German Environment Agency

Umwelt Bundesamt

ZEMA
Zentrale Melde- und Auswertestelle für Störfälle und Störungen in verfahrenstechnischen Anlagen

Technical Working Group for Seveso Inspections (TWG 2)
The Role of Authorities in Promoting Lessons Learned - Webinar

The Zema database- a tool for inspectors?

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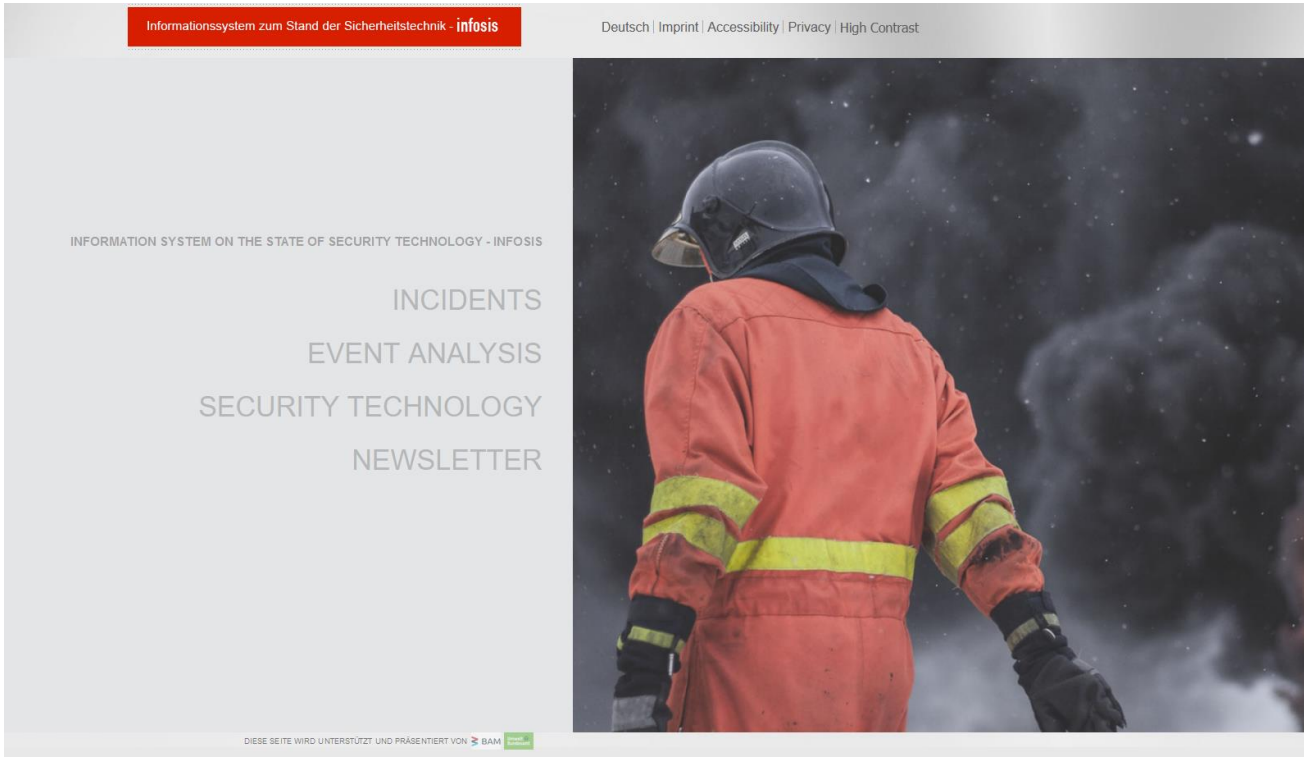
4.1 How can inspectors use it and contribute?

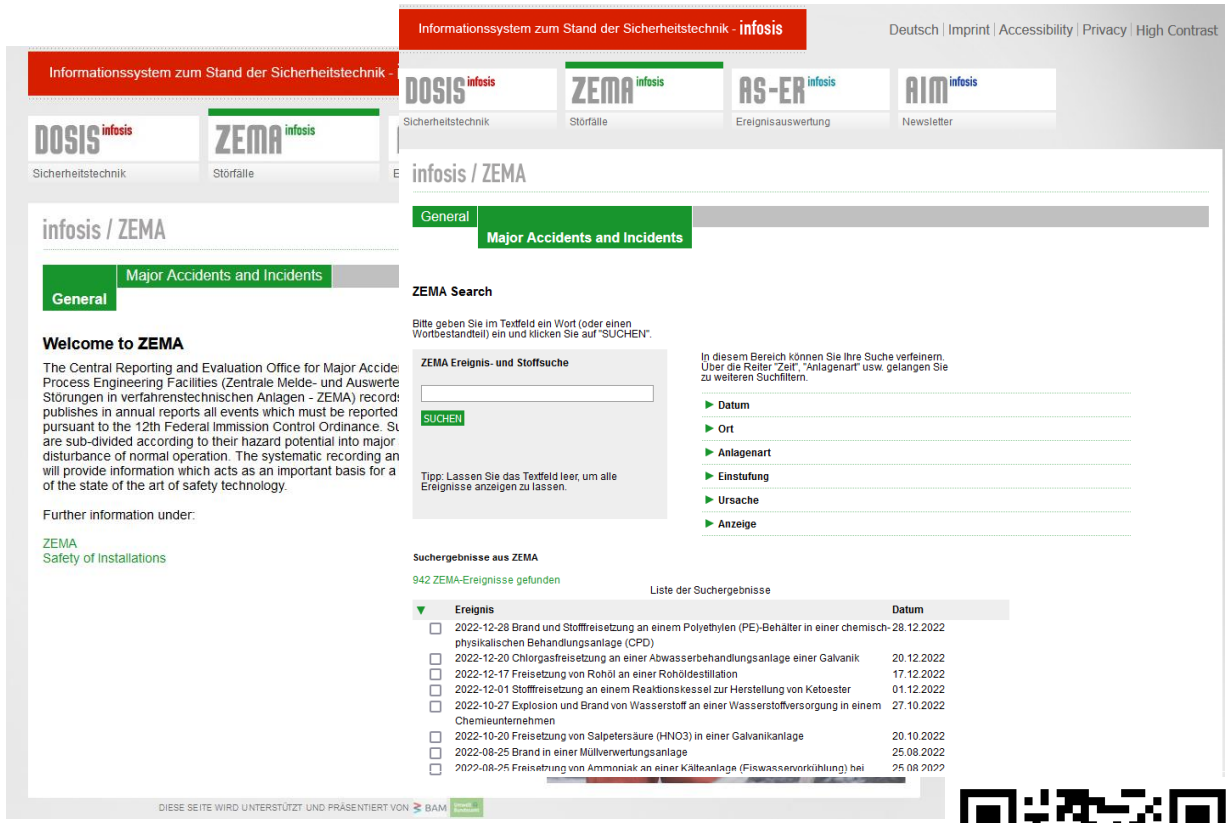
Overview: INFOSIS



- ✓ INFOSIS is an online tool for lessons learning.
- ✓ Information on Seveso and non-Seveso incidents can be found.
- ✓ Overview on security technology
- ✓ And a newsletter!

https://www.infosis.uba.de/index.php/en/index.html

The ZEMA Data Base



- ✓ The “**ZE**ntrale **M**elde- und **A**uswertestelle für Störfälle und Störungen in verfahrenstechnischen Anlagen”
- ✓ **Central Reporting and Evaluation Office for Major Accidents and Incidents in Process Engineering Facilities**
- ✓ records and evaluates events which must be reported to the authorities pursuant to the German Major Accidents Ordinance and the EU-Seveso-III-Directive
- ✓ documents them in a database
- ✓ and publishes all events in annual reports

https://www.infosis.uba.de/index.php/en/site/13947/zema/index.html

What is reported in ZEMA?

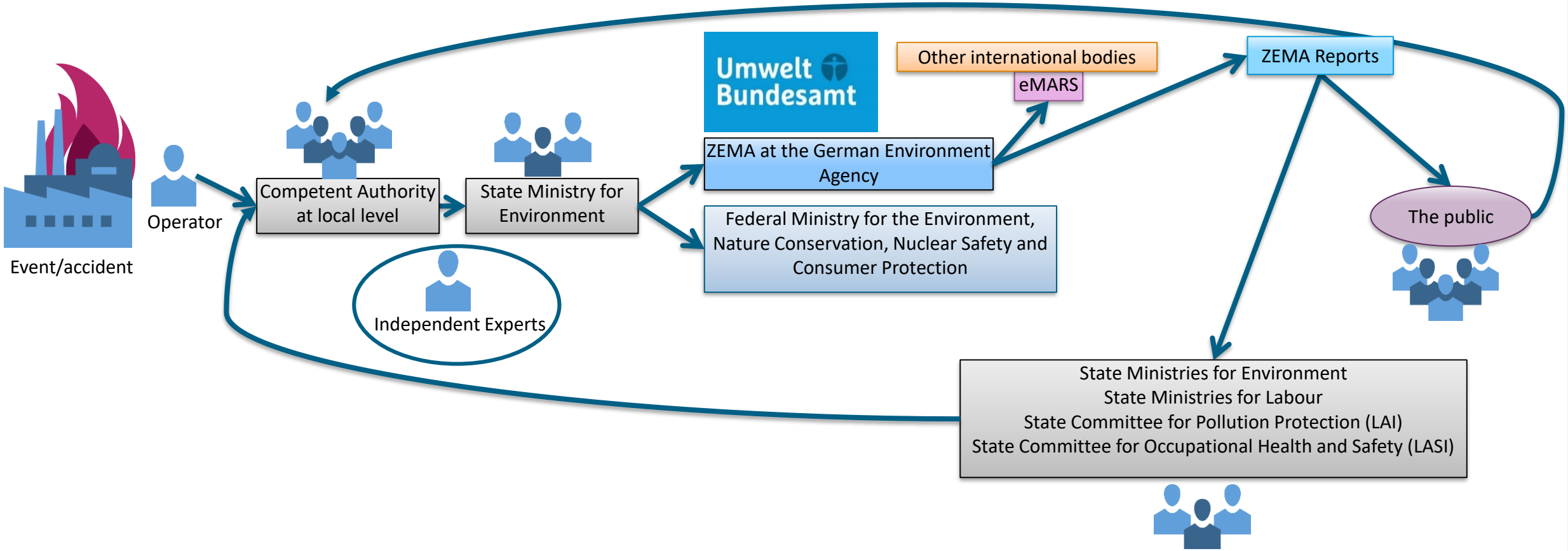
- ✓ Seveso-III- Directive is primarily implemented in German law with the Major Accidents Ordinance (MAO, German Störfallverordnung (12. BImSchV))
- ✓ The Criteria for Notification of ZEMA is listed in Appendix IV, MAO:
- ✓ There are three categories (classes of accidents that are reported):

I. Events with minimum quantities of hazardous substances or certain consequences:
   1. Substances involved
   2. Injury to persons and damage to real estate
   3. Immediate damage to the environment
   4. Damage to property
   5. Cross-border damage

II. Disturbances of normal operation which are of particular technical interest for preventing major accidents or limiting their consequences

III. Disturbances of normal operation where substances listed in Annex I are released or enter into undesirable reactions and where damage results or hazards to the public or the neighbourhood cannot be clearly excluded

How does the German reporting system work?

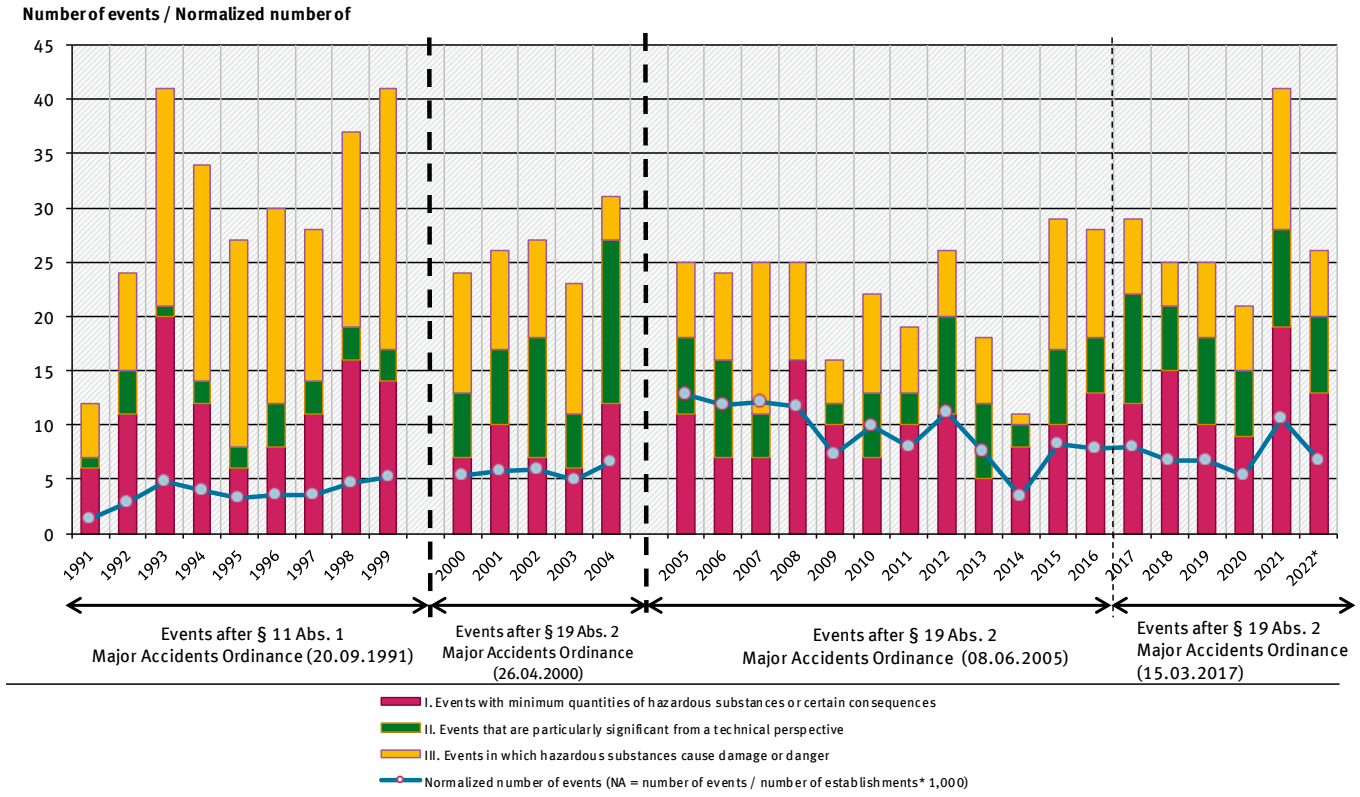


A ZEMA report contains (in concordance with Article 16 Seveso-III-Directive):

- ✓ Information on the category of the event
- ✓ Information on the plant type and the concert plant part which was involved
- ✓ Time and Data of the event and the operating procedure which lead to the event
- ✓ Data of the hazardous chemicals involved
- ✓ Impacts in the establishment / Impacts outside the establishment:
  - ➢ Deaths/ Injures
  - ➢ Economical Loss
  - ➢ Environmental Damage
- ✓ Description of the event and the emergency measures
- ✓ **Lessons Learned**

Incidents in Germany in the last thirty years

Number of events after the Major Accidents Ordinance from 1991 to 2022

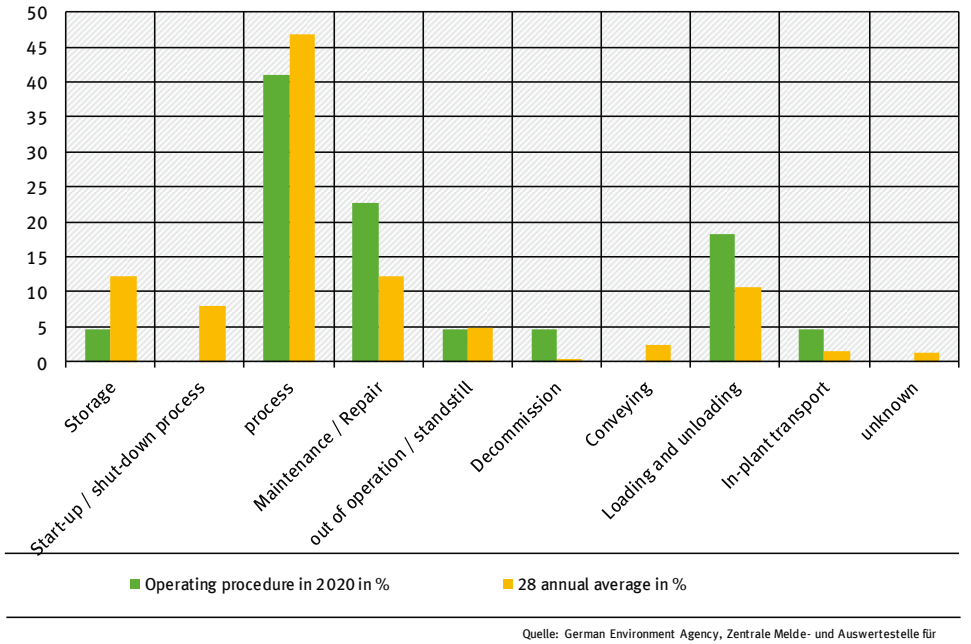


* preliminary data

Quelle: German Environment Agency, Zentrale Melde- und Auswertestelle für Störfälle (ZEMA)

Operating procedure which lead to the incident

Reported events in 2020 and on average over the last 28 years



Quelle: German Environment Agency, Zentrale Melde- und Auswertestelle für

How can inspectors use it and contribute?

German Inspectors:

- ✓ *Investigate an event with the help of the independent expert thoroughly*
- ✓ *Inform other colleagues in your Land or in other Länder about events that happened in your jurisdiction and the lessons learned*

All Inspectors:

- ✓ Get the ZEMA- newsletter, unfortunately its in German

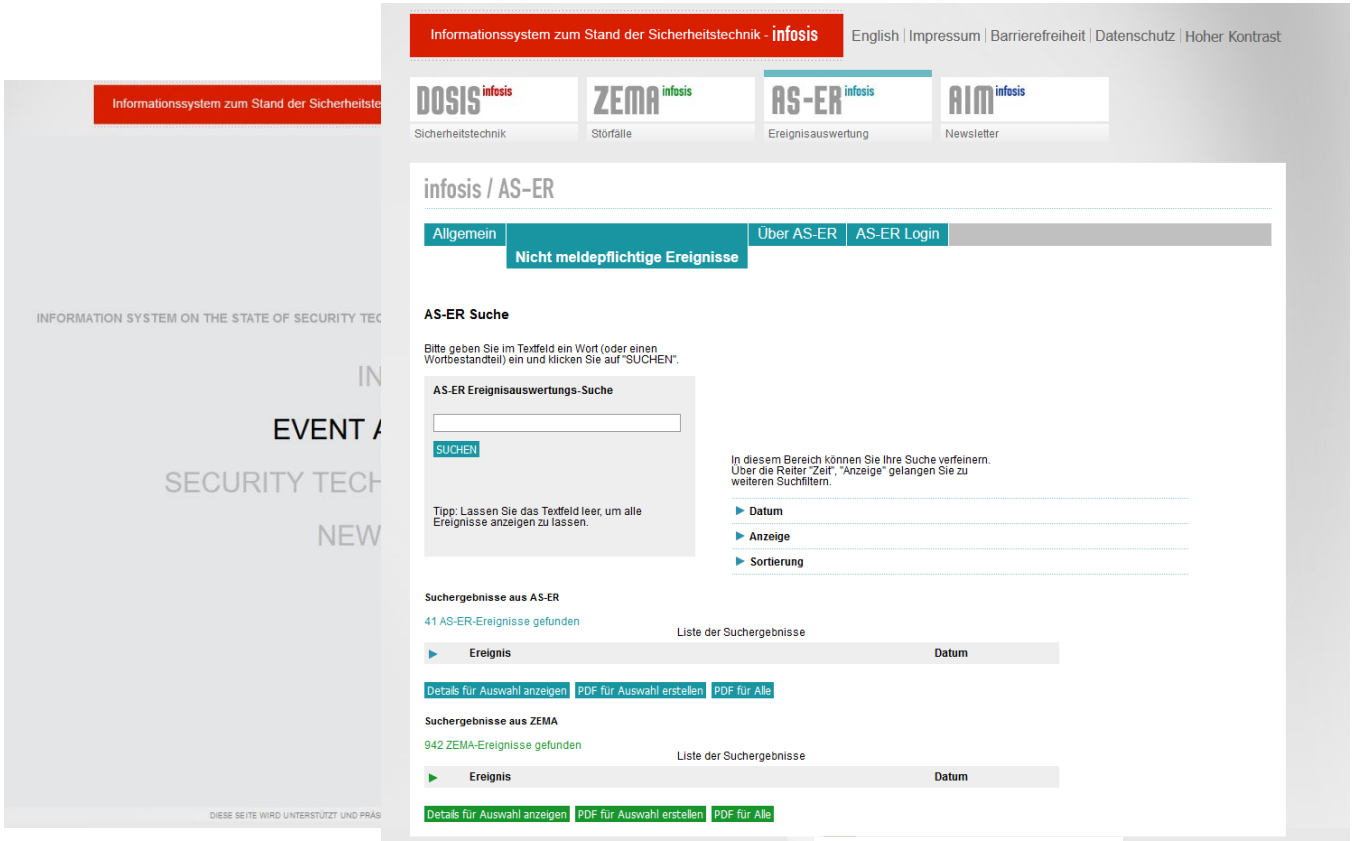
https://www.infosis.uba.de/index.php/en/site/13954/aim/index.html

- ✓ Check out eMARS

https://emars.jrc.ec.europa.eu/en/emars/accident/search

- ✓ Talk with your operators about lessons learned form events in similar establishments

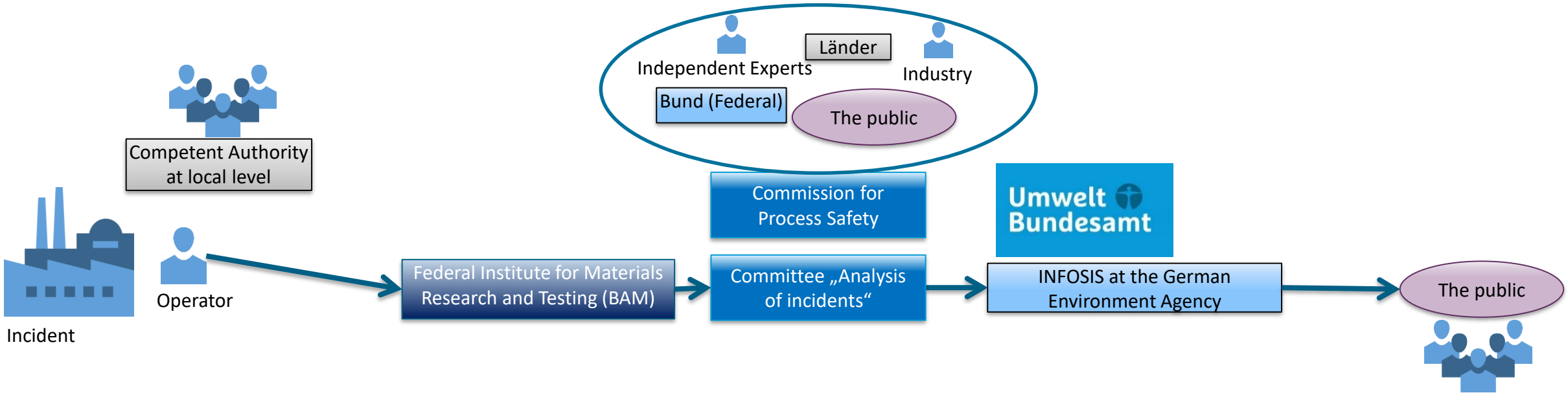
The Data Base AS ER



- ✓Non-notifiable incidents are collected voluntarily
- ✓Usually operational malfunctions which do not lead to a reportable incidents after the German Major Accident Ordinance
- ✓Reports are anonymised and generated in the same scheme as a ZEMA report by the Committee „Analysis of incidents" (AS-ER) of the Commission for Process Safety (Kommission für Anlagensicherheit)
- ✓The purpose is to understand operational malfunctions which could lead to major accidents and learn from that

https://www.infosis.uba.de/index.php/en/site/13948/aser/index.html

Where does the database come from?



How can inspectors use it and contribute?

German Inspectors:

- ✓ *Encourage Operators to report non-notifiable incidents to the Federal Institute for Materials Research and Testing (BAM)*
- ✓ *Contribute to the KAS (Commission for Process Safety) group*

All Inspectors:

- ✓ Read the reports (German only)

„One Pager“: A new type lessons learning?

- ✓ The „lessons-learning” subcommittee of the State Committee for Pollution Protection (LAI) will
  - ✓ Take ZEMA accidents that are significant:
    - ➢ because of their impact,
    - ➢ if the happened more then once,
    - ➢ if it is in a significant plant type
  - ✓ It is boiled down to one page and simplified lessons are extracted, conclusions can be directly applied in industry or in inspections
  - ✓ It is released to the public and the Länder
  - ✓ Starts this year

How can inspectors use it and contribute?

German Inspectors:

✓ *Maybe recommend an incident*

All Inspectors:

✓ Read the „One Pager“ (in German)

✓ Apply the conclusions to inspections and permissions

The ZEMA database- a tool for inspectors?

- ✓ The German database could be a tool for inspectors to look up similar incidents or incidents that occurred in similar plant types → you can also use eMars to get the English incident reports

- ✓ The newsletter is a possibility to stay informed about current incidents

- ✓ The new „One Pager“ on lessons learned should boil down information and make it even more accessible

Thank you for your attention!

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