

Regierungspräsidium Darmstadt



Implementation Sev III

Differences Sev II/Sev III – Challenges in Germany

Dagmar Dräger, TWG II Meeting, Le Hague, September 26.-28. 2018

Implementation Sev III Differences Sev II – Problems in Germany

- Presence of dangerous substances
- Modification of installation with significant consequences
- Information to the public (permitting procedure)
- Natural causes (earthquakes, storms) TRAS 320
- External causes security: cyber attacks KAS 44, drones KAS 45
- Aging Plants SMS 4.3.1
- Details of safety report

Information to the public

Has influences on the permitting procedure

In case of a modification of installation with significant consequences:

- first publication with the start of application procedure
- Second publication together with the final permit

Presence of dangerous substances Art 3 No. 12

...which it is reasonable to foresee may be generated during loss of control of the process, including storage activities, in any installation within the establishment, in quantities equal to or exceeding the qualifying quantities set out in Part 1 or Part 2 of Annex I

1. dangerous substances should already be in the installation
2. minimum amount: 2 % column 2 Annex I

Guidance : KAS 43

Presence of dangerous substances Art 4 No. 12

Positive list of installations, which may be relevant to generate dangerous substances during loss of control of the process, especially by mistaking dangerous substances or by fire, e.g.

- Storage of Biocides, Pesticides, Sulfur
- Storage of dangerous substances annex I Sev III
- Polyurethane, Polyvinylchloride (PVC),
- Fire scenarios: Vulcanization, Carbon Black, Coal Tar
- Installations for chemical production

Modification of installation with significant consequences in terms of a major accident

Which causes new risk scenarios and additional prevention measures

This could be e.g.

- New dangerous substances with higher risk for human health, environment or higher physical risk
- Higher amount of dangerous substances
- Modification of the process parameters e.g.
 - pressure, temperature, equipment of the installation, process control engineering,
 - new assessment values for accidental release
(AEGL values, higher explosion overpressure, thermal radiation)

External causes: Security

Cyber attacks:

KAS 44: Guidance against Cyber attacks

Drones:

KAS 45: Guidance drone missiles strikes to Seveso establishments

<https://www.kas-bmu.de/kas-merkblaetter.html>

Natural causes (earthquakes, storms)

Technical Rule of the Commission on Process Safety:

TRAS 320 Precautions and Measures against the Hazard Sources Wind,
Snow Loads and Ice Loads

TRAS 310 Precautions and Measures against The Hazard Sources
Precipitation and Flooding

www.kas-bmu.de/publikationen/TRAS_320end.pdf.

Seveso installations need to be designed with particular allowances being
made for the static and dynamic load to which they are exposed

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Safety Reports under Sev III

Practice in Germany

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Safety Report

Must be understandable by itself!

It may be combined with other reports or application documents to form a single safety report, in order to avoid unnecessary duplication

Is composed of chapters:

- **General part**

Information on MAPP and SMS

Presentation of the environment of the establishment

- **Parts of safety relevant installations of the establishment**

Amount of dangerous substance 0,2 % or 4 % column 4

- More details in Annex II -

Parts of safety relevant installations (SRI)

Each SRI should have in regard to Annex II:

- A description of the installation
- Hazard identification
- Risk analysis
- Prevention methods
- Measures of protection and intervention to limit the consequences of an accident

Differences Sev II / Sev III Annex II

No 2 Presentation of the environment of the establishment

c) On the basis of the available information,
identification of neighboring establishments, as well as
sites that fall outside the scope of this directive,
areas and developments..

**that could be source of, or increase the risk or consequences of a
major accident and domino effects.**

Differences Sev II / Sev III Annex II

No 4: Identification and accidental risks analysis and prevention

methods:

Detailed description of the possible **major-accident scenarios** and their probability or the **conditions under which they occur** including a summary of the events which may play a role in triggering each of these scenarios, **the causes being internal or external** to the installation; including in particular

operational causes

external causes, such as those related to domino effects, sites that fall outside the scope of this directive, areas and developments that could be the source of or increase the risk of the consequences of a major accident

natural causes, for example earthquakes and floods

Differences Sev II / Sev III Annex II

- c) review of past accidents and incidents with the same substance and processes used, consideration of **lessons learnt** from these, and explicit reference to specific measures taken to prevent such accidents

Differences Sev II / Sev III Annex II

No 5 Measures of protection and intervention to limit the consequences of a major accident

- a) Description of the equipment installed in the plant to limit the consequences of major accidents for human health and environment, including for example detection/protection systems, technical devices for limiting the size of accidental releases, including water spray, vapor screens, emergency catch pots or collection vessels, shut off valves, inerting systems, fire water retention

- d) Description of any technical and non –technical measures relevant for the reduction of the impact of a major accident

Problems....

of the authorities

- The safety reports are growing and growing
- Not enough personnel for a detailed examination

in the safety report

- The **interface** between plant operator and industrial park operator (e.g. fire brigade, waste water treatment, infrastructure, internal/external emergency plan)
- **In regard to no 2 Annex II: Overview** of all premises (we don't know all: e.g. Laboratories, pilot plants, chlorine tanks belonging to waste water treatment plants)

Problems....

In regard to Annex II No 4

Risk analysis: There are a lot of new causes and their consequences that must be considered

e.g. natural causes like earthquakes, floods, windstorms

Problems....

- **Scenarios/Land Use Planning (LUP)**

Should LUP scenarios with relevance to the public be part of the safety report (in addition to the identified risk scenario?)

- worst case scenario only in internal emergency plan? Radius is published in safety report

- SMS-Challenges

- It is described as a steady state. It must be dynamic: Audit and review
- Lessons learnt