

Petroleum Safety Authority Norway

Safety regulation in the oil and gas industry

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Workshop on RAC in Civil Engineering Decision Making

Session 3: Regulatory context



RAC Workshop June 2023

“What is understood as best practices of safety management may **not always be justified** with respect to an adequate level of **safety, where the resources used are in balance** with objectives of the society”

Workshop motivation:

- “to pin down the main reasons for the present situation,
- to agree on the actions needed to correct the situation and finally
- on the allocation of responsibilities for implementing these.”

Large, complex topic. Important to discuss. Challenge some basic assumptions

2 PSA presentations. Gerhard Ersdal on Evaluation of RAC



What is the Petroleum Safety Authority (PSA)?

- Norwegian government supervisory agency with regulatory authority for safety, the working environment, emergency preparedness and security
- Our areas of responsibility
 - petroleum operations offshore and at land plants
 - renewable energy production offshore (offshore wind power)
 - CO₂ transport and storage
 - mineral recovery from the seabed



Purpose of PSA and our regulations

"The PSA will

set the terms for and follow up that players in the petroleum industry are maintaining a

1 high level of HSE, and

2 thereby also help to create the greatest possible value for society."

(NPD purpose: Help create greatest possible values, while also minding HSE)

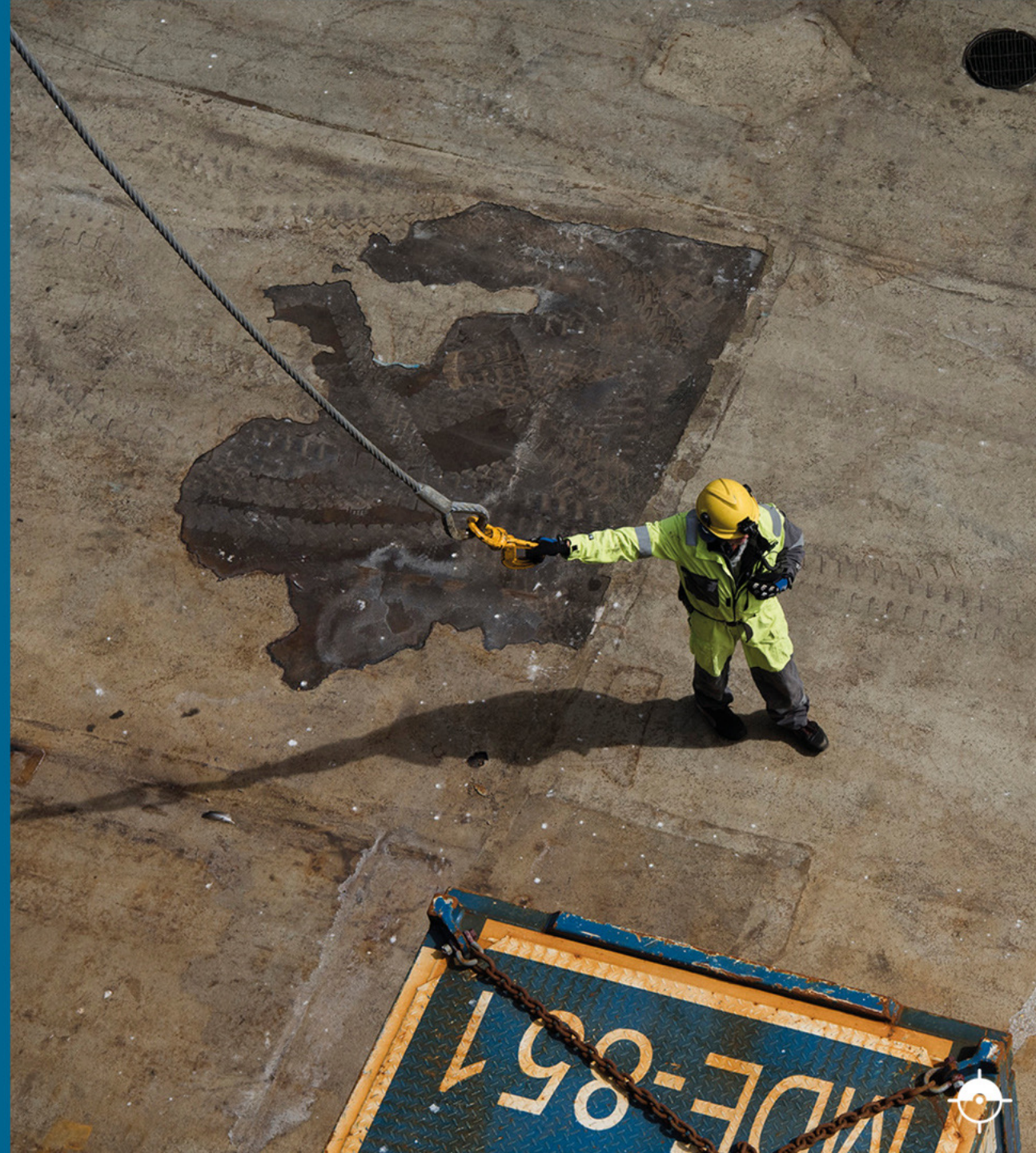
Petroleum and energy minister Terje Aasland

"Norway's petroleum industry will remain a world leader for Health, Safety, Environmental protection and Emergency Preparedness"



Our duties

- Develop and adopt regulations
- Supervise the companies
- Develop, manage and communicate expertise
- Serve as the specialist agency in our area – for the industry, other state agencies and the general public
- Give specialist advice to the ministry



What's RAC got to do with it?

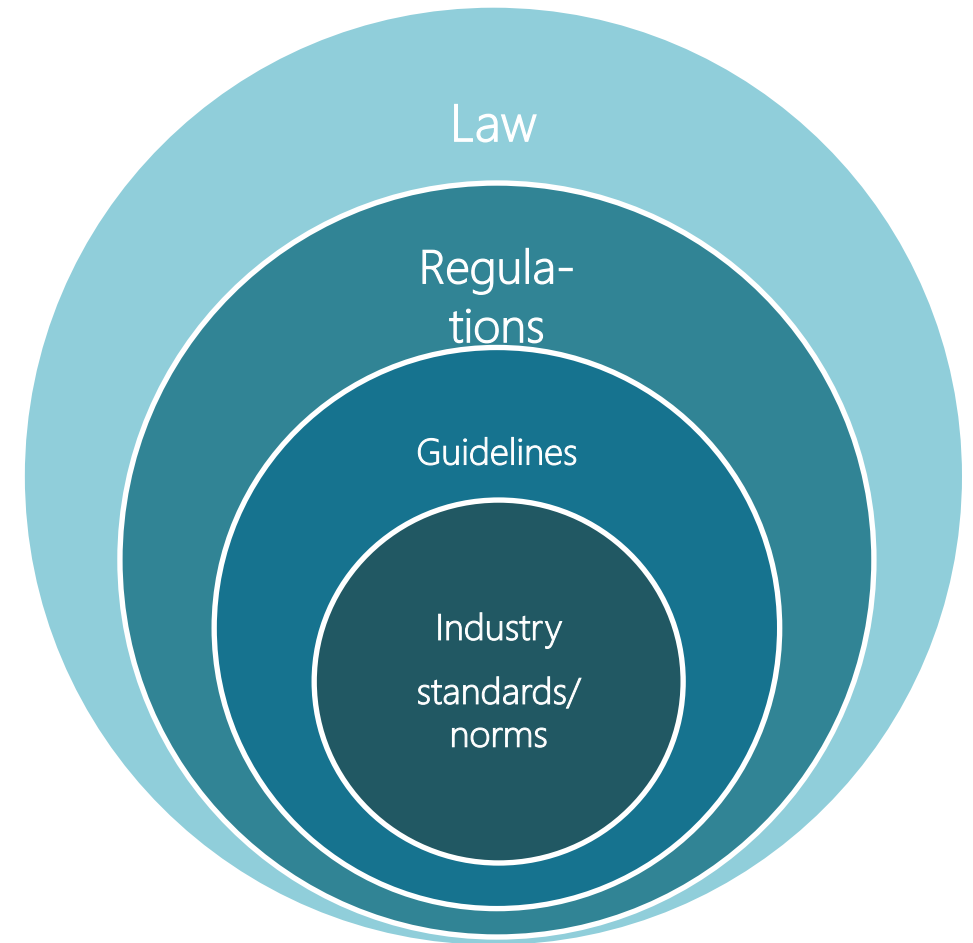
- RAC is a chosen method, not a goal.
- Do we need RAC to achieve our goals?
- Positive and negative effects of RAC?
- «Not all RAC are created equal»
- «Equal RACs do not equally achieve our goals»



The Norwegian petroleum regulations

- Our regulations are mainly performance-based
- **They specify goals, not methods**
- They refer to norms and industry standards
- They give the companies freedom to choose good solutions – and underline the allocation of responsibility

- “RAC is a chosen method, not a goal.”



Why RAC?

Alexander Kielland disaster 1980 led to our current goal based (risk based) regime.

Detail oriented regime -> Goal based regime, including risk analysis and RAC. Possibly well suited then but less so in 2023? Gerhard Ersdal will present our work on this topic.



Purpose of risk analysis according to our regulation

- To understand and reduce risk
- Not to verify a risk level



Current RAC regulation

RAC is part of the regulation, not the whole solution.

Man. Regulation § 9: The operator shall evaluate risk analyses based on RAC for

- personell and for those exposed to particular risk
- Main Safety Functions frequency $< 1E-4$ per load category, Facility regulation §7 and 11
 - Prevent escalation from area. Main load bearing structure. Rooms of significance to combat accident. Safe areas. Escape routes from each area.
- And further reduce risk (reference to Frame regulation §11 etc)

But:

There's no inherent need for RAC. It is only a choice. Gerhard will talk more about the available options.



Industry adoption to the current regulation

- But what role does RAC play here?
- We observe strong focus on RAC, and tendency to stop when calculations are within RAC.
- Frustration in the industry: RAC adoption not always suited for purpose -> RISP and NORSOK Z-013

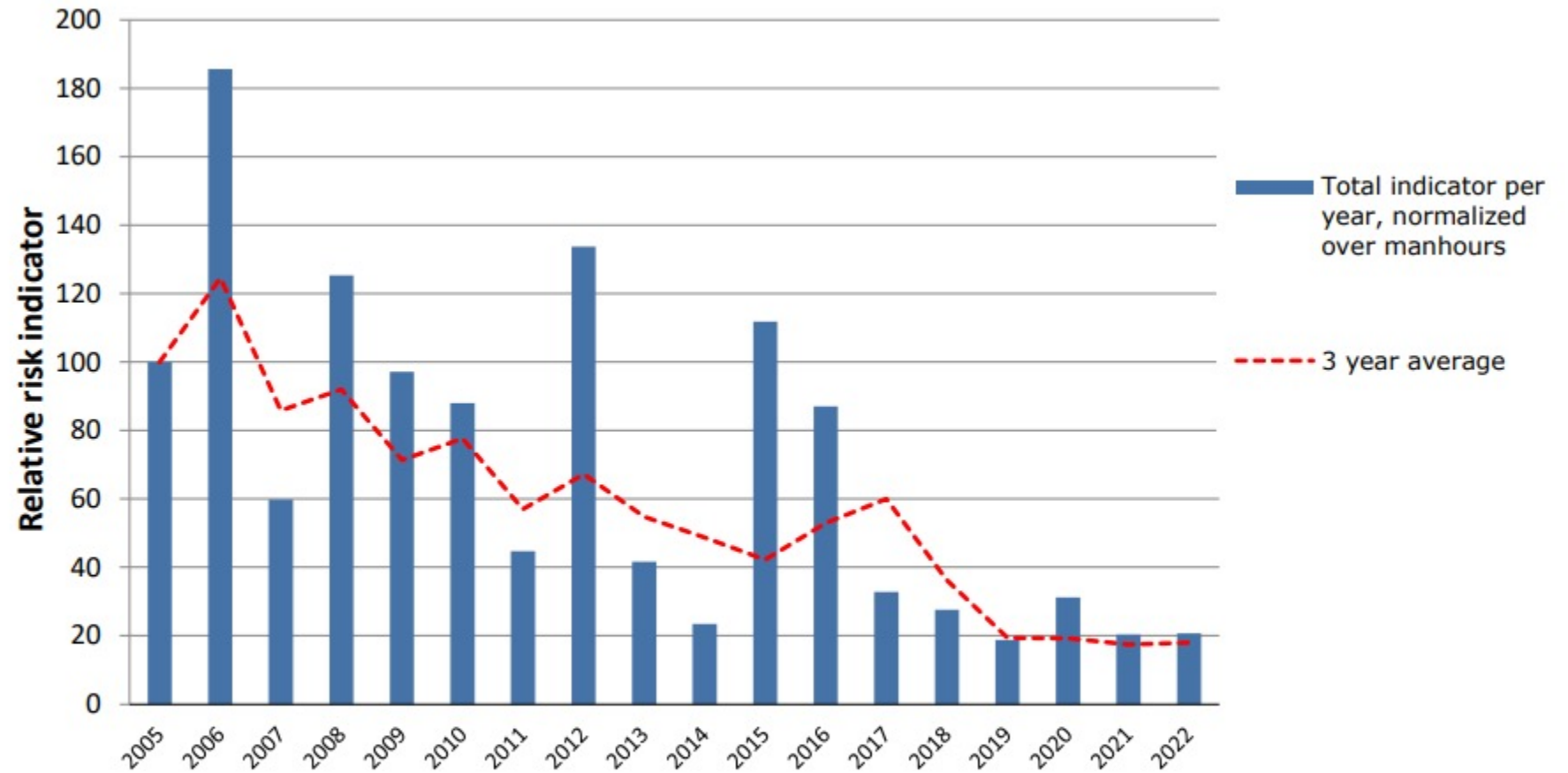


Figure 6-13 Total indicator for major accidents per year, normalised against working hours (Reference value is 100 in the year 2005, both for total indicator and three-year rolling)



Clarified risk concept 2015

“Risk means the consequences of the activities, with associated uncertainty”

In line with ISO 31000

What does it mean in practice?

- Analyses: Assumptions, experience and accumulated knowledge. Realistic?
- Avoid narrow understanding and surprises



Typical RA in the industry

- Used to focus highly on meeting RAC, without fully reflecting the associated uncertainties and the quality of the RA.
- Positive development:
 - More focus on uncertainties and quality in the RA
 - Risk management less mechanical.
 - Towards integrated and unified risk informed decisions

<https://tinyurl.com/2jjk7js7>

