

# NE529 – Risk assessment Project – HRA & HAZOP

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## Acronyms

**FMEA** Failure Modes & Effects Analysis.

**HAZOP** Hazard & Operability Analysis.

**HRA** Human Reliability Analysis.

**OER** Online Educational Resource.

**PHA** Preliminary Hazards Analysis.

# 1 Helios airways

(50)

There was yet another catastrophic airline failure in 2005 on [Helios Airways](#). There is also a video in the [case studies chapter of the OER](#). Briefly explain the accident. Comment on how this (potentially) was a failure of human reliability analysis and how HRA could have been applied to prevent this accident. Consider this to be at the same level of content as the news pieces. See - [Investigation dispels myths around Helios Airways crash](#)

## 2 HAZOP I

**(100)**

Since there have been several PHAs and FMEAs conducted already, continue your risk assessment and perform a limited HAZOP on one of the systems of interest or something new. Perform the HAZOP for a total of 6 deviations; e.g., a single component, 2 parameters with 3 guidewords; 3 parameters with 2 guidewords, or a similar combination for 2 components. Construct a HAZOP table and sufficiently explain your reasoning.

### 3 HAZOP II

(100)

You are driving on I-84, west of Twin Falls, heading to Boise for some ridiculous symposium. It is nighttime and late in March. Conduct a HAZOP for the commute (i.e., operation of the car) as follows and sufficiently explain your reasoning.

- Since the car would be the component, generate 5 operational parameters that affect the commute.
- Generate 2 or 3 associated guidewords for each parameter.
- Briefly explain the resulting operational deviations (deviation = guideword + parameter)
- Again, select a combination of 6 deviations and complete the HAZOP table.

## 4 Oroville dam

(50)

Watch the PBS news piece on the [Oroville Dam](#). Is this a failure of risk assessment or management? Should the events leading to the flooding be included in the design basis or beyond design basis?

## Tables

## Figures