

Aviation Operational Risk Management - The 6 steps process

I - HAZARD IDENTIFICATION

1 - Analyze tasks and mission:

- 1.1 - Review mission statement,
- 1.2 - Focus on key capabilities,
- 1.3 - Look at past accident patterns,
- 1.4 - Ask Ops people 'What's important?',
- 1.5 - Use the time line.
 - 1.5.1 - Operations analysis.

2 - Record hazards

- 2.1 - Source of information:
 - 2.1.1 - Experts and references;
 - 2.1.2 - Inspections, reports, interviews, audits;
 - 2.1.3 - Hazard identification tools
 - 2.1.3.1 - Operations analysis, Preliminary hazard analysis, Zonal analysis, What if tool, Scenario process, Logic diagram, Changes analysis, Causes & effects and What can go wrong.

3 - Identify causes

- 3.1 - Investigation tools: J. Reason / SHELL
 - 3.1.1 - Human factors

II - RISK ASSESSMENT

1 - Analyze exposure to hazards:

- 1.1 - Time,
- 1.2 - Proximity,
- 1.3 - Volume,
- 1.4 - Repetition,

2 - Analyze severity (impact)

- 2.1 - Impact on:
 - 2.1.1 - Mission;
 - 2.1.2 - People;
 - 2.1.3 - Material
 - 2.1.4 - Environment
- 2.2 - Qualitative measurement:
 - 2.2.1 - Catastrophic, Critical, Moderate, Negligible.

3 - Analyze probability

- 3.1 - Quantitative measurement:
 - 3.1.1 - Imminent, Frequent, Occasional, Rare, Unlikely

4 - Risk matrix

- 4.1 - Will determine the risk level.

		PROBABILITY				
		improbable	Remote	Occasional	Probable	Frequent
		1	2	3	4	5
S E V E R I T Y	Catastrophic E	3	4	5	5	5
	Critical D	2	3	4	5	5
	Moderate C	1	2	3	4	5
	Minor B	1	2	2	3	4
	Negligible A	1	1	1	2	3
		RISK LEVELS				

III - IDENTIFY RISK CONTROL MEASURES

1 - Options:

- 1.1 - Reject- *don't take the risk.*
- 1.2 - Avoid - *do it differently.*
- 1.3 - Delay- *Wait, problem may disappear.*
- 1.4 - Transfer - *to other systems, other better trained / equipped.*
- 1.5 - Spread - *reduce exposure, change mission profile, separate hazardous operations.*
- 1.6 - Compensate - *create a redundant capability. Plan for a back-up.*
- 1.7 - Reduce- *design, safety devices, warning devices, procedures, training.*

2 - Effect of measures:

- 2.1 - Impact on:
 - 2.1.1 - Probability;
 - 2.1.2 - Severity;
 - 2.1.3 - Exposure.

3 - Prioritize:

- 3.1 - Urgency,
- 3.2 - Residual risk,
- 3.3 - Cost / Effectiveness.

