

Article outline is loading...

JavaScript required for article outline



Safety Science

Volume 50, Issue 4, April 2012, Pages 958– 967

First International Symposium on Mine Safety Science and Engineering 2011



Ethics and fundamental principles of risk acceptance criteria

Erik Vanem

Department of Mathematics, University of Oslo, Oslo, Norway

<http://dx.doi.org/10.1016/j.ssci.2011.12.030>, How to Cite or Link Using DOI

[View full text](#)

[Purchase \\$39.95](#)

Abstract

Ethics are concerned with distinguishing between what actions are "right" and "wrong" and what values are "good" and "bad", etc. and there is a long academic tradition in discussing ethics and ethical theories. Risk acceptance criteria, on the other hand, distinguish between levels of risks that are acceptable and levels that are intolerable. In some sense, one may say that risk acceptance criteria distinguishes between "good" and "bad" systems and activities with regards to the risk they expose the society or elements of a society to and there is thus an obvious link between ethics and risk acceptance criteria or to risk management at large. However, there are few references in the literature that explores this link, and in this paper, the ethical foundation of fundamental principles of risk acceptance criteria will be elaborated upon.

This paper considers some important principles for establishing risk acceptance criteria for safety critical systems and activities. The various principles and the philosophies behind them might at first sight seem contradictory and exclusive, but it is demonstrated how they may coexist in one and the same regulatory regime; They may complement each other in order to achieve the overall safety objectives of society. Then, some brief considerations of the ethical foundations for the principles will be given and some relevant examples of actual risk acceptance criteria will be given from the maritime industries. However, it is believed that the principles and discussions are of general interest and apply to all areas of technical risk and to safety regulations in a broader perspective.

Highlights

- ▶ A number of fundamental principles for establishing risk acceptance criteria for safety critical systems are presented.
- ▶ It is demonstrated how various principles may coincide in one and the same regulatory regime.
- ▶ The relationship between risk acceptance criteria and ethical theories are explored.
- ▶ Some examples from the maritime industries are given.

Keywords

Risk acceptance criteria; Ethics and risk management; Risk assessment; Safety regulations; Decision making; Risk governance; Risk communication

Figures and tables from this article:



Fig. 1. Examples of societal risk acceptance criteria expressed in a risk matrix.

Figure options

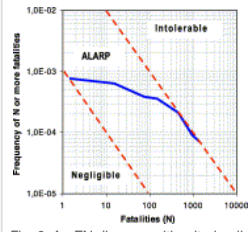


Fig. 2. An FN diagram with criterion lines representing absolute values for intolerable and negligible risks and an ALARP area in between where cost-effectiveness criteria apply.

Figure options

Table 1. Moral justification of risk acceptance criteria principles from the main types of ethical theories.



[View Within Article](#)

Table 2. Proposed FN anchor points for various shiptypes.



[View Within Article](#)

Table 3. Possible cost-effectiveness criteria for air pollution.



[View Within Article](#)



Tel.: +47 99 27 32 76; fax: +47 67 57 75 20.

Copyright © 2011 Elsevier Ltd. All rights reserved.