File 20120301.1437: Steps in the HAZOP application:

1. Transform the process into a process flow diagram with analogous components to pipes, valves, reactors, mixers, heat exchangers, monitoring instruments.

2. Divide the PFD into small sections with defined flows among them.

3. Define the intention of each section.

4. Define significant deviations from each intension, causes, and consequences.

5. Identify the safeguards protecting against each deviation/consequence, and whether they are sufficient.

Standard guide words are:

- NO or NOT (complete negation of the design intent)

- MORE (too much—pressure, flow, level, time)

- LESS (not enough)

- AS WELL AS (generally the right stuff but not quite right)

- PART OF (something else in addition to what's supposed to be there)

- REVERSE (flowing the wrong way)

- OTHER THAN (totally wrong input)

- EARLY (time)

- LATE (time)

- BEFORE (e.g., deploy before inspected) (ordering)

- AFTER (ordering)

References