local decommissioning plan for the local agency. The local decommissioning plan must include detailed descriptions of the:

- Final disposal of radioactive material and waste.
- Which materials and facilities that might come under consideration for exempt status.
- Which requirements in Swedish Radiation Safety Authority regulation SSMFS 2018:3 that might apply for the local agency.