

General Safety Regulations

KIT-Campus North

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SAFETY AND ENVIROMENT (SUM)

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List of Abbreviations

AServ	Allgemeine Services (General Services)
AServ-SDL	AServ – Hauptabteilung Sicherheitsdienstleistungen (AServ – Security Services Department)
AServ-SDL-CSI	AServ – SDL – Campussicherheit (AServ – SDL – Campus Security)
AServ-WF	AServ – Werkfeuerwehr (AServ – SDL - Fire Department)
AWZ	Abfallwirtschaftszentrale (Waste Management Center)
BBS	Beauftragter für die Biologische Sicherheit (GenTG, Biological Safety Commissioner)
EB	Entsorgungsbetriebe der KTE (KTE Waste Management Facilities)
FAS	Stabsstelle Fachkräfte für Arbeitssicherheit (Specialists for Occupational Safety Staff Unit)
FIZ	FIZ Karlsruhe – Leibniz Institut für Informationsinfrastruktur (FIZ Karlsruhe – Leibniz Institute for Information Infrastructure)
FM	Facility Management
FM-GM-VEA	FM – Gebäudemanagement - Ver- und Entsorgungsanlagen (FM – Building Management – Supply and Waste Management Facilities)
FTU	Fortbildungszentrum für Technik und Umwelt (Center for Advanced Technological and Environmental Training)
GenTG	Gentechnik-Gesetz (Genetic Engineering Act)
GVO	gentechnisch veränderter Organismus (genetically modified organism)
IfSG	Infektionsschutzgesetz (Infection Protection Act)
ITO	Ordnung der Transporte von radioaktiven Stoffen innterhalb des Geländes des Campus Nord des Karlsruher Instituts für Technologie (Interne Transportordnung radioaktive Stoffe, Rules on Internal Transportation of Radioactive Substances on Campus North of Karlsruhe Institute of Technology)
JRC-KA	Joint Research Centre Karlsruhe
KIT-CN	Karlsruher Institut für Technologie - Campus Nord (Karlsruhe Institute of Technology - Campus North)
KISS	KIT InformationsSystem Sicherheit (KIT Information System on Safety) Intranetanwendung des KIT: https://www.kiss.kit.edu/ (Intranet application of KIT)
KTE	Kerntechnische Entsorgung Karlsruhe GmbH
PB	Planen und Bauen (Planning and Construction Projects)
PL	Projektleiter (Gentechnikgesetz; GenTG) (Project Head (GenTG))
SEK	Strategische Entwicklung und Kommunikation (Strategic Corporate Development and Communications)
SGB	Sozialgesetzbuch (Social Code)
SSB	Strahlenschutzbeauftragter (Radiation Protection Commissioner)
SSV	Strahlenschutzverantwortlicher (Radiation Protection Supervisor)

StriSchV	Strahlenschutzverordnung (Radiation Protection Ordinance)
SUM	Sicherheit und Umwelt (Safety and Environment)
SUM-BG	SUM – Beratung und Genehmigungen (SUM - Consulting and Licensing)
SUM-ST	SUM – Strahlenschutz (SUM – Radiation Protection)
SUM-ST-A	SUM – ST – Administrativer Strahlenschutz (SUM-ST – Administrative Radiation Protection)
ZAG	Zyklotron AG

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1 Introduction

In these General Safety Regulations, Karlsruhe Institute of Technology – Campus North (KIT-CN) has compiled a set of instructions to ensure the safety of persons and property on its operating premises. These instructions are based on laws, ordinances, regulations, official licenses, licensing requirements, orders, as well as on generally recognized engineering guidelines.

Protection against danger is the responsibility of the safety organization outlined in Section 9.1.

In addition to these General Safety Regulations, there are a number of Special Safety Regulations applying to specific groups of persons or particular procedures. The most important Special Safety Regulations are listed in Section 9.2.

At the operation facilities of Kerntechnische Entsorgung Karlsruhe GmbH (KTE), internal regulations with equivalent contents shall have priority over the present General Safety Regulations.

If you have further questions concerning safety regulations, please consult the Safety and Environment Staff Unit, Consulting and Licensing Group (SUM-BG) or the Specialists for Occupational Safety Staff Unit (FAS).

The latest version of these General Safety Regulations can be found on the Intranet of KIT at KIT Informationssystem Sicherheit (KISS): <https://www.kiss.kit.edu/english/index.php>.

All organizational units mentioned in the present General Safety Regulations are located on the premises of Campus North.

2 General Rules of Conduct

2.1 Admittance into the Campus

Admittance into KIT-CN is only permitted to persons who possess a valid company pass or visitor's pass. By their signature when granted admittance into the campus, pass holders are obliged to observe and adhere to the safety regulations valid on KIT-CN.

The **company pass** for employees is issued by the Campus Security Group of the Security Services Department of the General Services Business Unit on request of the Human Resources Business Unit. For employees of external companies and guests staying at an organizational unit for a longer period of time, the company pass has to be applied for by the head of this organizational unit. In case of employees of guest institutions, this guest institution has to submit the application. AServ-SDL-CSI makes and issues company passes after presentation of valid identity documents. The company pass must be shown unrequested to the staff of AServ-SDL-CSI and must be surrendered on demand. When the period of employment ends, the company pass must be returned to the Reception Desk unrequested.

Visitor's passes are issued at the Reception Desk of AServ-SDL-CSI after presentation of a valid identity card or passport and proof that access to KIT-CN is necessary. The visitor's pass must be shown unrequested to the staff of AServ-SDL-CSI and must be surrendered on demand.

On special order, security inspections of vehicles and carried-along boxes can be performed.

2.2 Admittance Regulations for Visitors

Visitors can enter the premises with a visitor's pass. In the case that the visitor is unable to show any valid identification documents for the visitor's pass to be issued, admission is only possible,

when the visitor's identity is confirmed by the host. Visiting groups may be given a group pass, provided that the group has been registered by AServ-SDL-CSI in the form of a list (with last name, first name, date of birth, and place of birth) and constantly is under the direction of a visitor's guide.

Persons younger than 16 years are only allowed to enter KIT-CN, if a written agreement by the head of the organizational unit to be visited has been submitted to the Reception Desk staff. Then, admittance is granted for this individual case and the rooms of the organizational unit to be visited only.

For admittance into radiation protection and security areas and into biological laboratories of safety category S2 according to the Genetic Engineering Act and Infection Protection Act, specific regulations apply (see Sections 4 and 5).

2.3 Bringing along and Taking out Goods, Equipment, and Animals

Whoever wishes to bring along or take out goods or equipment, as long as these are no private belongings, has to indicate this unrequested to the staff of AServ-SDL-CSI. In principle, goods can be brought in or taken out via the **Central Delivery Gate** (building 234). Employees of KIT and of guest institutions on the site (e.g. FIZ, JRC-KA, KTE, and ZAG) can use the southern and northern gates for this purpose, provided that they can present the corresponding forms (e.g. Ein- und Ausfuhrpapiere, Leihschein, Versandschein).

Persons bringing items into or acquiring items on KIT-CN must be able to present evidence of ownership when taking out these items from KIT-CN. It is not allowed to bring in items for disposal.

For further details concerning the taking out of materials (in particular waste etc.), it is referred to Sections 4.6 and 6.

It is not permitted to bring into KIT-CN any animals, weapons (including imitation weapons or any items that look like weapons) or waste.

In justified individual cases, the Chief Safety Officer may allow exceptions on request.

2.4 Locking of Buildings and Rooms

When offices or laboratories are left unattended by persons working there for a longer period of time during the day, they must be locked. This regulation also applies at the end of the working day. After the normal working time, buildings must be locked.

2.5 Road Traffic on Site

On KIT-CN, the provisions of the German **Road Traffic Ordinance** and the Road Traffic Registration Ordinance apply. The speed limit is 50 km/h.

AServ-SDL-CSI is responsible for traffic supervision. Directions and traffic regulation signs given by uniformed staff of AServ-SDL-CSI must be obeyed. These take priority over general traffic regulations and specific local traffic signs.

Doors and gateways must be kept clear. In particular, marked **emergency and escape routes** (e.g. access routes for the fire department vehicles) as well as roads and entrances to the buildings must not be blocked by vehicles or objects.

To ensure an efficient exit of vehicles from the parking lots in the case of an **evacuation**, vehicles have to be parked in a way that it is possible for all vehicles to leave unhindered.

Industrial trucks (forklifts, electric trucks) may only be operated by persons in possession of a

“Fahrerausweis für motorisch angetriebene Flurförderzeuge” (driving license for motorized industrial trucks) and an authorization in writing by the respective organizational unit to operate these vehicles for internal purposes.

Other motorized vehicles of KIT may only be operated by persons in possession of a valid driving license and a “Berechtigungsausweis zum Fahren von Kraftfahrzeugen des KIT” (authorization to operate motorized vehicles of KIT).

KIT vehicles not registered for use on public roads are not allowed to leave the fenced part of KIT-CN.

Washing and repairing of company vehicles are allowed in the corresponding facilities of KIT-CN only. Washing and repairing of private vehicles is forbidden on the premises of KIT-CN.

2.6 Admittance Regulations for Specific Areas

Specific areas of KIT-CN, in particular guest institutions, are divided off from the remaining site by fences and other security measures and are placed under special surveillance. Movement of persons, vehicles, and materials across the boundaries of these areas is subject to special regulations valid there.

2.6.1 Radiation Protection Areas

Areas in which unsealed radioactive substances are allowed to be handled and controlled areas are specially divided off and marked (see Section 9.4). Access to these areas is subject to special requirements summarized in Section 4.

2.6.2 Biological Laboratories

Laboratories that are classified in safety categories according to the Genetic Engineering Act or the Infection Protection Act are specially marked (see Section 9.4). Starting from safety category S2, admittance into these areas is subject to special requirements summarized in Section 5.

2.6.3 Construction Sites

Construction sites are supervised by the responsible construction manager. Admittance onto the construction site is only permitted with the consent of the construction manager and when observing the latter's instructions.

Construction site accommodation facilities (permanent or mobile) are only allowed to be set up with a permission (Baustelleneinrichtungsschein) from the Planning and Construction Projects Business Unit (PB). Such facilities may be inspected for safety by SUM-BG or the Specialists for Occupational Safety.

Fire and heating facilities may only be installed and operated with the permit of the Fire Department (AServ-SDL-WF).

2.7 No Smoking, Fire, and Open Lights

Fire, open lights, and smoking are forbidden in specially signed areas. In addition, smoking is forbidden in all buildings, at the workplace, in forest areas, and in areas where unsealed radioactive substances or hazardous materials are handled.

2.8 Unauthorized Operating of Facilities and Equipment

Interventions into machines, devices, and other working equipment may only be carried out by authorized persons who are familiar with their operation, use, maintenance, and control.

Devices and equipment of information technology may be put into operation by authorized persons only. It is the responsibility of each organizational unit to specify regulations for access to and use of IT systems and to control compliance with these regulations.

2.9 Photography

Taking photos, films, and videos on nonofficial occasions requires authorization. For taking photos and recording outside of buildings, this authorization may be obtained from the Strategic Corporate Development and Communications Business Unit (SEK). For taking photos and recording inside buildings, authorization may be obtained from the responsible head of the organizational unit.

3 Work Safety Regulations

Special safety regulations for work with radioactive substances and for work with genetically modified organisms and biological substances are outlined in Sections 4 and 5, respectively.

3.1 General Work Safety Regulations

For all activities, the pertinent laws, ordinances, administrative regulations, accident prevention rules, and the recognized guidelines of engineering must be observed and applied.

The most important work safety instructions are displayed at the organizational units. They can also be found in KISS. Further information is given in the specifications and documents distributed by FAS to the heads of the organizational units and the Safety Commissioners according to Social Code VII. In case of questions, consult these persons and the responsible Specialists for Occupational Safety. If required, details can be found in KISS. Work safety regulations can be requested from FAS.

The most important warning signs are shown in Section 9.4.

3.2 Handling Hazardous Substances

Persons handling hazardous substances must be informed by oral instructions. Herein, these persons are informed of potential hazards and ways of averting them at their specific workplaces before they start work. Instructions have to be repeated at regular appropriate intervals, at least once a year. The contents and date of the instruction must be recorded in written form and confirmed by the signature of the person instructed. Attention must be paid to the operating instructions given by the organizational units.

Pregnant or nursing mothers and persons younger than 18 years are subject to special restrictions when handling hazardous substances. For these persons, a workplace evaluation by the responsible Specialist for Occupational Safety and/or the company physician is required before starting such work.

Internal transportation of hazardous substances must be in agreement with the “Regelung für den innerbetrieblichen Transport von Gefahrstoffen auf dem KIT-Campus (Transportregelung Gefahrstoffe, Rules on the Transportation of Hazardous Substances on the KIT Campus). These rules can be found at <https://www.kiss.kit.edu/1159.php>.

3.3 Preventive Medical Examinations, Fitness Examinations, Information Obligations

According to the Ordinance on Preventive Occupational Medical Care (ArbMedVV), preventive medical examinations must be offered (optional examinations) or performed on a mandatory basis (mandatory examinations) for the activities listed in the annex of this ordinance. Moreover, fitness examinations may be required by other legal regulations. In case of mandatory examinations, the activity may be started only after the examination has been carried out and participation has been certified. Fitness examinations prove that the said persons are fit for their job. In the case of optional examinations, the employees are free to let themselves be examined. Most preventive and fitness examinations must be repeated at regular intervals.

To ensure central control of preventive and fitness examination dates, organizational units have to register their employees for preventive medical examination with the Safety and Environment Staff Unit (SUM). Forms and process descriptions can be found at <https://www.kiss.kit.edu/121.php>. SUM informs the Medical Services Business Unit (MED) about the examinations due and asks the employees to make an appointment with the Medical Services in due time.

Activities, during which pregnant or nursing mothers might be endangered by hazardous chemical substances, biological substances, and physical hazards (e.g. noise, vibrations, heat, etc.), require special evaluation. For this purpose, an additional risk assessment is made by the Medical Services (MED) and the Specialists for Occupational Safety (FAS).

3.4 Fire Prevention Measures

All work involving fire and explosive vapor/air mixtures, which is part of construction and maintenance work on already used objects, may only be carried out with a "Erlaubnisschein für Schweiß-, Schneid-, Löt-, Auftau- und Trennarbeiten" (permission form for welding, cutting, soldering, melting, and separation work).

No permission is required for work involving fire in specially equipped laboratories or workshops. Permissions are issued by the Planning and Construction Projects Business Unit (PB) or the responsible Operations Commissioner (Betriebsbeauftragter). The responsible Operations Commissioner gives the permit to execute work only, if:

- Necessary requirements have been defined,
- the fire department has signed and, if necessary, completed the permission,
- all required safety measures have been taken, and
- the contractor (e.g. external company) has been informed about operations requirements and other particulars.

The respective organizational unit must ensure that the **fire extinguishing equipment** is operational at all times. If fire alarm systems or parts of them are switched off for the execution of work for more than 15 minutes, surveillance of the respective area (guard or use of auxiliary fire alarm systems) is required. Access to fire extinguishing equipment must not be blocked. Staff members will be instructed in the use of fire extinguishing equipment by the fire department at the request of the organizational units.

Electrical cooking devices, such as coffee machines and hot plates, must be put on refractory stands or mats. These items should be used in the kitchens and amenities rooms only.

3.5 Obligation to Report Accidents

In the event of an accident, the Emergency Control Center (Alarmzentrale) must be called. Dial 3333.

In case of a work accident of an employee of KIT, the head of the corresponding organizational unit must be informed. He/she has to complete the legally required accident report and to forward it to the Specialists for Occupational Safety (FAS). FAS forwards the accident report to the Staff Council, the accident insurance company of KIT, and to the competent authority.

In the case of an accident of employees of external companies and persons delegated to KIT, the head of the corresponding organizational unit and the superiors of the delegating company must be informed. These are then obliged to report the accident to their accident insurance company. A copy of the accident report must be sent to FAS.

An accident report must also be submitted for accidents occurring when carrying out official activities on the way to and from the workplace, during business trips, in sports within the company's sports groups, or at internal community events. In case of doubt, information can be obtained from FAS.

To ensure that all **work accidents and accidents occurring on the way to and from the workplace** are reported in due time, you are required to report them to your superiors as soon as you either are involved in or witness such an accident.

4 Radiation Protection Regulations

Any generation of ionizing radiation or handling of radioactive substances is subject to approval or licensing by the respective authority. This means that all such activities are forbidden, unless a license has been granted or laws and regulations permit an exception.

Persons generating ionizing radiation or handling radioactive substances within the framework of a license granted must observe the Atomic Energy Act, the Radiation Protection Act, the Radiation Protection Ordinance, requirements outlined in the license issued according to the Atomic Energy Act or the Radiation Protection Act, instructions given by the authorities, and special operating instructions. **The appointed Radiation Protection Commissioners are responsible and authorized to give directions in matters of radiation protection.** In most organizational units, the names of the competent Radiation Protection Commissioners can be found on a signboard in the entrance lobby. In case of doubt, ask the head of your organizational unit or consult KISS (<https://www.kiss.kit.edu/288.php>).

General radiation protection regulations are compiled in the "Strahlenschutzordner" (Radiation Protection File) distributed to each Radiation Protection Commissioner. The Radiation Protection File also contains supplementary provisions on reports for accounting and transportation of radioactive substances. General radiation protection regulations can also be found in KISS.

If applicable, further radiation protection instructions of the individual organizational units must be observed, which consider special circumstances at the corresponding facilities.

Persons working with ionizing radiation or radioactive substances must be instructed on regulations relevant to their work and on potential risks and protection measures before starting their work. Then, these radiation protection instructions have to be repeated annually. Instructions are given and documented by the Radiation Protection Commissioner or a qualified person appointed by him/her.

4.1 Radiation Protection Areas

In radiation protection areas, failure to observe the applicable rules and regulations when handling radioactive substances and/or radiation sources may create hazards due to:

- External exposure to ionizing radiation,
- contamination through unsealed radioactive substances,
- incorporation of radioactive substances.

According to these General Safety Regulations, **radiation protection areas** are:

- **Controlled areas** (Kontrollbereiche; areas, where effective doses may exceed 6 mSv/a),
- **exclusion areas** (Sperrbereiche; areas within a controlled area, in which the ambient dose rate may exceed 3 mSv/h),
- **supervised areas** (Überwachungsbereiche; operating areas not belonging to a controlled area, in which effective doses may exceed 1 mSv/a or areas, in which unsealed radioactive substances are handled above the exemption level (defined by the Radiation Protection Ordinance) or with an existing risk of contamination.

Controlled and exclusion areas are marked at the entrance by a warning sign indicating potential hazards (see Sections 9.4, 6).

Controlled areas must be kept closed at all times.

4.1.1 Admittance Requirements

Before entering a marked radiation protection area to carry out or maintain the operation processes intended, persons have to ask the competent Radiation Protection Commissioner for the valid admittance regulations and the applicable rules of conduct in this area.

Before persons work in a radiation protection area for the first time, they have to ask for specific instructions by the competent Radiation Protection Commissioner or a qualified person appointed by him/her. In addition, these persons have to attend a radiation protection instruction session and to undergo a medical examination, if necessary. In any case, anyone working in a radiation protection area must seek approval of the competent Radiation Protection Commissioner.

Persons younger than 18 years and pregnant and nursing women are specially protected by the Radiation Protection Ordinance.

As soon as they have informed their employer that they are pregnant or nursing, women may only work in radiation protection areas when the working conditions are such that internal occupational radiation exposure is excluded and the responsible Radiation Protection Commissioner has agreed.

Persons under the age of 18 are not allowed to handle unsealed radioactive substances without explicit permission of the authorities, if a license is needed to handle the radioactive substances.

Special regulations for admittance into controlled areas also apply to visitors. These regulations can be found in KISS (<https://www.kiss.kit.edu/1416.php>) as well as in the Radiation Protection File.

4.1.2 Specific Requirements When Entering and Leaving Radiation Protection Areas in Which Unsealed Radioactive Substances Are Handled

Only materials needed for the work at hand may be taken into radiation protection areas in which unsealed radioactive substances are handled. It is forbidden to bring food, tobacco, beverages, and cosmetics into these areas.

Books and journals from the KIT Library may not be brought into these areas. Books on permanent loan, which are needed in these areas in exceptional cases, must remain there and marked permanently.

Protective clothing provided by the Radiation Protection Commissioner must be worn in radiation protection areas where there is a risk of contamination (Section 9.5). When leaving the area, the protective clothing must be removed again. Hands, shoes, and, if applicable, clothes must be subjected to a **contamination control**. The contamination monitors are installed at the exits of radiation protection areas with a risk of contamination. On suspicion of a **personnel contamination** or when a contamination is detected by the monitor, the responsible radiation protection staff must be informed immediately. Their radiation inspections and measures taken must be waited for. When personnel contamination cannot be removed by simple means (e.g. washing) or on additional suspicion of **incorporated radioactive substances**, the Radiation Protection Commissioner or Emergency Control Center must be informed immediately. These, in turn, will inform the Medical Services. The phone numbers of the competent Radiation Protection Commissioner or the radiation protection staff are posted next to the contamination monitor. Further measures will be taken by the Medical Services. **The affected persons are always transported by special vehicles of the Medical Services.**

Items (materials and objects) to be removed from areas in which unsealed radioactive substances are handled are subject to special regulations (see Section 4.6).

4.2 Radiation Protection Monitoring of Persons

The competent Radiation Protection Commissioner requests SUM-ST-A to include occupationally exposed personnel of KIT-CN in radiation protection monitoring using the form "Erhebungsbogen Strahlenschutz" (radiation protection registration form). Persons from external companies that are occupationally exposed to radiation in the radiation protection areas of KIT-CN are dealt with by the central "Strahlenpassstelle" (Radiation Passport Office). Non-occupationally exposed persons (personnel of KIT or persons from external companies) who wish to enter controlled areas of KIT-CN must also register with SUM-ST-A or the Radiation Passport Office.

4.2.1 Individual Dose Monitoring

Depending on the risk of exposure, persons registered for dose monitoring according to Section 4.2 are classified in different monitoring categories. The personal dosimeters distributed to these employees (the authority's and/or operator's dosimeter) must be worn while staying in radiation protection areas of KIT-CN. Under special exposure conditions, the instructions given by the local Radiation Protection Commissioner concerning the number, mode of wearing, and use of additional dosimeters or other monitoring methods must be observed.

In case the competent Radiation Protection Commissioner orders to have regular incorporation measurements or additional monitoring carried out due to a suspected incorporation, these must be tolerated by the persons affected for their own protection.

Employees of KIT who work in controlled areas outside of KIT as occupationally exposed personnel must be in possession of an officially registered, complete, and valid radiation passport and an official personal dosimeter. SUM-ST-A (phone 23021) is responsible for the

registration and control of radiation passports. Details can be found in a radiation protection instruction for the implementation of Article 25 of the Radiation Protection Act. The radiation protection instruction and the requirements to be fulfilled are given in KISS (<https://www.kiss.kit.edu/269.php>).

4.2.2 Radiation Protection Instruction

Persons handling radioactive substances or using ionizing radiation under a license have to be instructed about potential hazards and their prevention before starting their work. These instructions must be repeated annually.

Visitors of controlled areas also are obliged to take part in radiation protection instructions.

The competent Radiation Protection Commissioner ensures direct documentation in writing of the contents and dates of the instructions and of the names and signatures of the persons so instructed.

Whoever does not participate in a scheduled instruction session in time is prohibited from performing activities in radiation protection areas of KIT by the Radiation Protection Supervisor until the person is given the instruction.

4.2.3 Medical Surveillance and Information Obligations

Persons are only allowed to work in a controlled area or handle unsealed radioactive substances, when they can present a valid medical certificate of health from an authorized physician to the competent Radiation Protection Commissioner prior to the start of work. Medical examination has to be repeated at fixed intervals. The necessary medical examinations must be tolerated.

In case the necessary medical certificate is not submitted in time to start work, the person is prohibited from performing these activities by the Radiation Protection Supervisor.

Persons handling unsealed radioactive substances must inform the Radiation Protection Commissioner or the company's physician immediately about any **diseases or lesions of the skin** and directly stop working with unsealed radioactive substances (cf. Section 4.4.3).

Female employees who are occupationally exposed to radiation are obliged to report **pregnancies** as early as possible to the Radiation Protection Commissioner and the employer to ensure that the child is protected during pregnancy and nursing by excluding any incorporation and preventing the dose limit specified for the unborn child by the Radiation Protection Ordinance from being exceeded. The monitoring measures to be taken in addition in this case are outlined in a separate radiation protection instruction that can be found in KISS or obtained from SUM-ST.

4.3 Work with the Risk of an Increased Radiation Exposure

Work associated with the risk of an increased radiation exposure is such work in which:

- An effective dose of 2 mSv or more is to be expected, or
- existing or foreseeable contamination requires protective measures exceeding the protective clothing defined in the Clothes and Zone Rules (see Section 9.5), e.g. the use of respiratory protection gear or additional foil-type protective clothes, etc., or
- persons from other institutes/departments, who are not under continuous supervision of the corresponding organizational unit, are working
 - a) in controlled areas, or

- b) in supervised areas in which unsealed radioactive substances above 10 times the exemption level are handled, without these radioactive substances being enclosed by a solid enclosure or barrier, or
- c) on systems enclosing radioactive substances with activities above 10 times the exemption level (e.g. closed loops and their protection systems, etc.), or
- d) on systems that may affect safety in the areas mentioned under a) through c) (e.g. control rooms, ventilation systems, etc.).

This work may only be executed with an “Arbeitserlaubnis-Strahlenschutz” (work permit – radiation protection).

The work permit is issued by the persons responsible in agreement with the Radiation Protection Commissioner, possibly involved external companies, and the local radiation protection staff in compliance with the regulations outlined in KISS or the Radiation Protection File.

4.4 Safe Handling of Radiation Sources

4.4.1 General

Radiation sources are all devices or systems emitting or able to emit ionizing radiation. This includes, for example, X-ray facilities, particle accelerators, large-scale gamma sources, and neutron detectors. Radiation sources also include sealed or unsealed radioactive substances.

Radiation sources may only be passed on – or loaned out – when it is ensured that the recipient is authorized to take possession of them.

Sealed radioactive substances or facilities that generate ionizing radiation, but do not contain any radioactive substances (e.g. X-ray facilities) are hazardous only due to external radiation exposure. Unsealed radioactive substances and damaged sealed radioactive substances pose additional hazards due to contamination and incorporation.

Nuclear fuels are classified as a special type of radioactive substances. In addition to measures against external and internal radiation exposure, appropriate control and monitoring measures have to be taken.

4.4.2 Measures against External Radiation Exposure

Persons operating or handling radiation sources must familiarize themselves with their properties and their correct, safe handling and observe valid handling instructions. For example, the following safety measures have to be taken:

- Sufficient barriers must be put up and signs must be posted in hazardous areas, as shown in Section 9.4, 6. In case of doubt, the competent Radiation Protection Commissioner or the local radiation protection staff must be consulted.
- Active materials and their containers must be correctly marked and labeled.
- Time spent in the radiation field must be kept as short as possible.
- All work must be carried out such that radiation exposure of persons potentially affected is minimized to the extent possible.
- For an activity where the body dose is expected to be 2 mSv or more, an “Arbeitserlaubnis-Strahlenschutz” (work permit – radiation protection) must be obtained (see Section 4.3).
- On suspicion of inadmissibly high radiation exposure, the competent Radiation Protection Commissioner and the local radiation protection staff must be informed immediately.
- The loss of a radiation source must be reported immediately to the competent Radiation Protection Commissioner and the Emergency Control Center (phone: 3333).

4.4.3 Additional Measures for Handling Unsealed Radioactive Substances

Persons handling unsealed radioactive substances must familiarize themselves with the chemical and physical properties of these substances and must observe the local work and radiation protection rules and instructions. The following safety precautions must be taken in addition to the measures specified in Section 4.4.2:

- Work is only allowed after verifying that any necessary equipment is intact and that the workplace is sufficiently equipped for handling the substance envisaged taking into account the type, condition, quantity, and activity of the substance.
- It is forbidden to remove larger quantities from storage vessels and, consequently, higher activities than necessary for the work at hand.
- Records of the activity and history of the radioactive substance during the work process must be kept.
- It is absolutely forbidden to **pipette** liquids **by mouth**: Only suitable systems available for this purpose are to be employed.
- Radioactive residues must be collected in specially prepared and distinctly marked containers. If major quantities of residues arise, these must be collected separately in the following categories: State (liquid, solid), type (organic, inorganic), property (fire hazard, burnable, unburnable), activity (high level, radioactive, potentially radioactive).
- Precautions must be taken to prevent any discharge of radioactive substances into rainwater drainage or household sewage systems.
- The type and volume of contaminations are to be marked.
- Work in contaminated areas, in which respiration protection gear must be worn, may only be carried out, if an "Arbeitserlaubnis-Strahlenschutz" (work permit – radiation protection, see Section 4.3) is obtained. In addition, training in the use of the respiration protection gear has to be performed. Moreover, physical fitness of the personnel involved must be confirmed by a preventive medical examination (see Section 3.3).

In cases of:

- **Contamination,**
- **suspicion of personal contamination or incorporation,**
- **accidents, or**
- **release of radioactive substances into drainage systems not approved for this purpose,**

further spreading of the radioactive substances must be prevented, the local radiation protection staff must be called, and the competent Radiation Protection Commissioner and the Emergency Control Center (phone 3333) must be informed.

Further measures to be taken at the workplace in order to confine damage are agreed upon by the competent Radiation Protection Commissioner and the local radiation protection staff.

On **suspicion of a personal contamination or incorporation**, the Medical Services define further measures to be taken (examinations, measurements, treatment, if necessary). Persons are transported from the workplace to the Medical Services Unit with special vehicles exclusively.

4.4.4 Additional Measures When Handling Nuclear Fuels

For persons handling nuclear fuels, Sections 4.4.2 and 4.4.3 apply mutatis mutandis. In addition, the following rules must be observed:

- Records must be kept about the origin, current location, and whereabouts of the nuclear fuels in accordance with existing instructions.
- Waste from nuclear fuels must be minimized. Upper limits for measured waste as specified by Euratom in the “Besondere Kontrollbestimmungen” (Special Safeguards Provisions) must not be exceeded under any circumstances.
- Changes in nuclear fuel inventories and current location must be documented.

If necessary, the competent Radiation Protection Commissioner or SUM-ST-A must be consulted.

4.5 Storage and Transport of Radioactive Substances

Radioactive substances must be packed, stored, and transported in specific containers with adequate shielding and clear labeling according to the relevant regulations.

Radioactive substances may only be stored in suitable containers and must be in safe-keeping such that unauthorized access and improper use are excluded. In rooms where radioactive substances are handled, flammable materials (e.g., flammable liquids, cardboard packaging) and ignition sources must be restricted to the absolute minimum. No other objects which may affect safety may be kept there.

Contaminated objects must be packaged leak-tight to prevent radioactivity from penetrating to the outside. They must be marked with the correct label displayed in Section 9.4, 7.

Radioactive liquids must be stored such that in case of a leak of the container, this liquid is absorbed by suitable material or collected in a collecting system.

Transports of radioactive substances within an institute, i.e. transport within buildings and under the same license, are authorized handling activities. The safety precautions are laid down by the competent Radiation Protection Commissioner.

Internal transports of radioactive substances are all transports of radioactive substances within the fenced site of KIT-CN, which are not mentioned above. These transports are covered by a special license in connection with the “Ordnung der Transporte von radioaktiven Stoffen innerhalb des Geländes des Campus Nord des Karlsruher Instituts für Technologie” (ITO, Rules of KIT-CN for Internal Transports of Radioactive Substances). The competent Radiation Protection Commissioners are responsible for the application of these regulations.

External transports of radioactive substances, i.e. transportation to and from KIT-CN, are subject to regulations for the transport of radioactive substances under the German traffic laws and the Atomic Energy Act. At KIT-CN, the Beförderungsleitstelle (transport control office) of the Radiation Protection Group (SUM-ST) is responsible for the organization and clearance of external transports of radioactive materials.

4.6 Removal of Materials from Radiation Protection Areas of KIT-CN

In principle, all materials and objects that are to be removed from radiation protection areas, in which unsealed radioactive substances are handled, are subject to radiation protection control. This also applies to materials from buildings, of which only parts have been declared as radiation protection areas, where unsealed radioactive substances are handled under a license.

As a rule, radiation protection control is performed by the radiation protection staff of SUM-ST

in accordance with the corresponding work instructions. The competent Radiation Protection Commissioner of SUM-ST is responsible for the result of the measurements. The Radiation Protection Commissioner of the radiation protection area concerned is responsible for the substances being registered for radiation protection control.

The following removal activities have to be distinguished:

- Transfer of radioactive substances to another area under a separate handling license, including removal of contaminated objects to EB of KTE for decontamination,
- delivery of radioactive substances as radioactive waste to the “Landessammelstelle” (state collection center) at EB of KTE,
- removal of objects for repair or reuse,
- transfer as non-radioactive substances for unrestricted reuse or disposal, and
- removal by waste collections from buildings, only parts of which have been declared as radiation protection areas.

Specific regulations apply to each of these removal activities.

4.6.1 Transfer of Radioactive Substances to Another Area under a Separate Handling License

In principle, this transfer has to take place via the competent Radiation Protection Commissioner, as he/she is responsible for observing the removal conditions, the accounting of material, and correct internal transportation through the Transport Control Office of SUM-ST (see Section 4.5). Radioactive substances removed from areas in which unsealed radioactive sources are handled must be marked by SUM-ST with the corresponding label according to Sections 9.4, 7.3, and 7.4.

4.6.2 Delivery of Radioactive Residues to the State Collection Center of EB at KTE

Radioactive residues may only be delivered to the State Collection Center, if they fulfil the latter's criteria for acceptance and if a properly completed “Reststoffbegleitschein” (consignment note for radioactive residues), signed by the competent Radiation Protection Commissioner, is submitted. This note may be obtained from EB of KTE. For transportation, see Section 4.5.

4.6.3 Removal of Objects for Repair or Reuse

The removal of objects, e.g. tools, instruments, measurement devices, clothes, books, etc. from radiation protection areas is subject to instructions given by the Chief Safety Officer. These radiation protection instructions can be found in KISS. They are also part of the Radiation Protection File available to the competent Radiation Protection Commissioners.

Accordingly, objects may only be removed from radiation protection areas after a radiation control by staff of SUM-ST. Objects controlled must be marked by SUM-ST with the label shown in Sections 9.4 and 7.1 and may then be handled freely. These labels must be removed when taking these objects out of KIT-CN.

In case of a negative result of radiation control, these objects must remain in the radiation protection area and can only be removed as outlined in Sections 4.6.1 or 4.6.2.

4.6.4 Transfer of Non-radioactive Substances to Unrestricted Reuse or Proper Disposal

In case objects or materials are to be removed as non-radioactive substances for unrestricted use or for proper disposal, an official clearance procedure must be initiated with the competent authority by the local Radiation Protection Commissioner via SUM-BG. Execution of this procedure is subject to a radiation protection instruction according to Part 2, Section 3 of the Radiation Protection Ordinance, which is also part of the Radiation Protection File and available in KISS.

Compliance with the clearance conditions specified in the authority's decision must be confirmed by the competent Radiation Protection Commissioner of SUM-ST. After this, the materials may be handled freely or transferred to proper disposal.

4.6.5 Removal by Regular Waste Collections from Buildings, of Which Only Parts Have Been Declared Radiation Protection Areas

Materials collected regularly include e.g. wastes similar to domestic waste, styrofoam parts, styrofoam chips, paper, cardboard, glass, and office waste (toner cartridges, ink cartridges, data carriers, etc.).

Removal of such materials also is subject to a radiation protection instruction, the valid version of which is contained in KISS.

5 Regulations for Biological Laboratories with a Safety Classification

5.1 Areas, in Which Genetically Modified Organisms and Biological Substances Are Handled (Biological Protection Areas)

Genetic engineering activities and work with biological substances are classified in various safety categories depending on their hazard potential (S1 to S4; GenTSV, S2 to S4; BiostoffV). Classification is based on the risks for human health and the environment posed by the (micro)organisms used and their properties (pathogenicity, infectiousness, transmission paths, etc.). According to the state of the art, no risks for the human organism and the environment can result from work processes and from the organisms used (risk group I) in facilities of safety category S1. Safety category S2 poses a small risk for humans and the environment. Accordingly, categories S3 and S4 are associated with a moderate and high risk, respectively. The safety requirements to be met in terms of equipment, personnel (qualification), and protection systems in the laboratories increase from levels S1 to S4. For example, admittance to S2 laboratories is restricted, installation of a lock system is required for S3, and a low-pressure system is required for S4.

5.2 Admittance Requirements

Admittance to genetic engineering laboratories as of safety category S2 (GenTSV) and to facilities, where work with infectious pathogens is performed (BiostoffV), is subject to access restrictions. Admittance requires the approval of the project head. Admittance restrictions also apply to persons in charge of maintenance work and laboratory cleaning.

5.3 Work in Biological Protection Areas

Work with genetically modified organisms (e.g. bacteria, cell cultures) may only be performed in specially marked laboratories according to the valid operation instructions and hygiene plans. These are explained in a personnel safety instruction given prior to the start of any work (wearing of protective clothing, disinfection measures, etc.; Section 5.4).

When handling genetically modified organisms, working with biological examination materials and potentially infectious pathogens, and when safely disposing of contaminated waste, pertinent regulations (operation instructions, hygiene plans, disposal plans) of the organizational units must be observed.

In laboratories classified in safety category S2 or higher, maintenance and installation work is subject to additional requirements. For example, laboratories and test objects (e.g. microbiological workbenches) must be decontaminated, if necessary, prior to the start of maintenance work.

Disposal of contaminated waste is described in the hygiene plans of the organizational unit.

5.4 Instructions

Before starting work in laboratories with a safety classification, new employees must receive a general safety instruction about the facility and work requirements. For employees of genetic engineering and biological laboratories, safety instructions have to be repeated at intervals of twelve months and whenever the type of genetic engineering activity or room conditions are changed. Safety instructions must be documented (instruction contents, signature of the staff, name of the instructor).

Responsible staff of external companies (e.g. cleaning companies) must be familiarized with the relevant safety requirements prior to the start of work. The project head is responsible for instructing the working personnel. In suitable cases, he/she may delegate this task to accordingly qualified persons or the company contracted.

5.5 Medical Surveillance and Information Obligations

Persons working in genetic engineering or biological laboratories of safety category S2 or higher must be examined by the company physician before the start of work and undergo regular preventive medical examination afterwards depending on the materials used (ArbMedV, Annex Part 2). In case the necessary medical certificate is not submitted in time, the person is prohibited from this activity. (For registration for preventive medical examinations and control of examination dates, see Section 3.3).

Persons working in S2 laboratories (genetic engineering, biological substances) must be informed of the fact that protection of the unborn child is ensured only, if pregnancy is reported as early as possible. In addition, persons working in areas classified S2 or higher are obliged to inform their superiors about changes of their state of health (e.g. impairment of the immune system). In these cases, contact the competent head of project, head of your organizational unit, or the company physician.

6 Waste Disposal

6.1 Delivery of Wastes

Wastes from radiation protection areas are subject to specific regulations (cf. Section 4.6).

Disposal of wastes on Campus North of KIT is subject to the Regulations for the Recycling and Disposal of Waste of Karlsruhe Institute of Technology (Abfallordnung). These regulations apply to all types of non-radioactive wastes.

Waste disposal at KIT is managed centrally. The Waste Management Center is responsible for all disposal and waste management processes. This includes, for example,

- advice and information on the sorting and collection of waste and on internal waste management,
- supply of transport containers for internal collection and delivery of wastes,
- collection of wastes from the organizational units and delivery to the intermediate waste storage facility (building 604),
- organization and planning of all waste management procedures, selection and identification of external disposal paths, and
- documentation of waste management.

After official registration for collection in writing using the internal delivery form (interner Abgabeschein, IAS), wastes can be delivered to the Waste Management Center. This does not apply to periodically arising valuable materials (regular wastes like paper, cardboard boxes, spent glass, styrofoam, packaging material) as well as to industrial waste (residual waste) that have to be kept ready for collection at collection points (waste depots). Waste produced by external companies, e.g. when processing construction materials, components, or operation materials, remain the **property of these external companies** and must be disposed of by the contractor in his responsibility.

Every organizational unit appoints a sufficient number of **contact persons for waste management**. These persons can be contacted in case of questions concerning the handling of wastes at the organizational unit. They coordinate the registration, collection, and delivery of wastes to the Waste Management Center. In addition, the **Waste Management Commissioner** (Betriebsbeauftragter für Abfall, Abfallbeauftragter) may be contacted by all employees of KIT and external companies, if necessary.

Certain types of wastes are collected regularly. These are industrial wastes (residual waste) and recyclable materials, such as paper/cardboard, glass, styrofoam, and valuable materials (metals, plastics, composites, packaging). Collection takes place from the central waste depot of the organizational unit according to a defined schedule (waste management calendar) of the Waste Management Center. The organizational units are obliged to sort wastes and to transfer the sorted cardboards, old glasses, styrofoam, and valuable materials to the waste depot. Waste paper and refuse bins in the rooms are emptied by the cleaning staff. Waste paper and data carriers with data protection-relevant contents must be registered for collection with the Waste Management Center.

Wastes with hazardous properties, i.e. toxic, caustic, infectious, highly flammable, and explosive materials, materials hazardous to health, and materials hazardous to the environment, such as chemical wastes, must be registered using the internal delivery form. In addition, further details on constituents, hazard level, etc. must be given to the Waste Management Center using the list for the registration of old chemicals (Meldeliste Altchemikalien).

The registration, collection, keeping ready for collection, and transfer of wastes to the Waste Management Center are subject to the acceptance conditions of the Waste Management Center (Annahmebedingungen der Abfallwirtschaftszentrale).

6.2 Collection of Non-radioactive Wastes

Wastes may only be collected in suitable and clearly labeled containers provided for internal collection. These containers must be put up in such a way that unauthorized access, misuse, and hazards to humans and the environment are excluded.

Information about the registration and collection of wastes can be obtained from the Waste Management Center, the Waste Management Commissioner, and the Water Protection Commissioner. The Waste Management Center also supplies the containers necessary for collection.

6.3 Documents Accompanying Waste Transports

For the removal of non-hazardous wastes, a delivery note issued by the Waste Management Center is required. For this, an internal delivery form must be submitted to the Waste Management Center by the respective organizational unit.

Hazardous wastes may be removed only, if the complete waste management documentation, including the Begleitschein (delivery note), Übernahmeschein (transfer note) or other accompanying paper, the disposal certificate (Entsorgungsnachweis), the transport permit or notification, and a waste management expert certificate (Entsorgungsfachbetriebszertifikat) have been submitted. All documents relevant to waste management and having an external effect must be issued and signed by the Waste Management Center exclusively.

7 Water Protection Regulations

When utilizing sewage systems of KIT-CN and handling substances hazardous to water, water protection laws and internal regulations must be adhered to.

In case of doubt, please contact:

- Your organizational unit's commissioner for water protection,
- your operation commissioner, or
- the Water Protection Commissioner (SUM-ZB, phone 24511).

7.1 Sewage

Sewage collection, treatment, and safe discharge into a surface water body are managed by the Supply and Waste Management Facilities Group (FM-GM-VEA) in separate systems:

- Rainwater drainage system,
- domestic sewage network (offices and amenities),
- chemical effluents network (workshops, laboratories, technical facilities).

Note:

- Domestic sewage or chemical effluents may never be introduced into the **rainwater drainage system**, as the rainwater is discharged into a surface water body (Hirschkanal) without any further treatment.
- Cooling water not altered chemically may be discharged into the rainwater drainage system, if FM-GM-VEA (phone 24362 or 26118) was informed previously.

- The following types of chemical effluents are distinguished:
 - a) **Chemical effluents I** (non-radioactively contaminated effluents),
 - b) **chemical effluents II** (potentially radioactively contaminated effluents),
 - c) **chemical effluents III** (radioactively contaminated effluents).

The effluents and sewage systems must be used as specified only. It is strictly prohibited to dispose of chemicals (chemical residues) or waste via the sewage systems (for proper disposal, see Section 6).

7.2 Handling Substances Hazardous to Water

When substances **hazardous to water** enter the ground, groundwater, or any of the sewage systems, call the Emergency Control Center, phone 3333.

8 Regulations in the Event of an Alarm

The alarm plan of KIT-CN encompasses all measures to be taken to render assistance and maintain/restore safety in cases of imminent danger to persons, the environment, or objects or in cases of safety-relevant events (hereinafter referred to as alarm). The alarm plan is detailed and complemented by follow-up plans drawn up by the respective organizational units.

8.1 Precautional Obligation to Inform

Apart from the regulations summarized in this section, all employees must familiarize themselves with the emergency measures pertinent to their specific areas of work. In this way, prompt repairs of breakdowns and defects are guaranteed without impairing safety.

The heads of the organizational units must ensure that necessary instructions are given and all employees are sufficiently informed. The information is contained in instructions, operation manuals, follow-up plans, and fire-fighting plans (for each building).

8.2 Notification in Case of an Alarm

The Emergency Control Center must be informed immediately, as soon as it is recognized that the safety of persons, the environment, or objects is endangered.

The Emergency Control Center can be reached via the emergency call 3333.

When calling from a mobile or from outside of the fixed KIT network, the emergency phone number is 0721 608 3333. All persons are asked to save the emergency phone number of KIT in their mobile.

Give the following information to the Emergency Control Center:

Location	institute/department or name of external company, building number, building section, in which the event has occurred,
Type	of event (short, clear details about the emergency),
Name	of the person calling, and
Phone number	under which the caller can be reached after the report.

The caller has to wait for the Emergency Control Center to **repeat his/her report**. Then, the caller's superior must be informed. If the caller is not in his/her organizational unit, then the management of the organizational unit affected by the alarm must be informed. **Injured and ill persons will be transported by the Medical Services Unit.** Arriving emergency forces are to be informed about the details. If necessary, an information chain has to be maintained until all emergency forces have arrived.

Some areas are equipped with automatic alarm systems. Whoever sees or hears an alarm signal must inform the Emergency Control Center (phone 3333) and the persons responsible for the area affected.

8.3 Information about the Alarm

KIT-CN buildings and facilities are equipped with loudspeaker systems. The Emergency Control Center can use these for messages to all areas.

General messages are introduced by a gong sound.

Alarm messages are preceded by an intermittent sound of a horn.

The loudspeaker system is checked regularly by test transmissions. Any defects detected should be reported to the Emergency Control Center.

8.4 Emergency Measures

In the event of an alarm, the personnel of the facility affected has to take all necessary measures specified in the operation instructions to repair the damage or to reduce the consequences until the emergency forces arrive.

8.5 Task Force Management

The role of the Task Force Leader is assumed by the commander of KIT-CN's Fire Department or the shift leader as his deputy. The Task Force Leader acts on behalf of the Executive Board or the Chief Safety Officer of KIT (see Section 9.1).

All persons must obey the orders of the Task Force Leader. This also applies when duties are assigned, which normally are not part of a person's activities.

In the event of an alarm, the Task Force Leader, in close cooperation with the head of the affected organizational unit, defines the measures to be taken and arranges for their execution. Measures which cannot be delayed will be initiated without previous discussion.

If an alarm is restricted to the premises of an external institution (e.g. JRC-KA, FIZ, KTE), the **responsible operations manager** of this institution acts as the Task Force Leader.

8.6 Evacuation of KIT-CN

8.6.1 Evacuation Causes

External:

Evacuation of KIT-CN may be necessary on the basis of information from:

- The Regierungspräsidium Karlsruhe (Karlsruhe District Council),
- Landespolizeidirektion (state police headquarter),

- Landratsamt Karlsruhe (Karlsruhe District Administration),
- Bürgermeisteramt Eggenstein-Leopoldshafen (mayor's office of Eggenstein-Leopoldshafen).

Internal:

Evacuation of the premises, parts of the premises, buildings or facilities of KIT-CN may be necessary in the event of an alarm, if required by an emergency situation. In this case, the Task Force Leader gives the necessary instructions.

8.6.2 Evacuation

An evacuation is ordered by the Task Force Leader via the loudspeaker system. All persons staying in the affected areas must obey the evacuation order.

The order for evacuation can be issued in two steps:

- Räumungsbereitschaft (evacuation alert),
- Soforträumung (immediate evacuation).

In case of an evacuation alert, all activities must be stopped immediately and a safe state of facilities must be ensured. All those affected must wait for further announcements and be prepared for an evacuation.

If immediate evacuation is ordered, all activities must be stopped immediately and a safe state of facilities must be ensured. All persons must immediately leave the building and behave as described in Sections 8.6.3, 8.6.4, and 8.6.5.

In accordance with internal regulations of the organizational units, further shutdown and emergency measures must be taken by those employees commissioned to perform these duties.

During evacuation, excessive haste and hurry must be avoided. By increased attention and mutual respect, accidents can be avoided best.

8.6.3 Complete Evacuation

If immediate complete evacuation is ordered, all persons, with the exception of the security services, are to leave for home.

For an orderly and swift complete evacuation, KIT-CN is subdivided into two evacuation areas, north and south (Section 9.6).

Persons located in the northern evacuation area when the evacuation is ordered should use the northern gate to leave the campus. Persons in the southern evacuation area use the southern gate.

Primarily private cars are to be used for the evacuation. Car owners are obliged to give lifts to persons without cars. Persons who are unable to find a lift are to gather near the southern gate, in front of FTU (building 101) or next to the northern gate (building 1600).

The duration of an evacuation – unless otherwise provided – is limited to that one working day in principle. The duration of an evacuation of KIT-CN in the event of a disaster is communicated via the general channels (newspapers, radio).

8.6.4 Evacuation of Parts of KIT-CN

If immediate evacuation of a part of KIT-CN is ordered, all persons, with the exception of the security services, are to proceed from the area affected to the **assembly point FTU**. There, further instructions are to be waited for.

Depending on the danger, the Task Force Leader may give other instructions. Listen to the loudspeaker message.

8.6.5 Evacuation of Buildings and Facilities

If immediate evacuation of buildings and facilities is ordered, all persons, with the exception of the security services, are to proceed to the designated assembly point of this building/facility.

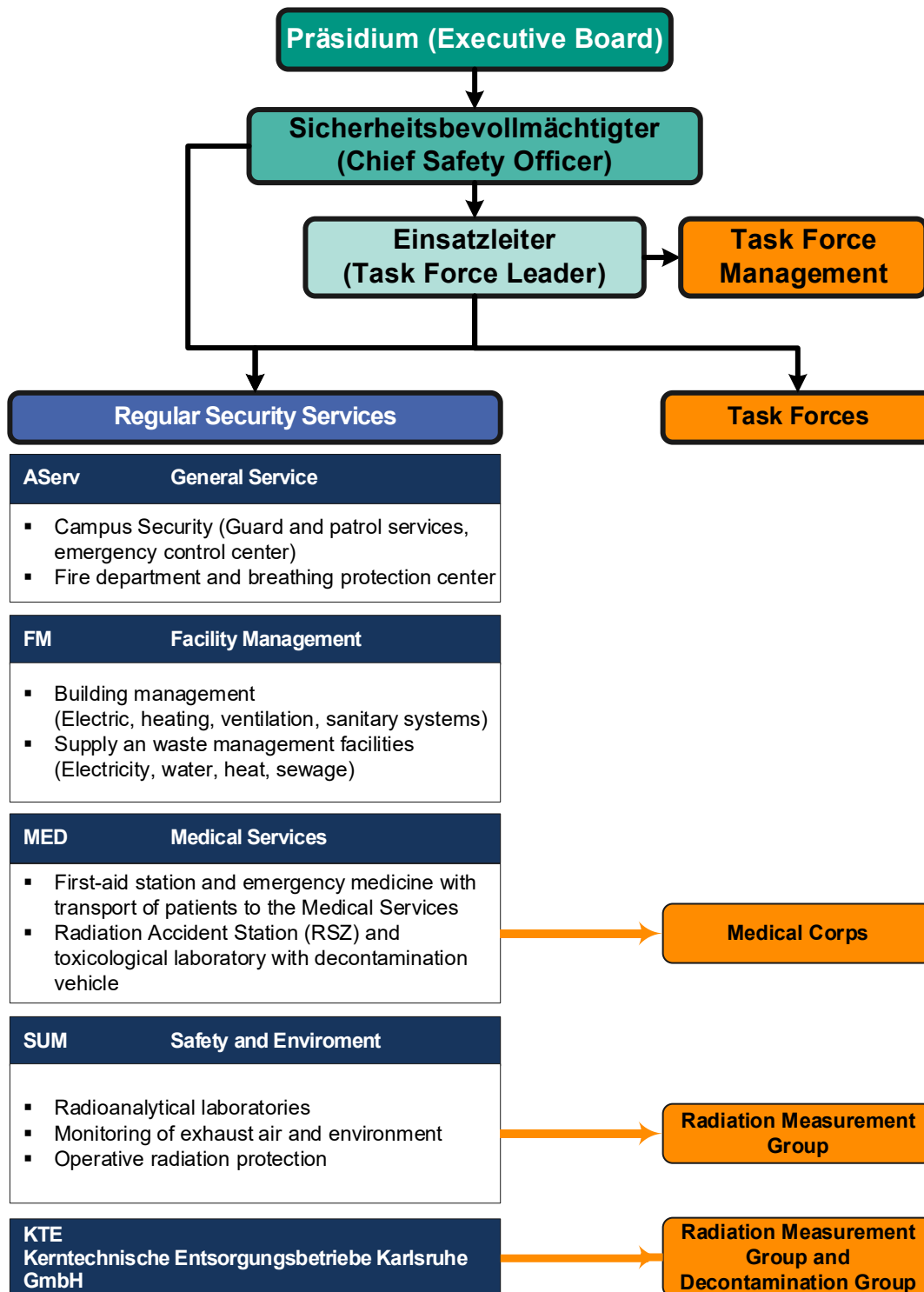
Depending on the danger, the Task Force Leader may give other instructions. Listen to the loudspeaker message.

8.6.6 Specific Regulations

Specific regulations apply to the security and technical emergency services of single organizational units. They are described in detail in the alarm plan or in the follow-up plans for these specific buildings.

9 Annexes

9.1 Annex I: Safety Organization of KIT-CN



9.2 Annex II: Special Safety Regulations¹

Event	Persons responsible	Rules
Alarms	Task force leader, head of the respective organizational unit, employees holding functions in the safety organization	Alarm plan and follow-up plans
Occupational safety	Head of the respective organizational unit, operation commissioners, specialists for occupational safety, occupational safety commissioners according to Social Code VII	Occupational safety information, volumes 1 and 2, accident prevention regulations, information sheets on "Hazardous Substances"
Waste management	Waste Management Center, contact persons of the waste management commissioner	Regulations for the Recycling and Disposal of Waste at KIT-CN (Abfallordnung)
Management of radioactive residues	State Collection Center of EB-KTE, the respective radiation protection commissioner	Conditions for acceptance of radioactive substances of the State Collection Center
Major incidents (radiological)	Radiation protection commissioners, task force leader	Regulations on reporting of major radiological and safety-relevant incidents on Campus North of Karlsruhe Institute of Technology to the legal licensing and supervisory authorities (reporting regulations)
Special incidents in the areas of - occupational safety - environmental protection	Task force leader, operation manager of the facility, head of the respective organizational unit, head of project in biological protection areas	Regulations on reporting safety-relevant incidents on KIT-Campus North
External transport of hazardous radioactive goods	Transport control office of SUM-ST, hazardous goods commissioner	GGVSEB/ADR, ICAO-TI/IATA- DGR, Radiation Protection File

¹ Many of these regulations can also be found on the Intranet under <https://www.kiss.kit.edu/>

Event	Persons Responsible	Rules
External transport of non- radioactive hazardous goods	EVM-MW/Dispatch Group, Waste Management Center, hazardous goods commissioner	GGVSEB/ADR, GGVSee/IMDG Code, ICAO-TI/IATA-DGR
Water protection	Heads of wastewater treatment plants, water protection commissioner, head of the respective organizational unit, operation commissioners	Abwasserordner (sewage file)
Internal transport of radio- active substances	Dispatchers and recipients of radioactive substances, radiation protection commissioners, personnel responsible for transporting radioactive substances, carriers	License according to Art. 9 of the Atomic Energy Act and Regulations on the Transport of Radioactive Substances within the Campus North of Karlsruhe Institute of Technology (internal transport regulations for radioactive substances – ITO)
Nuclear materials safe-guards	Head of the respective organizational unit, radiation protection commissioners, contact persons for compliance with the reporting obligations for nuclear material and other radioactive substances, persons handling nuclear material	Radiation Protection File
Radiation protection	Radiation protection commissioners	Radiation Protection File
Activities of staff of KIT-CN at external facilities or installations according to Art. 25 of the Radiation Protection Act	Radiation protection commissioners (if they do not exist at the respective organizational unit, central radiation protection commissioner for Art. 25 of the Radiation Protection Act with SUM)	Radiation Protection File

9.3 Annex III: Tasks of SUM, FAS, and AServ

Sicherheit und Umwelt/Safety and Environment (SUM)	
Radiation protection	Compliance with the Radiation Protection Act and Ordinance; advice, operations and time monitoring; documentation of all person-related radiation protection data and reporting; registration and management of radiation passports as well as organization of dosimetry; appointment of radiation protection commissioners, compliance with the obligations when employing staff of KIT-CN at external institutions and installations, for which permits are required
Monitoring of radioactive substances	Accounting and reporting of nuclear material, accompanying inspectors from Euratom and IAEA, accounting and reporting of other radioactive substances, accounting and reporting for the clearance of radioactive substances, documentation of internal transports on KIT-CN
Waste management	Internal waste management regulations, monitoring of wastes from production to reuse/disposal, working towards avoiding and recycling waste, information and documentation
Hazardous goods	Monitoring and control of authorized personnel and transportation procedures; notification of deficiencies and working towards their avoidance; information, instruction, and guidance for employees concerning the transporting of hazardous goods; documentation
Water protection	Regulations concerning the removal of sewage and the handling of substances hazardous to water, control and monitoring, information and documentation
Emission protection	Regulations on the reduction of emissions of combustion and district-heating plants, control and monitoring of emissions, radiological exhaust air and environmental monitoring, information and documentation
Licenses	Coordination and execution of all licensing procedures, except for licenses according to the Landesbauordnung (State Building Regulations)
Stabsstelle Fachkräfte für Arbeitssicherheit/Specialists for Occupational Safety Staff Unit (FAS)	
Occupational safety	Operation and workplace monitoring, safety information, consultancy and training, accident analyses, duties of the specialists for occupational safety according to Article 6 of the Occupational Safety Act
Allgemeine Services/General Services (AServ)	
Security	Emergency control center, action plans relating to the alarm system, task force documents and reports, access controls and monitoring of the operation premises
Fire Department	Task force management during incidents and accidents, structural and preventive fire protection, firefighting/technical assistance, training, alarm drills of the security services

9.4 Annex IV: Signs in the Workplace

1. Prohibition Signs



P001 Prohibition



P002 No smoking



P003 No fire, open lights, and smoking



P004 No pedestrian access



P005 No drinking water



P006 No floor conveyors



P007 Forbidden to people with cardiac pacemakers or implanted defibrillators



P008 Do not wear metal parts or watches



P009 Do not climb



P010 Do not touch



P011 Do not extinguish with water



P012 No heavy loads

Anhang IV: Signs in the Workplace**1. Prohibition Signs**

P013 No switched-on mobiles



P014 No access for persons with metal implants



P015 Do not reach into this area



P016 Do not spray with water



P017 Do not push



P018 Do not sit



P019 Do not climb this area



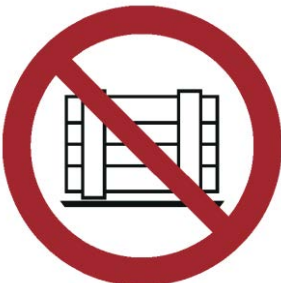
P020 Do not use elevator in case of fire



P021 No dogs allowed



P022 No eating or drinking



P023 Do not leave or store objects



P024 Do not step on this area

Anhang IV: Signs in the Workplace

1. Prohibition Signs



P025 Do not use the incomplete scaffold



P026 Do not use in the tub, shower or above a pool filled with water



P027 No transport of persons



P028 Do not use gloves



P029 Do not take photos



P030 Do not knot ropes



P031 Do not switch

Annex IV: Signs in the Workplace

2. Warning Signs



W001 General warning sign



W002 Warning against explosive substances



W003 Warning against radioactive substances or ionizing radiation



W004 Warning against laser radiation



W005 Warning against non-ionizing radiation



W006 Warning against magnetic fields



W007 Warning: Risk of tripping



W008 Warning: Risk of falling



W009 Warning: Biological hazard



W010 Warning against cold temperature/frost



W011 Warning: Risk of slipping



W012 Warning against electric voltage

Annex IV: Signs in the Workplace

2. Warning Signs



W013 Warning against
watchdog



W014 Warning against floor
conveyors



W015 Warning against
suspended loads



W016 Warning against toxic
substances



W017 Warning against hot
surfaces



W018 Warning against
automatic startup



W019 Warning: Risk of getting
squashed



W020 Warning against
obstacles in the area of the
head



W021 Warning against
flammable substances



W022 Warning against
pointed/sharp objects



W023 Warning against caustic
substances



W024 Warning: Risk of hand
injuries

Annex IV: Signs in the Workplace

2. Warning Signs



W025 Warning: Risk of objects being drawn in



W026 Warning against danger caused by charging of batteries



W027 Warning against optical radiation



W028 Warning against fire-promoting substances



W029 Warning against gas bottles



W030 Warning: Risk of squeezing hand between the tools of a press



W031 Warning: Risk of squeezing the hand between the press and workpiece



W032 Warning against bouncing-upward piece in a press

Annex IV: Signs in the Workplace

3. Mandatory Signs



M001 General mandatory sign



M002 Note instructions



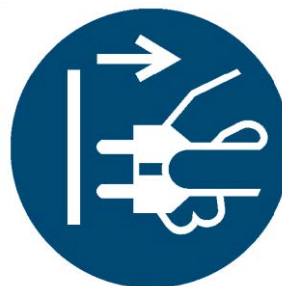
M003 Wear ear protection



M004 Wear protective eye goggles



M005 Ground before use



M006 Pull mains plug



M007 Wear largely opaque eye protection



M008 Wear protective footwear



M009 Wear gloves



M010 Wear protective clothing



M011 Wash hands



M012 Use handrail

Annex IV: Signs in the Workplace**3. Mandatory Signs**

M013 Use protective face screen



M014 Wear protective helmet



M015 Wear safety vest



M016 Wear mask



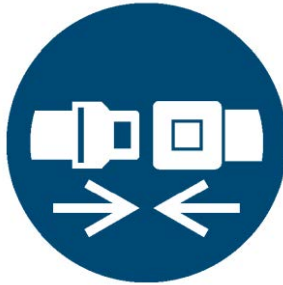
M017 Wear breathing apparatus



M018 Use belt against falling



M019 Use welding mask



M020 Wear safety belts



M021 Clear before maintenance or repair



M022 Use skin protectant



M023 Use crossing



M024 Use pedestrian access

Annex IV: Signs in the Workplace

4. Escape Signs



E001 Emergency exit (left)



E002 Emergency exit (right)



E003 First aid



E004 Emergency phone

withdrawn

withdrawn

E005 Escape direction (90° Einteilung)

E006 Escape direction, 45°-Pfeil (90° Einteilung)



E007 Assembly point



E008 Smash screen of emergency exit system



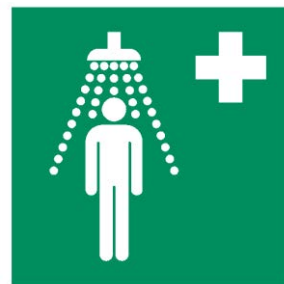
E009 Physician



E010 Automatic external defibrillator



E011 Eye rinsing facility



Emergency shower

Annex IV: Signs in the Workplace

4. Escape Signs



E013 Stretcher bearer



E014 Child seat presence and orientation detection system (CPOD)



E015 Drinking water



E016 Emergency exit with escape ladder



E017 Rescue exit



E018 Open by turning left



E019 Open by turning right



E020 Emergency shutdown button



E021 Shelter



E022 Door opens when pushing left



E023 Door opens when pushing right



E024 Preliminary evacuation point

Annex IV: Signs in the Workplace

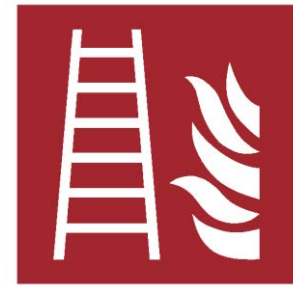
5. Fire Protection Signs



F001 Fire extinguisher



F002 Extinguishing hose



F003 Fire ladder



F004 Equipment for fighting fires



F005 Fire alarm button



F006 Telephone for reporting fires



F007 Fire door



F008 F Stationary rack with fire-extinguishing agents



F009 Mobile extinguisher



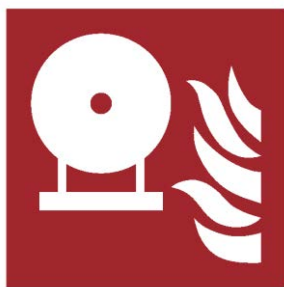
F010 Portable foam-extinguishing unit



F011 Water fog applicator



F012 Stationary fire-extinguishing system

Annex IV: Signs in the Workplace**5. Fire Protection Signs**

F013 Stationary bottle with fire-extinguishing agent



F014 Room protection alarm



F015 Fire extinguishing monitor



F016 Fire blanket

5a. Classification of Danger Categories for the Fire Department

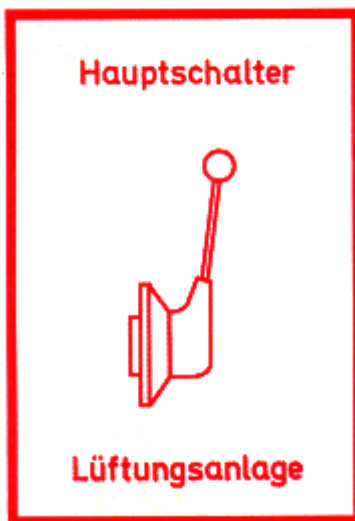
Classification of hazardous radioactive substances in danger categories IA to IIIA, of hazardous biological substances in danger categories IB to IIIB, of hazardous chemical substances in danger categories IC to IIIC , with I being the lowest danger and III the highest

Annex IV: Signs in the Workplace

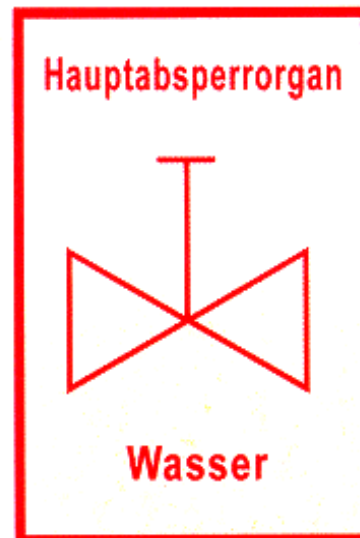
5b. Master Switches, Switch-off and Emergency Stop Systems



Switching station of electricity supply for building sections



Master switch of electric equipment (e.g. ventilation system*)



Emergency stop system (e.g. water*)

* The designation of the system must be indicated on the sign when using it.

Annex IV: Signs in the Workplace

6. Radiation Protection Signs



6.1

Warning notice* indicating an exclusion area



6.2

Warning notice* indicating a controlled area



6.3

Warning notice* indicating general ionizing radiation



6.4

Warning notice indicating an area of increased radiation



6.5

Warning notice indicating a contaminated area



6.6


Warning notice indicating a controlled X-ray area

* The information on the type of danger below these radiation warning signs is specified by the competent Radiation Protection Commissioner in the light of existing conditions.

Annex IV: Signs in the Workplace

7. Radiation Protection Labels

7.1 Clear for Reuse

Freigabe zur Wiederverwendung nach § 44 StrlSchV			
 Karlsruher Institut für Technologie KIT- Sicherheitsmanagement Strahlenschutz	Bereich:	Datum:	
	Unterschrift:	Uhrzeit:	



This label is used to mark objects which are removed for repair or reuse from radiation protection areas, in which unsealed radioactive substances are handled (Section 4.6.3). Only devices marked in this way may leave these radiation protection areas.

7.2 Label for Wastes

Abfall kann abgeholt werden			
 Karlsruher Institut für Technologie KIT- Sicherheitsmanagement Strahlenschutz	Bereich:	Datum:	
	Unterschrift:	Uhrzeit:	

This label is used to mark wastes that are collected regularly from buildings, of which only parts are radiation protection areas where unsealed radioactive substances are handled (Section 4.6.5). Only waste marked in this way may be collected.

7.3 Radioactive

	Radioaktiv		
	Oberfl. Kont.: $A_{\alpha} + 10 + A_{\beta} < 0,9 \text{ Bq/cm}^2$ abwischbare* , gesamte* Aktivität *nicht zutreffendes streichen! Oberflächendosisleistung $\mu\text{Sv/h}$		
 Karlsruher Institut für Technologie KIT- Sicherheitsmanagement Strahlenschutz	Bereich:	Datum:	
	Unterschrift:	Uhrzeit:	

This label is used to characterize radioactive objects or packaging without external contamination. The packaging may only be removed in a radiation protection area.

7.4 Radioactive Contamination

	Radioaktiv Kontamination		
	Oberfl. Kont.: A_{α} : Bq/cm^2 , A_{β} Bq/cm^2 Dosisleistung in 10 cm Abstand $\mu\text{Sv/h}$		
 Karlsruher Institut für Technologie KIT-	Bereich:	Datum:	
	Unterschrift:	Uhrzeit:	

This label is used to characterize radioactively contaminated objects. The object may only be handled unpackaged in a contamination controlled area.

9.5 Annex V: Clothes and Zone Rules When Handling Unsealed Radioactive Substances

Zone	Activity ¹⁾ of unsealed radioactive substances	Minimum posting according to Art. 91, Rad. Prot. Ord.	Protective clothes ³⁾ (permanent staff)
Zone I Operation premises - gray/blue -	\leq Exemption level ²⁾	None	Working clothes without yellow or green marking or own clothes
Zone II Supervised area with risk of contamination and controlled area with low risk of contamination - green/yellow -	$>$ Exemption level $\leq 10^2$ times the exemption level	Radioactive Caution - radiation Contamination	Laboratory coat with yellow or green marking Working shoes or private shoes with overshoes
Zone III Controlled area - yellow -	$> 10^2$ times the exemption level \leq Range as listed in license	Radioactive Caution – radiation Contamination	Yellow contamination protection clothing, laboratory coat only in connection with working clothes (gray/blue) Yellow working shoes
Zone IV Contamination area in a controlled area - red -	\leq Range as listed in license	Radioactive Caution – radiation Contamination	Yellow combination protection clothing Yellow working shoes and overshoes or special protective clothing

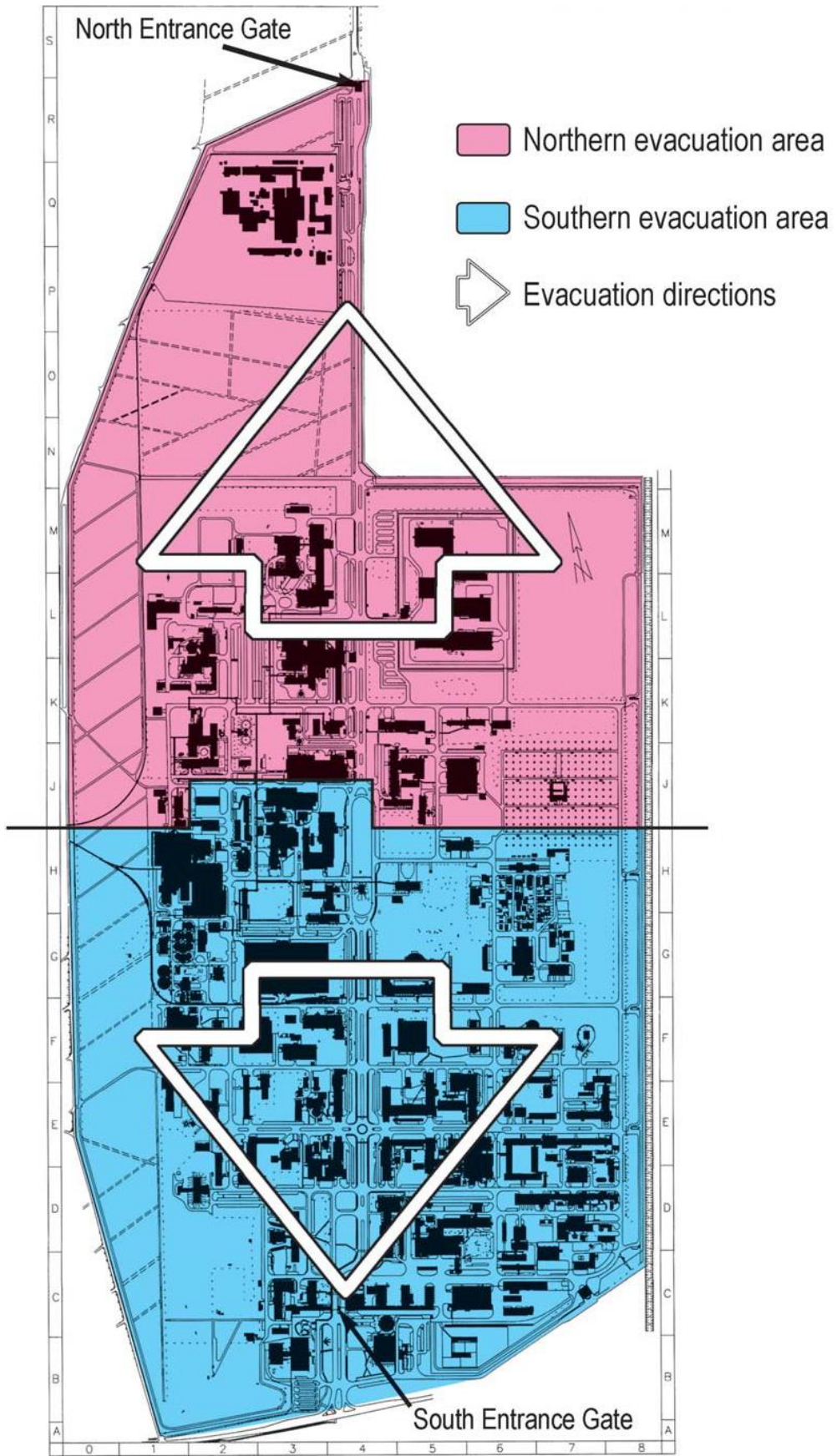
1) Activity: Activity in functionally connected rooms, determined using the sum formula.

2) Exemption level according to Annex IV, Tab. 1, column 2, Rad. Prot. Ord., determined using the sum formula.

3) In agreement with SUM-ST, deviations from the Clothes Rules may be permitted.

Note: The classification of zones can be modified in agreement with SUM-ST, if protection measures are increased or operational experience permits.

9.6 Annex VI: Evacuation Areas



9.7 Annex VII: Commissioners and Bodies with Safety Functions

Arbeitsschutzausschuss (Occupational Safety Committee)	An advisory body to the employer in which all groups involved in occupational safety are represented (representatives of the employer, company physicians, Specialists for Occupational Safety, Safety Commissioners according to the Social Code VII, members of the staff council). Issues to be discussed may be introduced by the members of the Occupational Safety Committee.
Beauftragte für die Biologische Sicherheit (GenTG) (Biological Safety Commissioners)	Biological Safety Commissioners responsible for the safety of genetic engineering activities. According to the Genetic Engineering Act, they are responsible for the specification of safety measures (equipment, materials), the advising of heads of projects (GenTG), and the monitoring and control of genetic engineering facilities/work.
Betriebsärzte und Fachkräfte für Arbeitssicherheit (Company Physicians and Specialists for Occupational Safety)	Company physicians and Specialists for Occupational Safety support the employer in matters of occupational safety and accident prevention whenever questions of occupational safety arise (Articles 3 and 6, Occupational Safety Act).
Betriebsbeauftragte der Organisationseinheit (Operation Commissioners of the Organizational Unit)	They support the head of the organizational unit in all matters relating to the operation of a technical and scientific organizational unit. They have to ensure that all technical facilities are in functioning order, operated economically, and that safety regulations (occupational safety, environmental protection) are implemented and observed. They are the contact persons for central infrastructure institutions and cooperate closely with the other commissioners.
Betriebsbeauftragter für Abfall (Waste Management Commissioner)	The Waste Management Commissioner monitors and controls waste streams from their origins to their recycling or disposal as well as observation of all applicable waste management provisions. The Waste Management Commissioner informs employees about possibilities of avoiding or reusing waste and about dangerous impacts of wastes on the environment. The Waste Management Commissioner works on improving waste disposal techniques and documents the whereabouts of waste.
Einsatzleiter (Task Force Leader)	The Task Force Leader carries out the tasks specified in the alarm plan of KIT-CN. In principle, the Task Force Leader acts on behalf of the Executive Board or the Chief Safety Officer.
Gewässerschutzbeauftragter (Water Protection Commissioner)	The Water Protection Commissioner controls and monitors compliance with water protection regulations at KIT-CN, proper use of sewage systems, and the handling of substances hazardous to water. She/he informs the employees about new regulations and works on implementing them and on improving KIT's water protection procedures.
Gefahrgutbeauftragter (Dangerous Goods Commissioner)	The Dangerous Goods Commissioner controls and monitors the transportation of dangerous goods and persons authorized to transport such goods. She/he works on eliminating any transport problems. She/he is obliged to inform and to advise the employees in matters of dangerous goods transportation. She/he gives an annual report and, if necessary, sets up an accident report.

**Immissionsschutzbeauftragter
(Emission Control Commissioner)**

She/he controls and monitors compliance with emission control regulations at KIT-CN and proper operation of combustion facilities and of the district-heating plant. She/he informs the employees about new regulations and works on implementing them and on improving KIT's emission protection procedures.

**Laserschutzbeauftragte (Laser
Protection Commissioners)**

Laser Protection Commissioners advise the employer in matters of protection against laser radiation when purchasing and commissioning laser facilities. Employees are trained to work at laser facilities. Observation of safety and protection requirements is controlled.

**Projektleiter gentechnischer
Anlagen (GenTG) (Head of Project
at Genetic Engineering Facilities)**

The heads of project are responsible for planning, managing, and supervising genetic engineering activities at an accordingly designated genetic engineering facility. They train and instruct the staff and are responsible for documentation of preventive medical examinations. They are obliged to immediately report any events with an unforeseen course during the genetic engineering activities and potential hazards to the operator and the Biological Safety Commissioners.

**Sicherheitsbevollmächtigter des
KIT (Chief Safety Officer of KIT)**

In accordance with his/her service instructions, she/he acts on behalf of the Executive Board of KIT and carries out all tasks associated with conventional and radiological safety.

**Sicherheitsbeauftragte
Arbeitsschutz nach Sozialge-
setzbuch VII (Occupational Safety
Commissioners According to
Social Code VII)**

They are responsible for the individual organizational units and support the executives and Specialists for Occupational Safety in the execution of occupational safety measures.

**Strahlenschutzbeauftragte
(Radiation Protection
Commissioners)**

Radiation Protection Commissioners manage and control activities subject to the Atomic Energy Act and radiation protection legislation. Their areas of competence include the observation of general radiation protection regulations, safety regulations, and licenses granted according to the Atomic Energy Act and radiation protection legislation with their requirements, directives, and instructions of the competent authority. They are responsible for the implementation of the General Safety Regulations of KIT-CN and the internal instructions of the Chief Safety Officer of KIT (KISS, Radiation Protection File), unless these tasks are fulfilled by SUM under a cooperation agreement concluded between SUM and the organizational unit.

**Strahlenschutzverantwortlicher
(Radiation Protection Supervisor)**

KIT is the Radiation Protection Supervisor. As a natural person, a President is named to the authorities. He is responsible for the correct implementation of radiation protection regulations, especially by appointing a sufficient number of Radiation Protection Commissioners. To fulfil his tasks, he encharges the Chief Safety Officer of KIT and the staff unit SUM.

**Verantwortlicher
Betriebsbeauftragter für
Abwasser (Head of the
Wastewater Treatment Plant)**

She/he is responsible for supervising the treatment of all sewage and the operation and maintenance of sewage facilities of FM-VEA within the framework of the permit held by KIT under the laws pertaining to the use of water.