

Berlin 21 Oct. 2003: Erfassung, Auswertung und Weiterleitung von Informationen zur Anlagensicherheit - 10 Jahre ZEMA

#### Towards better Accident Prevention and Response through Analysis and Sharing of Lessons learnt

Neil Mitchison Major Accident Hazards Bureau

> <u>Neil.Mitchison@jrc.it</u> http://www.mahbsrv.jrc.it

Institute for the Protection and Security of the Citizen

JRC





- The MARS database
- The answers from accident databases
- Authorities and industry
- Lessons learnt of different types
- Closing the loop
- Whither now?

Institute for the Protection and Security of the Citizen





## The MARS database

- MARS contains 547 accidents
- Objective: lessons learnt from individual accidents => detailed information needed
  - Direct cause
  - Underlying cause
  - Response

JRC

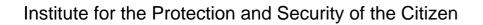
- Foreseen in Safety Report?
- 7 Near misses and 78 "incidents"

Institute for the Protection and Security of the Citizen



# Completeness of MARS

- Major accidents: under-reporting suspected
- Near-misses of interest: 7 *really?*
- Web search software installed also
- Information on individual accidents sometimes limited (e.g. Germany)







# What questions can accident databases answer?



- How did this accident happen?
- Why did this accident happen?
- Has it happened before?
- Accident precursors
- Where are the weak points? (industries; substances; processes; process phases; ...)

=> information required; gathering process





## Authorities and industry

- Inter-company communication mechanisms vary between industries (e.g. nuclear; petrochemical; chemical; pharmaceutical ...)
- Authorities' task:
  - to communicate among regulators
  - to ensure communication when industry fails to





### Different types of lessons learnt

- JRC -
- Accident cause:
  - technical
  - management failures
  - cognitive failures (understanding/prediction)
  - interaction of failures/anomalies
- Accident response:
  - emergency response
  - communication
  - "pre-post" failures





### Closing the loop

- Does the same accident happen again?
- Is accident information available to the relevant actors?
  - Is it 'packaged' suitably? Referenced?
- Weakest points:
  - Response?

JRC

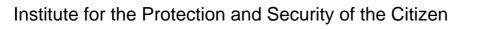
- For plant and instrumentation designers?



### Whither now?



- Improving information on near-misses
- Integrating with industry information
- Integrating MARS with national databases
- Getting the denominator as well as the numerator
- Using accident databases for safety performance indicators



JRC

