

German Environment Agency

Umwelt 
Bundesamt

Chemical Accidents Risks Seminar

Approaches for the Measurement of Safety Performance

OECD & Germany

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Safety of Installations

German Environment Agency / Umweltbundesamt

OECD Guiding Principles (2nd Edition – 2003): Chapter 2 Review and Evaluation of Safety Management Performance

2.g.1 **Industry should establish monitoring programmes** to support the continuous improvement of safety at hazardous installations.

2.g.2 The approach to monitoring should be systematic. In this regard, **a monitoring plan should be developed at each installation**, “owned” and primarily implemented by the local management, with flexibility built in so that it will not become routine.

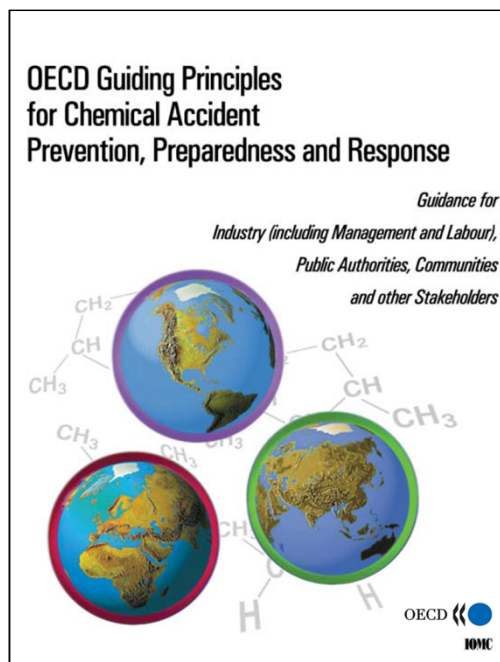
...

2.g.5 Consideration should be given to **including representatives of the community** ...

...

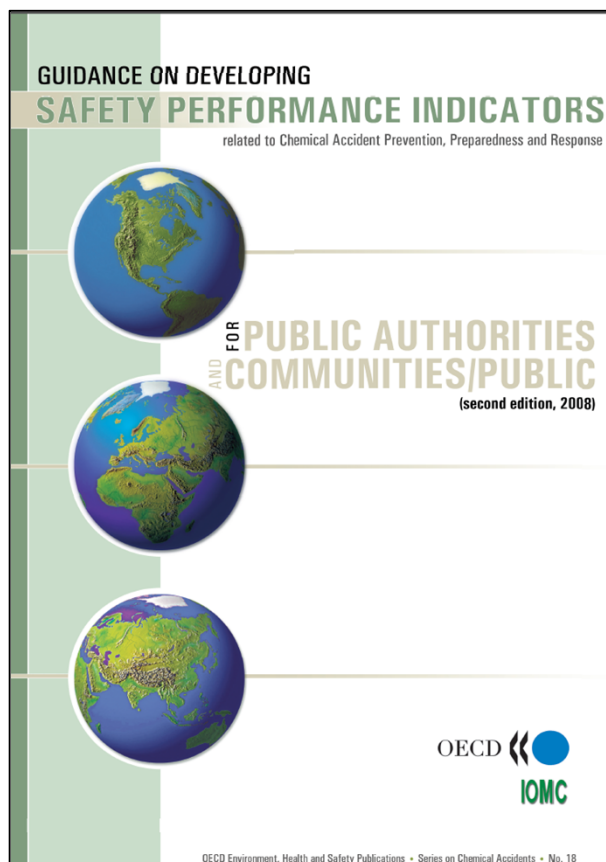
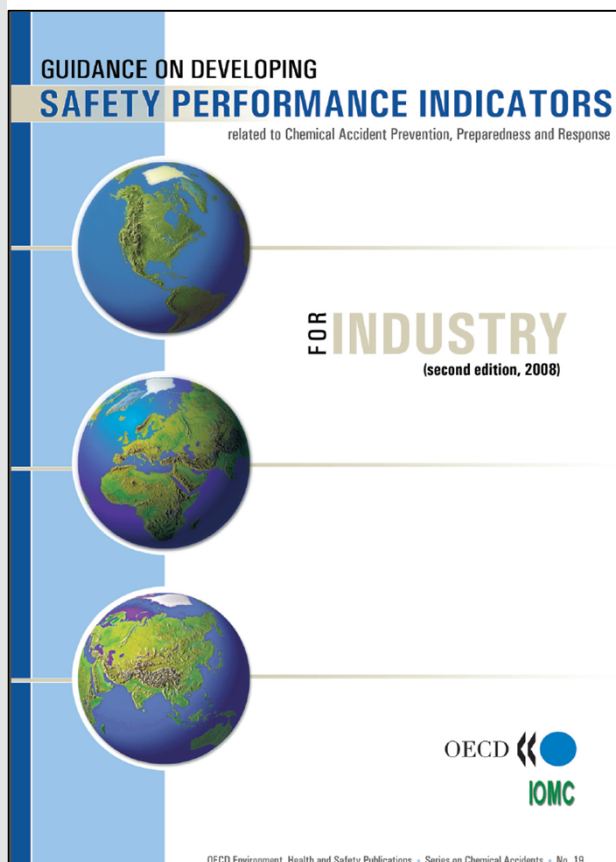
2.g.9 Management should, as appropriate, **utilise independent experts** to monitor hazardous installations.

(Similar in chapter 3 for Authorities)



- **Nice recommendations**
- **is there any implementation?**

Approches: OECD Safety Performance Indicators state indicators and activity indicators



1. State indicators
 2. Activity indicators
- Aim: measurement of development of SP**
- **Who applied this guidance?**

<http://www.oecd.org/chemicalsafety/chemical-accidents/guidanceonsafetyperformanceindicators.htm>

Approaches: 1th Addendum to the OECD Guiding Principles OECD Recommendation on the Monitoring of Safety Culture

New subpoints to 2.a.7:

The **Safety Policy** should address measures to **assess and improve the safety culture ...**

- Assessment of safety culture has proven to be an important tool to promote safety, and should be helpful in setting priorities for audits and inspection programmes.

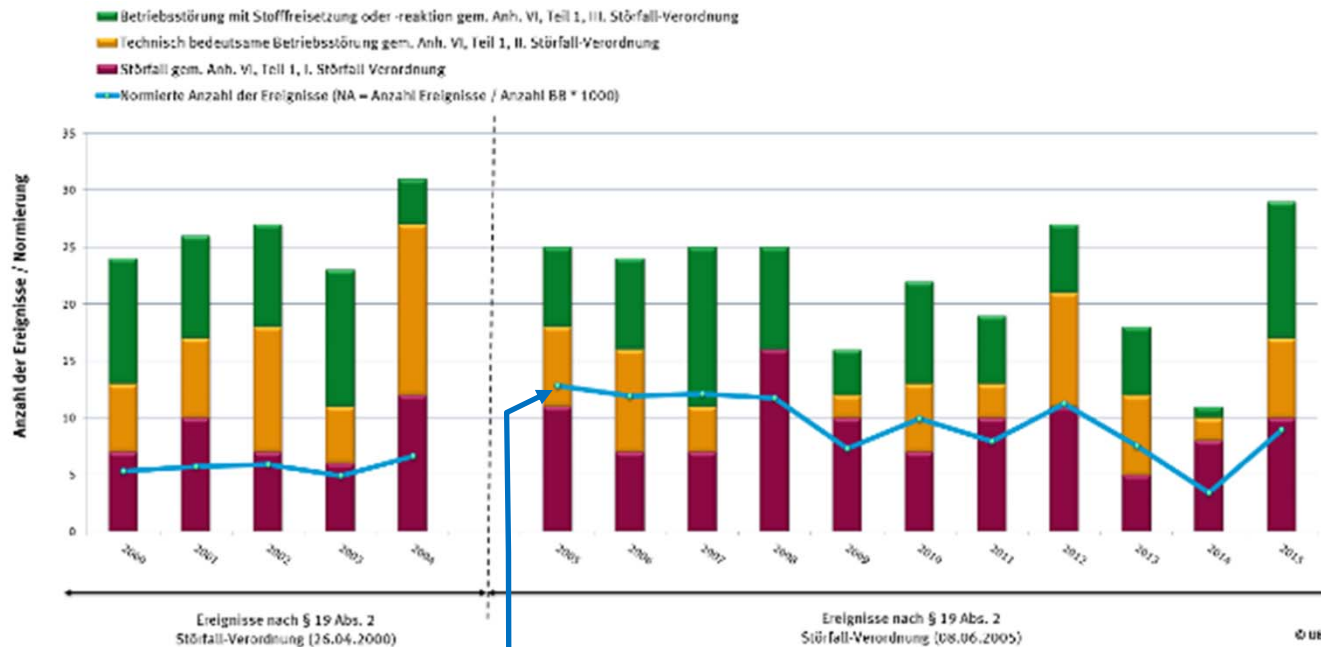
- **No general definition of safety culture but**
- **Measurement of the development of safety culture (climate) is possible**
- **There can be different safety cultures (climates) in one enterprise!**

Addendum to the OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response (2nd ed.) Series on Chemical Accidents No. 22

<http://www.oecd.org/chemicalsafety/chemical-accidents/guiding-principles-chemical-accident-prevention-preparedness-and-response.htm>

Approaches: ZEMA

Notified Accidents per 1 000 Establishments & Year



Notified accidents /
1 000
Establishments

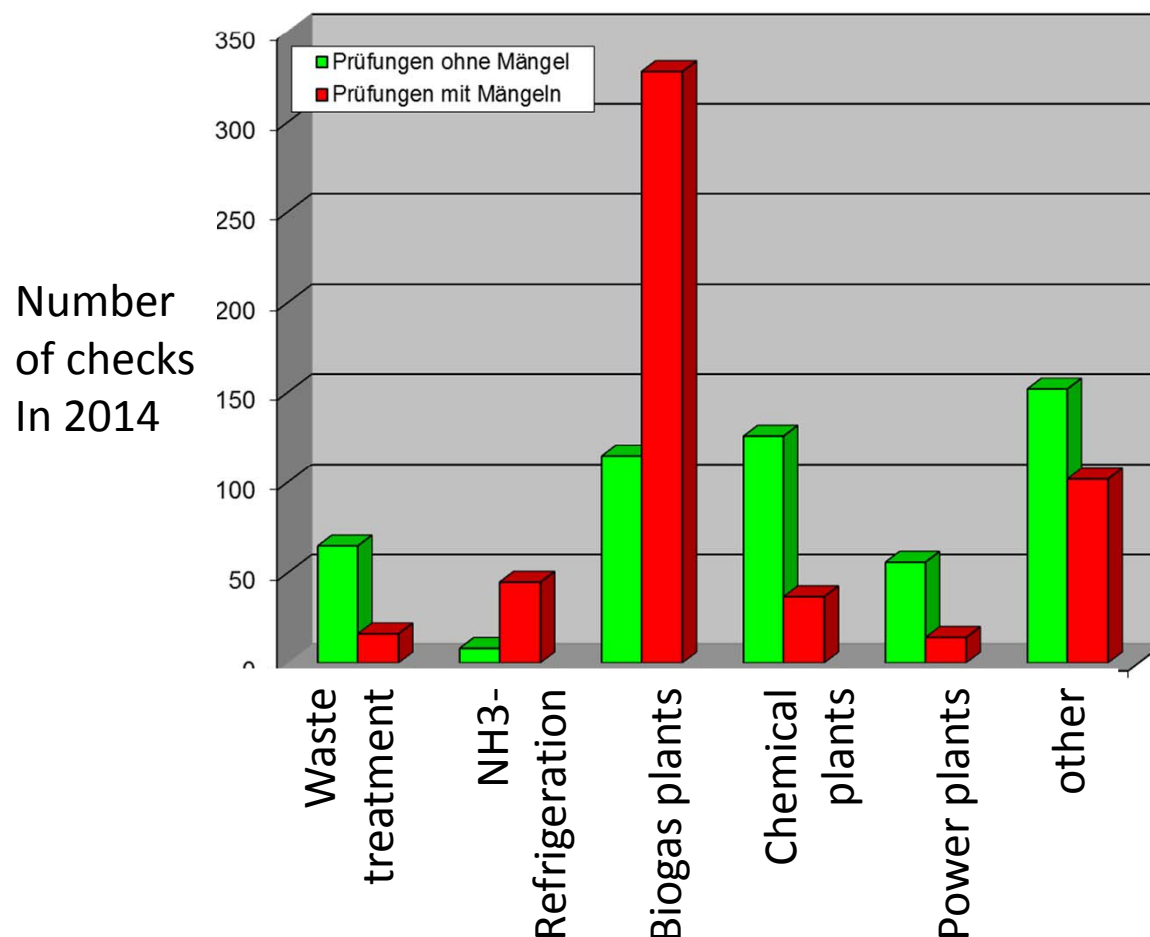
- Number of notifications too less?
- no accidents ≠ good safety performance

<https://www.umweltbundesamt.de/themen/wirtschaft-konsum/anlagensicherheit/zentrale-melde-auswertestelle-fuer-stoerfaelle>

Approaches: Check of installations by experts

Installations **with** / without faults

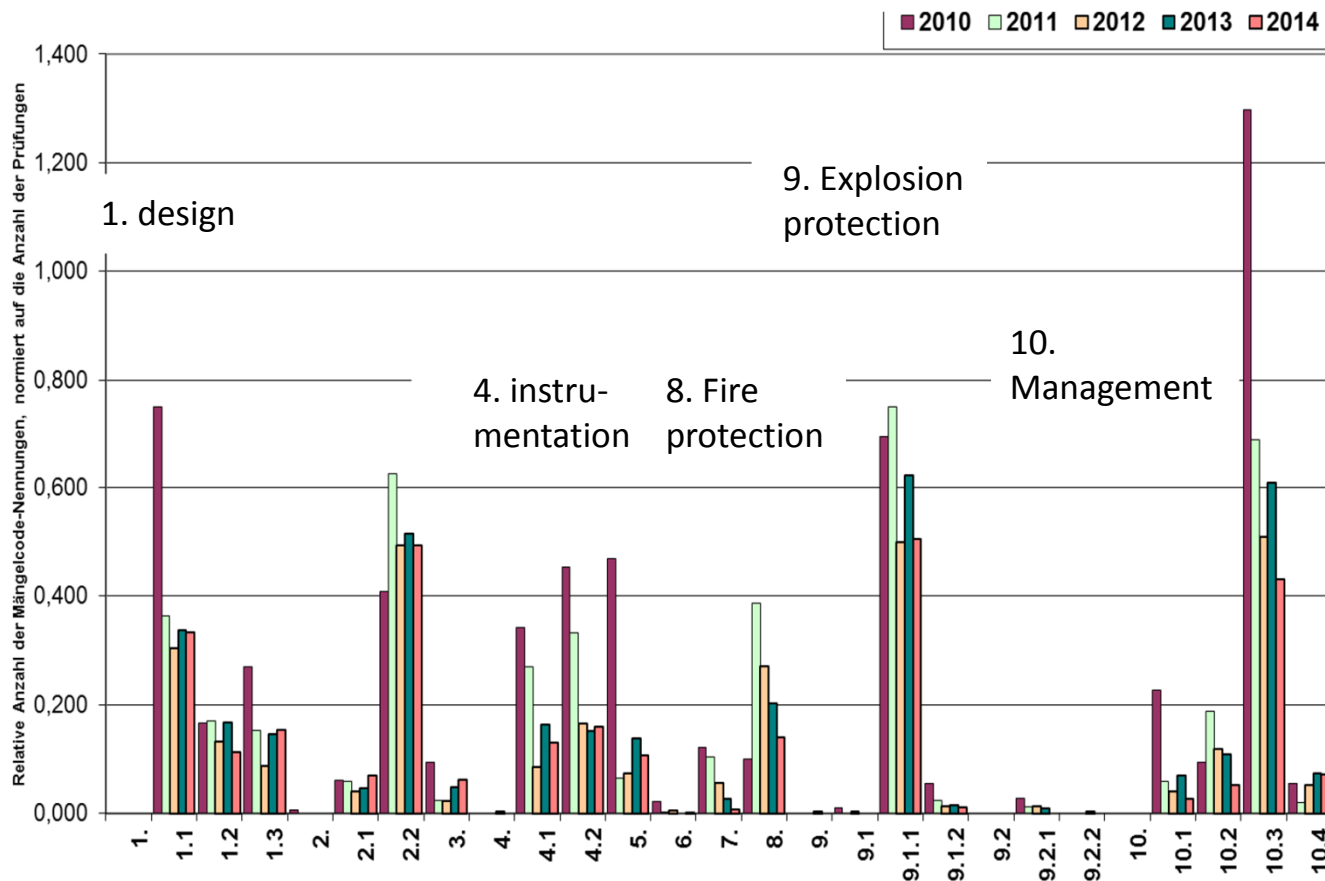
(2014, previous years similar)



- Results for single installations
- Indication for types of installations
- Suggestions for improvement of regulations and rules
- Results depend from the basis and the scope of the checks
- Checked installations change each year

Approaches: Check of installations by experts

Type and number of faults per check (for biogas plants)



Classification system for types of faults

- Information on SP for several subjects
- Information on the development of SP
- Faults are found were rules are,
- more faults are found were unclear rules are,
- are faults found were no rules are?

Thank You For Your Attention

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<https://www.umweltbundesamt.de/themen/wirtschaft-konsum/anlagensicherheit>