

# Assessment in safety critical work

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## Assessment before the 1980s

- Mostly input measures
  - Time serving
  - Experience
  - Apprenticeships
  - Licences
  - Training Courses



- Trades, Guilds and Professions trusted
  - Until found wanting once too often

## The drivers of change

- Major accidents e.g.
  - Flixborough (1974)
  - Seveso (1976)
  - Alexander Kjelland (1980)
  - Bhopal (1984)
  - Piper Alpha (1988)



# The ultimate tests of “good” assessment

- Legal Due Diligence

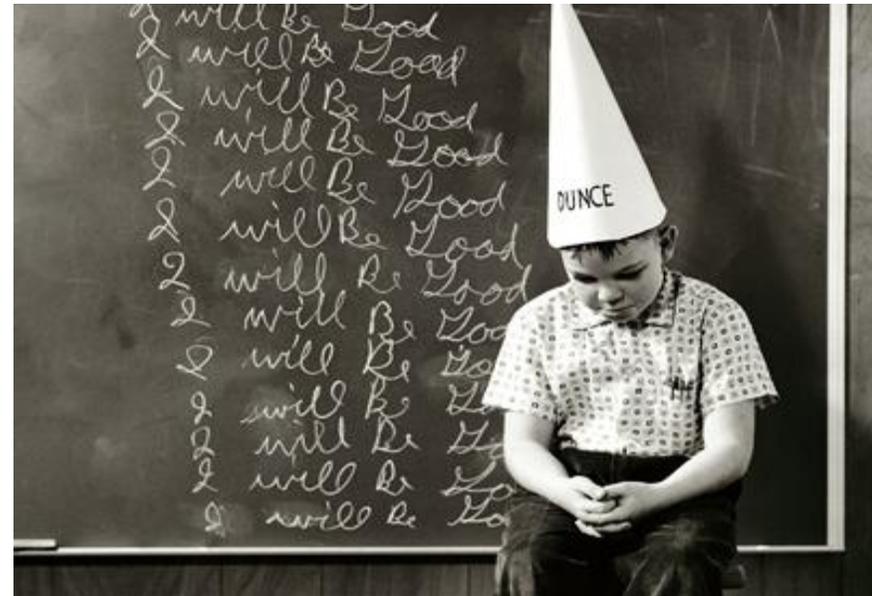


- Business efficiency

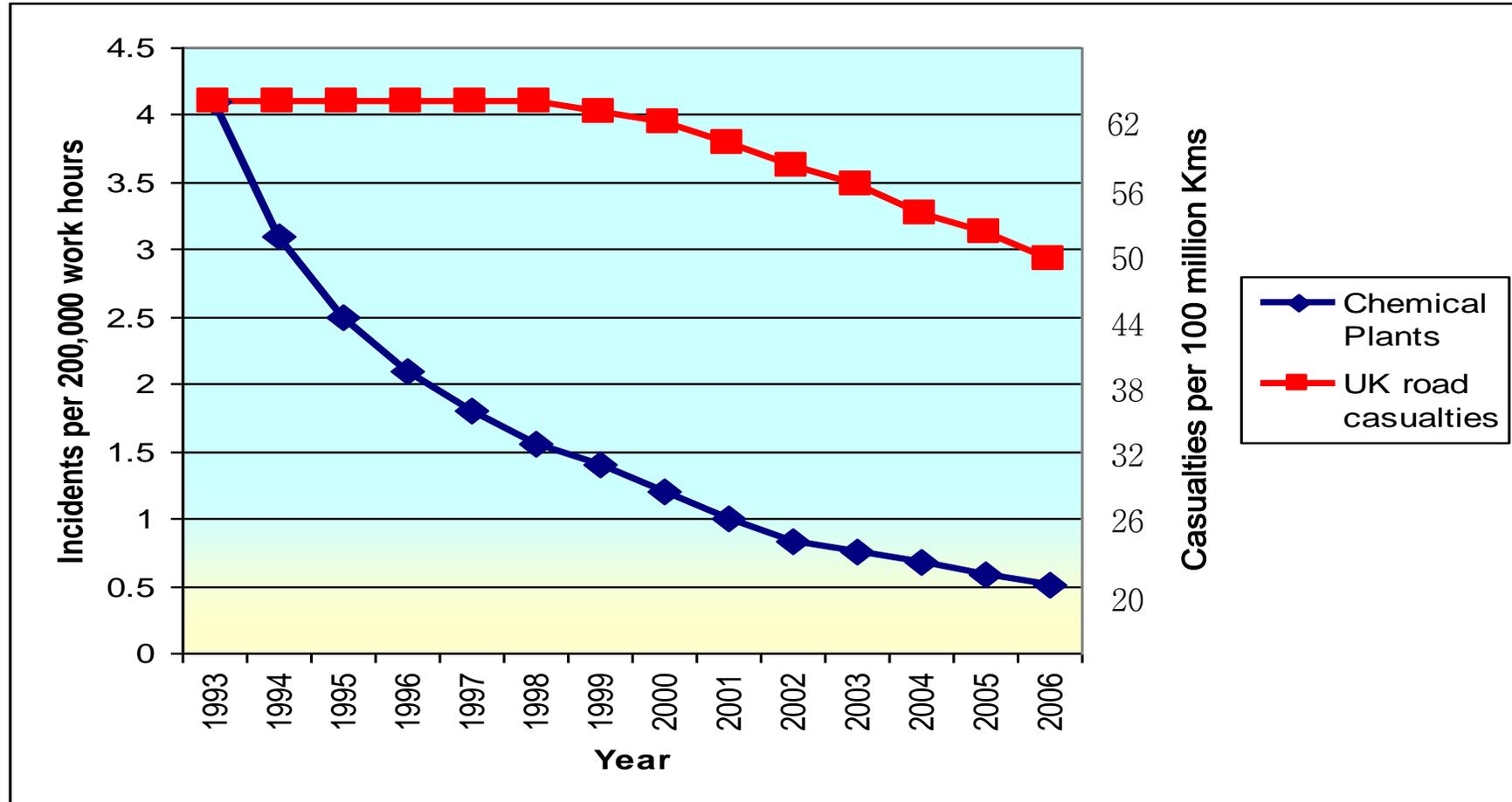


# The major causes

- Poor management
  - of operational performance
  - of safety management systems
- Failure to learn and apply lessons
- Poor communication
- Failure to follow procedures



# Trends in safety performance



Derived from Bennett, G. Learning from accidents. DNV Energy and Department for Transport Road Traffic Statistics 2006.

# The key debate: The relative importance of different types of evidence

- Observation of work
- Objective tests of knowledge and understanding
- Interviewing or questioning
- Training
- Qualifications and certificates
- Licences
- Historical work records
- Appraisals
- Simulations



## Achieving Validity – Assessment should be:

- Direct rather than indirect
- Relevant to objectives
- Comprehensive
- Multi-method
- Attributable to individuals
- Up to date

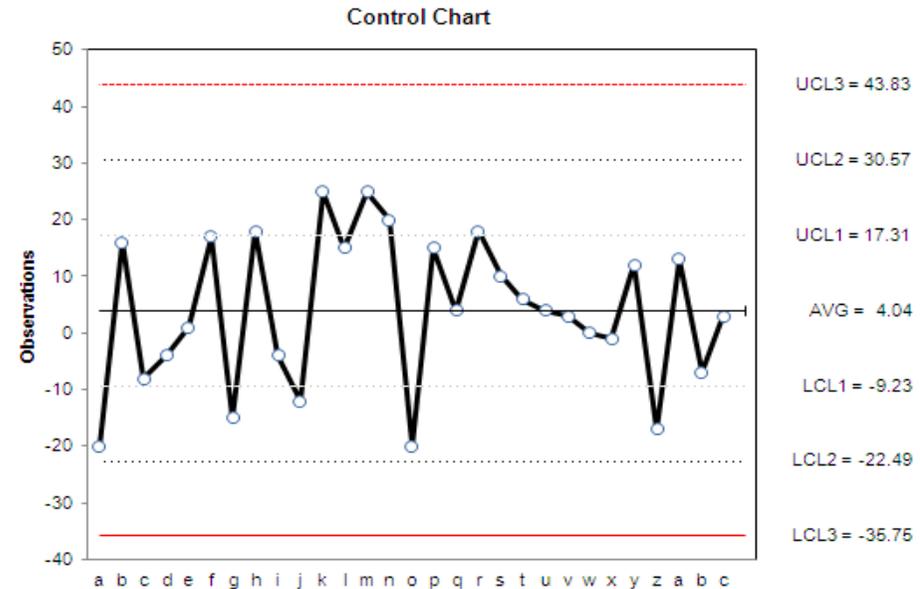


## Achieving Reliability – Assessment should be:

- Systematic
  - Manageable
  - Multi-assessor
  - Underpinned by a common understanding
- SO
- Assessor training is vital
- AND
- Composed of observable, measurable performance
- BUT
- The corollary does not follow

# Achieving Quality – Assessment should involve:

- Accurate record keeping
- Records linked directly to assessment criteria
- Regular statistical evaluations of assessment outcomes
- Regular qualitative evaluations of assessment processes



# Achieving Value – Assessments should be:

- Risk-based
- Value adding
- Sufficient for their purpose



# Assessment method effectiveness

	Direct	Systematic	Comprehen- sive	Efficient	Measurable	Up to date
Observation of work	✓	?	X	X	?	✓
Objective tests	X	✓	✓	✓	✓	?
Interviewing / questioning	X	?	X	X	?	✓
Training Outcomes	?	?	X	X	?	X
Qualifications / certificates	X	?	X	✓	?	X
Licences	?	?	X	✓	?	✓
Historical work records	?	?	X	?	?	X
Appraisals	?	?	?	X	?	✓
Simulations	?	✓	?	?	?	✓

# A good safety-related assessment system should

## Be:

- Lean
- Risk-based
- Change controlled
- Quality assured
- Transparent

## Cover:

- Medical fitness
- Performance
- Behaviours
- Attitudes and understanding

