Risk level classification example of a process through impact and likelihood of occurrence ratings

(will be adapted to each concrete application)

One of the most widely used system for rating the safety significance of nuclear and radiological events is the International Nuclear and Radiological Event Scale (INES).

The data below are relative and should be taken with caution.

Prerequisites for any process:

* ask questions like:
  + what could prevent the implementation of the process?
  + what could go wrong?
  + what would be the impacts if it went wrong?
  + how likely is it to happen?
* identify risks
* classify risks by priority
* which process input or output can threaten:
  + the conformity of the finished product?
  + the achievement of the objectives?
* determine the urgency of the risk:
  + solved in the past
  + immediate
  + future
* establish the duration of risk:
  + short-term (<1 week)
  + average duration (<1 month)
  + long-term (> 1 month)

Table of risk impact ratings:

|  |  |  |
| --- | --- | --- |
| Ratings of risk impact (I) | | Impact |
| 5 | **Critical (major accident)** | Major release of radioactive material with widespread health and environmental effects. (e.g., Chernobyl) |
| 4 | **High (s**erious Accident) | Significant release of radioactive material, likely requiring full implementation of planned countermeasures |
| 3 | **Moderate** (Accident with Wider Consequences) | Limited release of radioactive material, likely requiring partial implementation of planned countermeasures. (e.g., Three Mile Island) |
| 2 | **Low** (Accident with Local Consequences) | Minor release of radioactive material, public exposure of the order of prescribed limits |
| 1 | **Insignificant** **(Deviation)** | No **safety significance** |

Table of ratings of risk likelihood of occurrence:

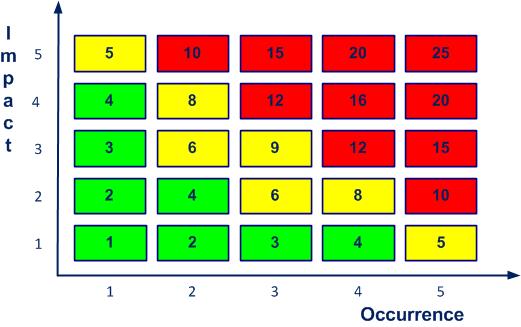
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| --- | --- | --- | --- |
| Ratings of risk likelihood of occurrence (O) | | In time | Presence |
| 5 | **very frequent** | Once a week | systematic |
| 4 | **frequent** | Once a month | repeated |
| 3 | **occasional** | A few times a year | aleatory |
| 2 | **rare** | Once a year | uncertain |
| 1 | **unlikely** | Less than once a year | hypothetical |

**The multiplication of impact (I) and likelihood of occurrence (O) gives the risk level (RL):**

**RL = I x O**

* **acceptable (1 ÷ 4)**
* **non-acceptable minor (5 ÷ 9)**
* **non-acceptable major (10 ÷ 25)**

Table of risk level:



For risk levels from 1 to 4 we deal with it or an action can be considered in a more or less near future.

For risk levels between 5 and 9 a corrective action is planned with a fairly short deadline.

For risk levels between 10 and 25 the process should be stopped immediately and perhaps the company evacuated until the risk level is reduced below 10.