

Safety Standards

of the

Nuclear Safety Standards Commission (KTA)

KTA 1203 (2009-11)

Requirements for the Emergency Manual

(Anforderungen an das Notfallhandbuch)

If there is any doubt regarding the information contained in this translation, the German wording shall apply.

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KTA SAFETY STANDARD

2009-11

Requirements for the Emergency Manual

KTA 1203

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PLEASE NOTE: Only the original German version of this safety standard represents the joint resolution of the 50-member Nuclear Safety Standards Commission (Kerntechnischer Ausschuss, KTA). The German version was made public in Bundesanzeiger BAnz No. 3a - 07.01.2010. Copies may be ordered through the Carl Heymanns Verlag KG, Luxemburger Str. 449, 50939 Koeln, Germany (Telefax +49-221-94373603).

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Comments by the Editor:

Taking into account the meaning and usage of auxiliary verbs in the German language, in this translation the following agreements are effective:

- shall** indicates a mandatory requirement,
- shall basically** is used in the case of mandatory requirements to which specific exceptions (and only those!) are permitted. It is a requirement of the KTA that these exceptions - other than those in the case of **shall normally** - are specified in the text of the safety standard,
- shall normally** indicates a requirement to which exceptions are allowed. However, exceptions used shall be substantiated during the licensing procedure,
- should** indicates a recommendation or an example of good practice,
- may** indicates an acceptable or permissible method within the scope of this safety standard.

Basic Principles

(1) The safety standards of the Nuclear Safety Standards Commission (KTA) have the task of specifying safety-related requirements which shall be met with regard to precautions to be taken in accordance with the state of science and technology against the damages arising from the construction and operation of the facility (Sec. 7 para. 2 no. 3 Atomic Energy Act - AtG) in order to attain the protective goals specified in AtG and in the Radiological Protection Ordinance (StrlSchV) and which are further detailed in "Safety Criteria for Nuclear Power Plants" and in "Guidelines for the Assessment of the Design of Nuclear Power Plants with Pressurized Water Reactors against Incidents pursuant to Sec. 28 para. 3 StrlSchV - Incident Guidelines" (in the version published October 18, 1983).

(2) In accordance with Safety Criterion 1.1 "Principles of Safety Precautions", administrative and technical measures shall be provided for the mitigation and control of the consequences of serious accidents.

(3) Within the framework of meeting the requirements of Sec. 3 Nuclear Licensing Procedure Ordinance (AtVfV), a description of the precautionary measures intended for fulfilling the requirements under Sec. 7 para. 2 no. 3 AtG is required and shall include descriptions of the measures and their objectives that are provided for the prevention or reduction of detrimental effects from event sequences that exceed design limit values. These measures and their objectives are presented in the emergency manual.

(4) The objective of this safety standard is to specify the requirements applying to the contents and layout of the emergency manual.

(5) Requirements for the operating manual as well as for the transition over to the emergency manual are specified in safety standard KTA 1201.

1 Scope

This safety standard applies to the contents and layout of the emergency manual of nuclear power plants.

2 Definitions

(1) Plant-internal emergency protection

The plant-internal emergency protection encompasses all measures that are taken and all equipment that are used for the early detection, control and mitigation of any event sequence that, seen on the basis of the condition of selected process variables, goes beyond the limit values of the design, or, due to an insufficient effectiveness of the required systems, endangers the attainment of protective goals, and that are used for effectively limiting the negative impacts of these event sequences on the inside and outside of the plant.

(2) Event sequences that exceed design limit values (Case of emergency)

Event sequences that exceed design limit values are such sequences that may develop from failures of systems and components that cannot be considered anymore in the design.

(3) Temporal tolerance

The temporal tolerance is the period of time that is available between the time when having reached the preparatory and initiating criteria and the time when emergency measures are effective.

(4) Emergency manual

The emergency manual is an independent manual and in itself a part of the plant documentation. It contains the administrative regulations and procedural instructions with regard to plant-internal emergency protection.

(5) Emergency measures

Emergency measures include the measures planned ahead with regard to the plant-internal emergency protection as well as the situation-dependent measures in the preventive and mitigative range.

(6) Task duration

The task duration is the period of time needed between the time when having reached the preparatory and initiating criteria and the time when emergency measures are effective.

3 Requirements Pertaining to the Contents of the Emergency Manual

(1) The emergency manual shall contain the rulings that are specified to enable the operating personnel in performing situation-dependent tasks and shall also contain the description of the measures that can be taken in case of event sequences that exceed design limit values, with the objective of either controlling the event sequence itself or of mitigating its effects. In order to avoid duplicate regulations, those event sequences dealt with in the operating manual shall normally not be dealt with in the emergency manual.

(2) A strategy shall be described for the transition from the emergency manual back to the operating manual insofar as this transition is feasible from a technical and administrative viewpoint.

(3) The emergency manual shall contain all descriptions of the organization, responsibilities and tasks, all procedural instructions, all specific documents and auxiliary documents that are considered pertinent to the control and mitigation of the event sequence that exceeds design limit values.

(4) It is recommended to use the following outline; other outlines for the required contents are permissible. The contents-related requirements of the present safety standard for the emergency manual are based on this recommended outline and shall be properly correlated should another outline be used.

(5) The following is an outline of the contents that shall be treated in the emergency manual:

0. Part 0 – Table of Contents and Introduction
1. Part 1 – Administrative Regulations
 - a) Structure of the emergency organization,
 - b) Task allocation for the case of emergency,
 - c) Criteria and procedure for the installation as well as activation and deactivation of the emergency organization,
 - d) Location, facilities and equipment for the emergency units,
 - e) Cooperation with external organizations,
 - f) Access regulations and access routes,
 - g) Radiological monitoring, and
 - h) Task-support documents.
2. Part 2 – Emergency Measures
 - a) General overview,

- b) Flow charts,
- c) Procedural instructions for work tasks in the control room and at onsite locations,
- d) Removable copies for onsite tasks, and
- e) Additional documents (diagrams, tables, appendices).

4 Requirements Pertaining to the Layout of the Operating Manual

The layout requirements specified under Sec. 4 of safety standard KTA 1201 shall be applied accordingly. In addition, the structure and presentation of information in the removable copies for onsite tasks shall be such that the specified measures can be executed even under the particular conditions of an emergency situation.

5 Requirements Pertaining to Emergency Manual, Part 0 – Table of Contents and Introduction

(1) All parts and associated chapters of the emergency manual shall be listed in a table of contents.

(2) An additional chapter shall contain an introduction to the emergency manual giving an overview of its structure. The contents of individual parts shall be briefly described. The structure and layout of emergency-specific documents (e.g. removable copies for onsite tasks) may be described on the basis of specific examples.

(3) The abbreviations, special spellings and definitions that apply, generally, to the emergency manual shall be compiled in this part of the emergency manual, provided, they are not already compiled in the operating manual.

6 Requirements Pertaining to Emergency Manual, Part 1 – Administrative Regulations

(1) In this administrative part of the emergency manual, the organizational structure for the case of emergency shall be specified, however, the areas of responsibilities as well as authority to issue directives as specified in the Personnel Organization (cf. Sec. 6.2 of safety standard KTA 1201) shall be observed. It is permissible to reference the operating manual.

(2) In this part of the emergency manual the following points shall be taken into consideration:

a) Organizational structure in case of an emergency

The organizational structure that applies in case of an emergency shall be described.

Note:

Special aspects of the organizational structure in case of an emergency are the emergency committee (crisis team), the emergency response teams and the persons responsible for communicating with internal departments and external organizations.

b) Task allocation for the case of emergency

The allocation of tasks with regard to the crisis team, the shift group and the emergency response teams shall be specified. This part shall contain a list of those crisis team members with special functions.

c) Criteria and procedure for the installation, activation and deactivation of the emergency organization

d) Locations, furnishing and equipment for the emergency units

The operations rooms shall be specified for the emergency committee including its reserve post, and for the

emergency response teams. The furnishing and equipment of these rooms shall be specified.

e) Cooperation with external organizations,

The procedures and responsibilities shall be specified for cooperating and communicating with external organizations, e.g., authorities, power plant proprietors, power plant manufacturers, with the nuclear emergency support team, the public and the media.

f) Access regulations and access routes

The access regulations and access routes that apply to the case of emergency shall be specified.

g) Radiological monitoring

The regulations regarding the radiological monitoring that apply to the case of emergency regarding the plant-internal and external personnel and emergency response teams as well as regarding the emission and immission monitoring shall be specified.

h) Task-support documents

These documents include, e.g., lists of standby-personnel, checklists, prepared forms for status reports, calculations, documentations and tools to aid in making decisions.

7 Requirements Pertaining to Emergency Manual, Part 2 – Emergency Measures

7.1 General Requirements

(1) The structure of the emergency manual shall be condition-oriented. If necessary, event-oriented measures may be added. The chapters with emergency measures shall basically be structured according to the protective goal.

(2) The measures specified in the technical part of the emergency manual shall either serve to bring the plant parameters back into the range in which the protective goals are no longer violated or they shall serve to reduce the effects of violating the protective goals. It is permissible to include additional measures not directly correlated to the protective goals.

(3) In case several measures are specified that either serve to bring the plant parameters back into the range in which the protective goals are no longer violated or that serve to reduce the effects of violating the protective goals, then the selection of applying the individual measures by decision trees or priority values shall be supported.

(4) If the plant parameters so allow or so require, then criteria shall be specified for ending the emergency measures or for performing a transition to other emergency measures (e.g., Secondary Bleed – Primary Bleed).

(5) All cross-references between the operating manual and the emergency manual shall be explicitly marked.

7.2 Requirements Regarding the Contents of Individual Emergency Measures

7.2.1 General overview

Documents shall be provided for each of the anticipated event sequences or plant conditions that shall present the following information in a clearly structured and as short a form as possible:

- a) Objective of the measure,
- b) Criteria for the selection of a emergency measure (when indicated subdivision in preparatory and initiating criteria,
- c) Respective case of emergency,

- d) System-technological prerequisites,
- e) Required personnel, task location, auxiliary equipment and (maximum allowed) task duration,
- f) Temporal tolerances,
- g) Expected effectiveness,
- h) Description of the respective measure, and
- i) Monitoring the effectiveness of the measure.

7.2.2 Flow charts

Flow charts shall be prepared in an application-oriented depth of detailing that graphically show the sequence of the respective emergency measure and its links to other blocks of emergency measures.

7.2.3 Procedural instructions for work tasks in the control room and at onsite locations

Procedural step instructions shall be prepared for each of the blocks of emergency measures leaving room for documenting the execution of individual tasks. The procedural step instruction for onsite work tasks shall, additionally, specify:

- a) Required personnel and their qualification,
- b) Task location,
- c) Tools and auxiliary equipment (e.g., keys, electronic adapters, cables) including their storage location,
- d) Means of communication, and

- e) Excerpts of building plans, system circuit diagrams, sketches, photographs clarifying the spatial arrangement, as far as any of these are necessary.

7.2.4 Removable copies for onsite tasks

The removable copies for onsite tasks shall contain the procedural step instructions leaving room for documenting the execution of individual onsite work tasks. They shall be kept separate from the emergency manual and shall be complete in themselves (no cross-references).

7.2.5 Additional documents (diagrams, tables, appendices)

Additional documents shall be included that would support execution of the respective emergency measure.

8 Updating Procedure

To ensure that the emergency manual is always up to date, the corresponding requirements specified for the operating manual (cf. Sec. 12 safety standard KTA 1201) shall be applied accordingly.

9 Location of the Emergency Manual

Of the emergency manuals, one shall be kept at least in the control room, one in the remote shutdown station and one in the operations rooms of the emergency committee.

Appendix A

Regulations Referred to Within this Safety Standard

(Regulations referred to in this safety standard are valid only in the version cited below. Regulations which are referred to within these regulations are valid only in the version that was valid when the latter regulations were established or issued.)

KTA 1201 (2009-11) Requirements for the operating manual

Appendix B

Regulations Referred to Within this Safety Standard for Informative Puposes

(The appendix lists the regulations that were referenced in this safety standard strictly for informative purposes.)

AtG	Act on the peaceful utilization of nuclear energy and the protection against its hazards (Atomic Energy Act – AtG) of December 23, 1959, in the new version promulgated on July 15, 1985 (BGBl. I 1985, p. 1565), last revised by Article 1 of the Law of March 16, 2009 (BGBl. I 2009, No. 15, p. 556)
StrlSchV	Ordinance on the protection against damage and injuries caused by ionizing radiation radiological protection ordinance - StrlSchV) of July 20, 2001 (BGBl. I 2001, No. 38, p. 1714), last revised by Article 2 of the Law of August 24, 2008 (BGBl. I 2008, No. 40)
AtVfV	Ordinance on the procedure for licensing of installations under Sec. 7 of the Atomic Energy Act (Nuclear licensing procedure ordinance - AtVfV) of February 18, 1977 (BGBl. I p. 280), last revised by Article 4 of the Law of December 9, 2006 (BGBl. I p. 2819)