

3rd SFRP/IRPA workshop

Tolerability and Reasonableness

ISO/IEC Standard 53-940
Guide 51

Yann Billarand (SFRP)

Virtual meeting 4-5 may, 2021

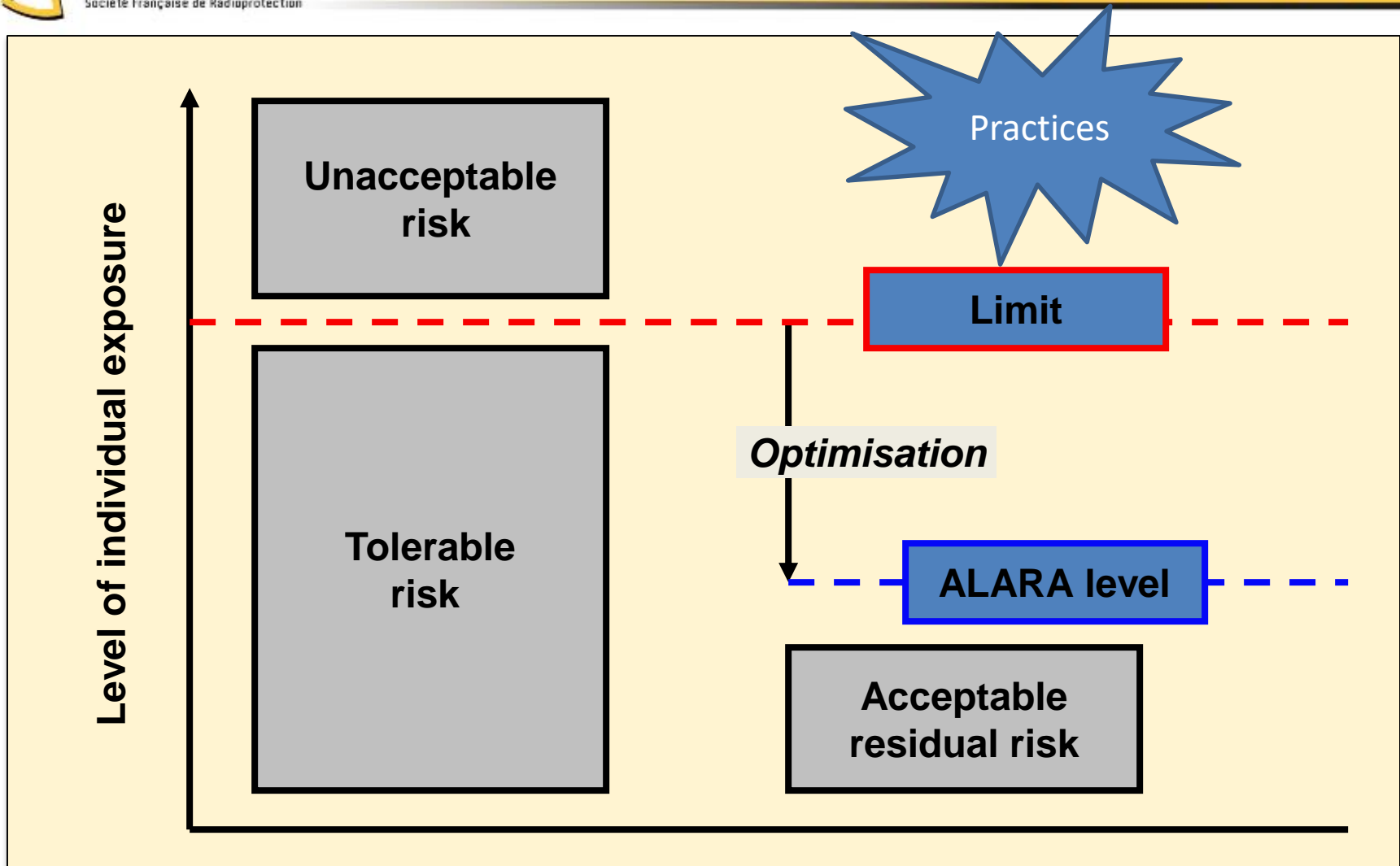
GUIDE 51

Third edition
2014-04-01

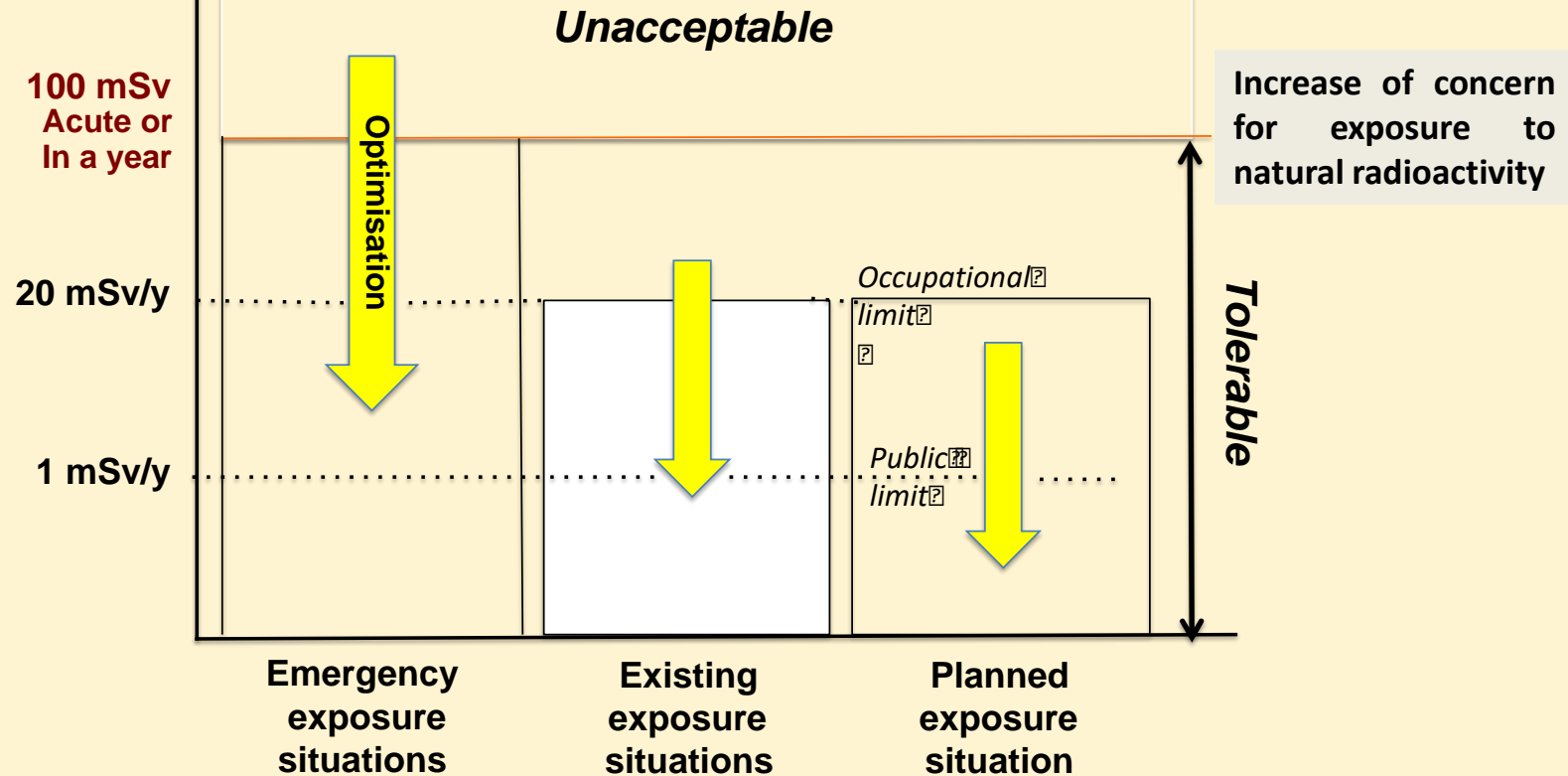
**Safety aspects — Guidelines for their
inclusion in standards**

*Aspects liés à la sécurité — Principes directeurs pour les inclure dans
les normes*

Reminder: the tolerability of risk model adopted in ICRP Publication 60 (1991)

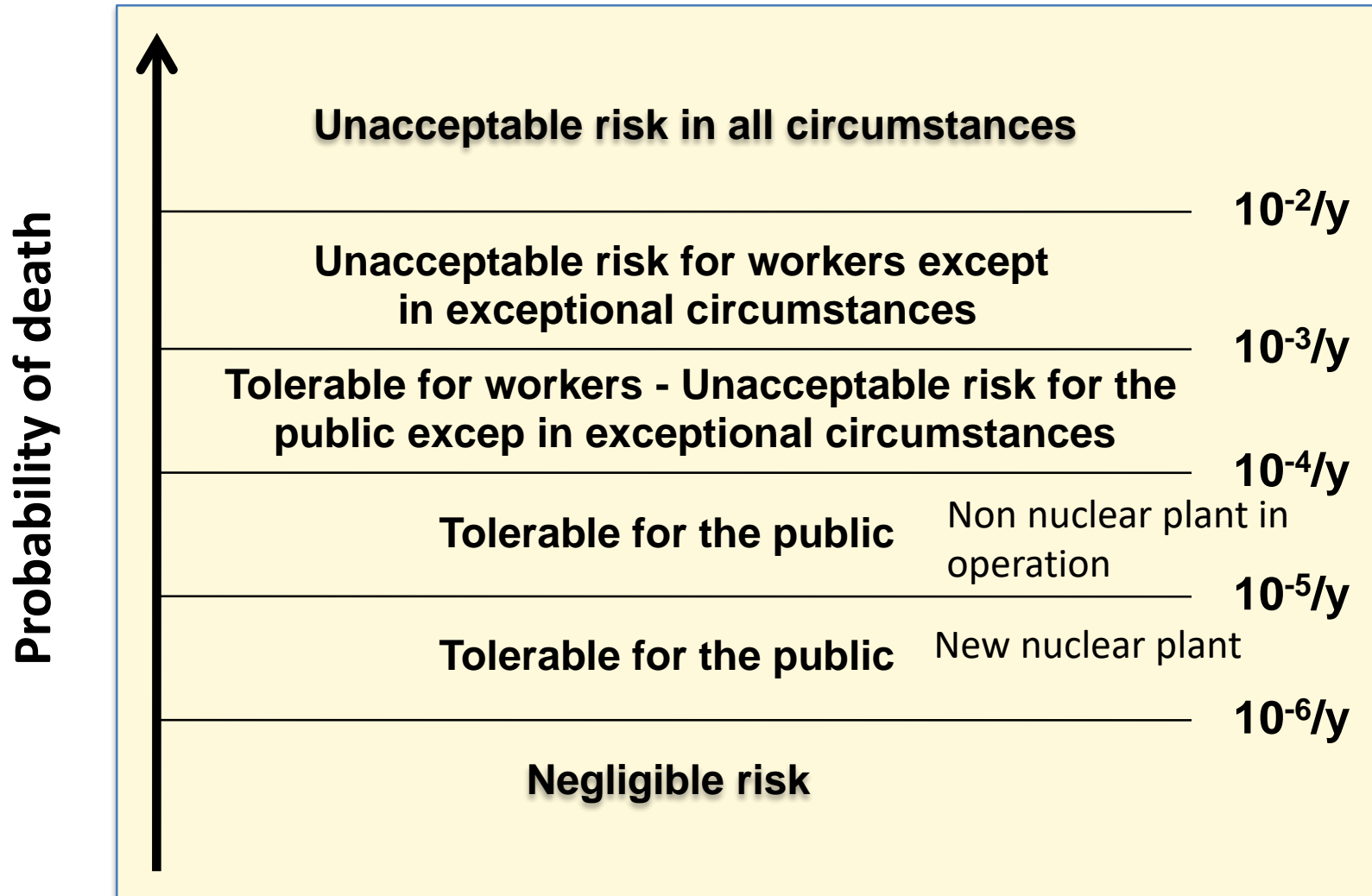


Reminder: update in ICRP Publication 103 (2007)



To be supplemented by actor's behavior : the QVR system under developpment by ICRP. (quietude, vigilance, reaction)

Scale of tolerable model coming from the 1980's (Health and Safety Executive, England, cited in WHO guidelines for water quality)



Tolerability from ISO point of view

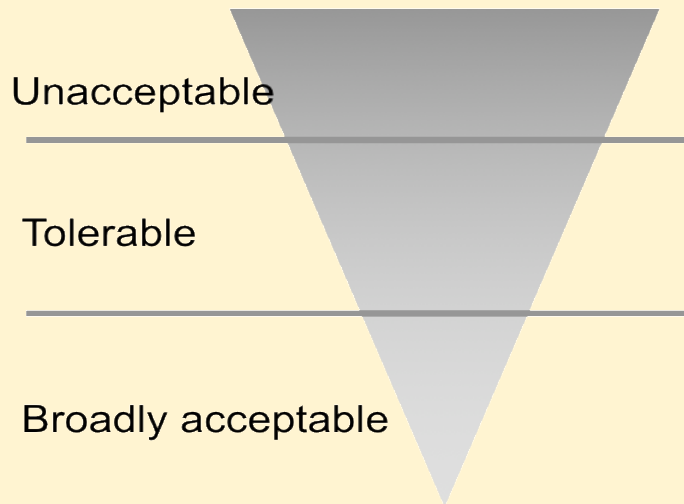
- ☐ Addressed in a general guide commonly published by ISO and IEC

<https://www.iso.org/standard/53940.html> goes to ISO/IEC guide 51:2014

- ☐ Target audience of the guide: drafters of standards
- ☐ Aims at to protect the users of the product by including safety in the standards
- ☐ Supplemented by many specific guides (see references)
 - ☐ Ex:
 - ☐ ISO 7001, *Graphical symbols — Public information symbols*
 - ☐ ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

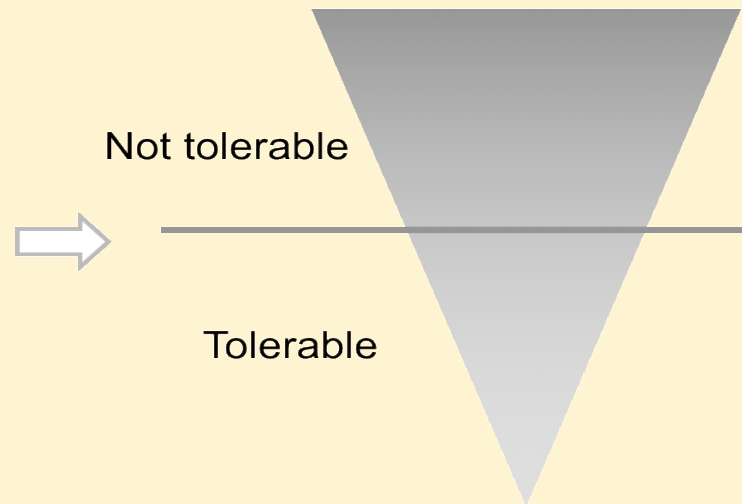
Tolerability from ISO point of view

Ver. 1 (1990) / Ver. 2(1999)



ALARP Framework (as low as reasonably practicable)
UK, HSE, The tolerability of risk from nuclear power
stations (1987)

Ver. 3 (2014) (Reviewed
in 2019)



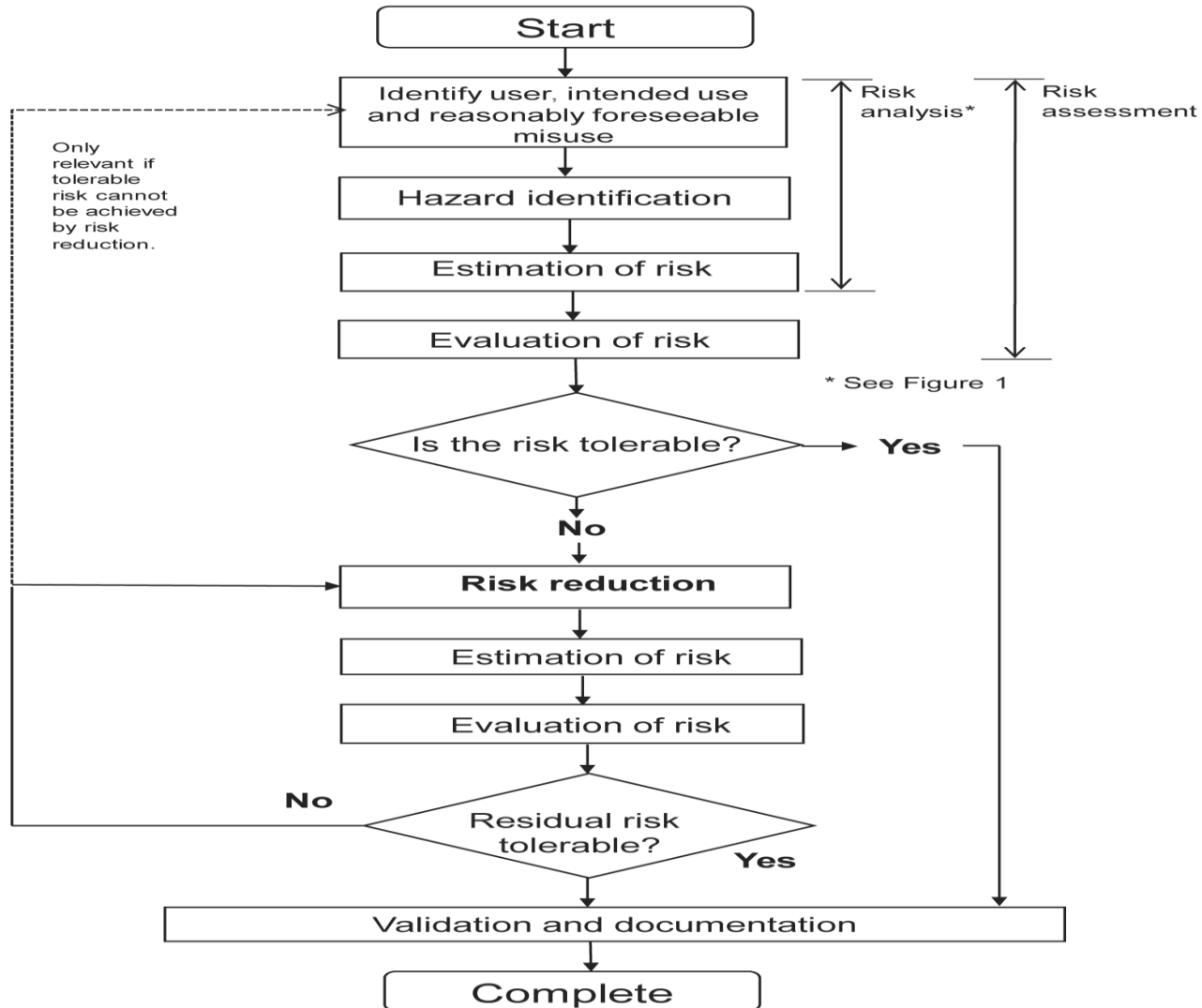
Tolerability framework

**Tolerable and acceptable are
given as synonyms**

<https://www.iso.org/standard/53940.html>

<https://www.iso.org/standard/53940.html> goes to ISO/IEC guide 51:2014

Tolerability from ISO point of view



Tolerability from ISO point of view

- ❑ Tolerable risk defined as the level of risk accepted in a given context based on the current values of society.
 - ❑ Ex US EPA : need to regulate according to the number of people exposed to a chemical carcinogen / **leads to different individual risk objectives and therefore to different limits for the same pollutant**
- ❑ Tolerable risk can be determined by:
 - ❑ the current values of society;
 - ❑ **the search for an optimal balance between the ideal of absolute safety and what is achievable; (not a single value !)**
 - ❑ the demands to be met by a product or system;
 - ❑ factors such as suitability for purpose and cost effectiveness.
- ❑ Iterative process of risk assessment and risk reduction for each hazard (essential in achieving tolerable risk).

Tolerability from ISO point of view

☐ Acknowledgement to

- ☐ Jacques Lochard (Orlando, USA, July 2019)
- ☐ Thierry Schneider (TG 114 meetings on tolerability, TEAMS September 2020)
- ☐ Jean-François Lecomte (for his help to prepare this presentation)