

19. Annual Regulatory Information Conference

14th of March 2007, USNRC

Lessons learned from Operating Experience

Operating Experience Feedback in Germany Practice and Challenge

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OEF system in Germany

- Legally based reporting system for licensees
 - Formal notification sheet
 - Annually about 150 reportable events for 17 operating plants
 - INES classification according INES Guideline
 - corrective actions have to be reported directly and by later update
- Transfer and dissemination for applications to other plants
 - GRS information notice – about 10 – 15 annually, mainly national events, sometimes also external events – about half a year after the event
 - Reports to IRS and participation in IAEA and OECD working groups
 - Quarterly summary reports by GRS on external OEF

- 2006 special year regarding OEF in Germany
 - no place for complacency
- May 2006 OECD-NEA Conference on OEF
 - Comparison against international practices
 - Among proposals: European Clearinghouse – following US practice – follow up discussion in WENRA
- July 2006 major event in a Swedish power plant: Forsmark
 - extraordinarily high public attention
 - highlighting generic challenges

OEF - Forsmark Event

- Event summary
 - Short circuit in switchyard caused loss of offside power
 - Resulting voltage transient switched off 2 out of 4 Uninterruptible Power Supply Units
 - 2 out of 4 diesel generators failed to supply their corresponding busbars
 - Plant transient (reactor trip with depressurization) with parts of main control room and several safety system de-energized
- Safety challenge due to screening by regulator
 - ensurance of reliable emergency power supply in the light of Forsmark event for all operating plants
 - Generic background: precursor for station blackout scenarios (IRS topical report/GSI)

Forsmark Event

- Immediate Actions (level 1)
 - Early information about event (INES-Report), safety relevance not fully assessable
 - preliminary check for the need of immediate actions
 - potential vulnerability for one plant identified, preparation of corrective actions initiated
- Short term Actions (level 2)
 - More detailed information increasingly available one week after the event (IRS-Report some weeks later)
 - National and regional regulators initiated after about one week detailed plant specific investigations:
 - event sequence transferable to German plants?
 - corrective actions necessary to restore safety levels as assumed by the licenses?
 - Results of investigations by plants, experts and regulators
 - event not directly transferable to German plants: diesel generator not depending on AC-current (1 exception),
 - adequate over-voltage protection of uninterruptible power supply (UPS)

OEF - Forsmark Event

- **Middle term Actions (level 3) (still under way)**

- National and regional regulators, experts and licensees discussed and agreed on approach to investigate issues as:

- generic lessons to be learned for improved protection against electromagnetic transients
- assessment of current design solutions against “comparable” operating experience with voltage transients
- including possible plant modifications to take into account safety challenges and technical solutions in accordance with the current state of science and technology
- regulatory guidance based on an “GRS Information notice”
- consultation of reactor safety commission as advisory body

- Findings and measures will be summarized for all plants to close the feedback loop

Lessons learnt

- Licensees had no fast own reporting system: talks of federal regulator with heads of the utilities
=> now there is a new system of the licensees in place
- Federal regulator relied solely on external expert organisation GRS:
=> now regulator staff is additionally responsible for monitoring INES and IRS reports and to take actions
- Schedule for first evaluation 24 h after INES Level 2 or higher notification

Lessons learnt

- OEF cycle works to slow;
- there is a lot of information available but it is not used properly
- there is a need to evaluate low level events /near misses
- we need precursor studies to make OEF more effective
- international OEF depends on the quality and the number of national reports. Some countries are not able to produce such reports
- need to discuss the role of the licensee and its organizations