



# Importance of Feedback from Operating Experience

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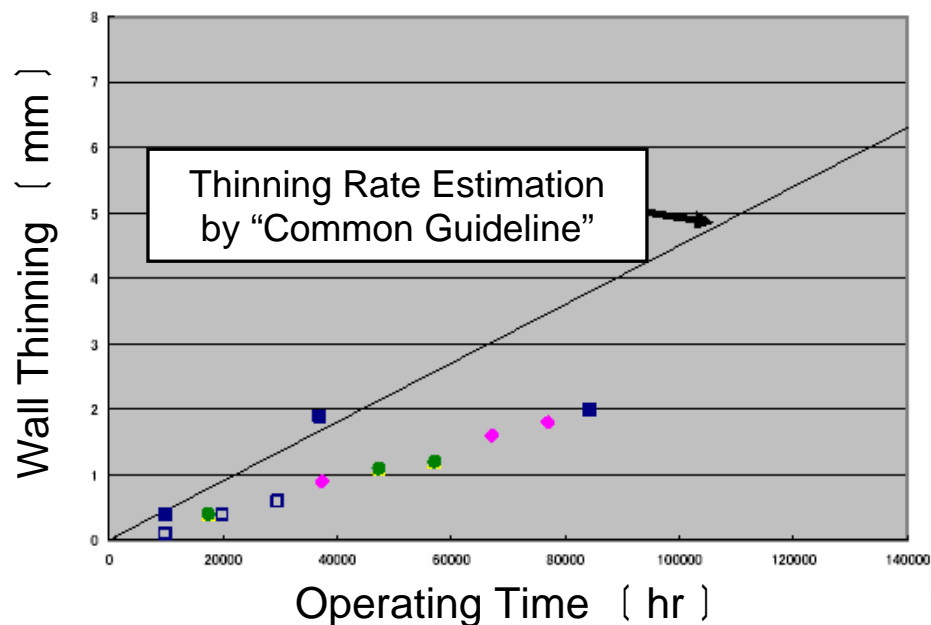
# Approaches to Reflect Operating Experiences

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- One is a direct approach to apply the lessons learned to the same or similar equipment or systems.
- Another is an inductive feedback, observing phenomena in an event, extracting insights through detailed analysis and applying the lessons to other places. It would be possible to utilize the lessons even from non-nuclear accidents.

# Mihama Pipe Rupture Accident

- A pipe rupture accident occurred at Mihama #3 in 2004.
- In 1990 Japanese PWR utilities developed “Common Guideline” for pipe thinning management.
- However, the accident occurred.





# Mihama Pipe Rupture Accident (cont'd)

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- Inadequate quality management and failure of operating event feedback led the accident.
- The ruptured portion had been dropped off from the check list since the beginning.
- The information of preceding events did not reach Mihama.
  - 1995, Tomari Unit 1 (Hokkaido)
  - 1997, Takahama Unit 4 (Kansai)
  - 2000, Tsuruga Unit 2 (JAPCO)



# Mihama Pipe Rupture Accident (cont'd)

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- The direct cause was the degradation of the piping.
- One important lesson is that ageing countermeasure is not merely understanding degradation mechanism.
- Establishment of a comprehensive safety management within the licensee and contractors is much more important for long term safety management.



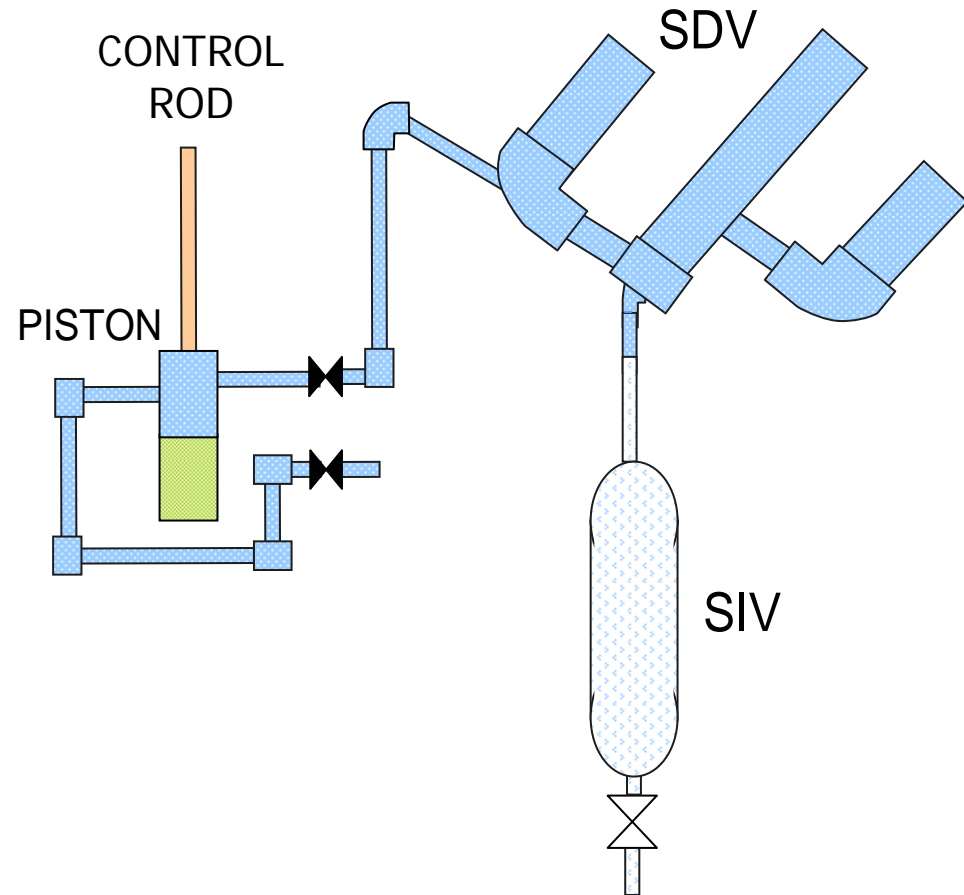
# Different Approaches for Feedback of Operating Experiences

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- The most usual and important is to apply the lessons directly to the same or similar equipment or systems.
- In addition, operating experiences sometimes give us useful insights or hints.
- We often find out similarities in human or organizational factors which became the cause of accidents in various situations.

# Browns Ferry Scram Failure

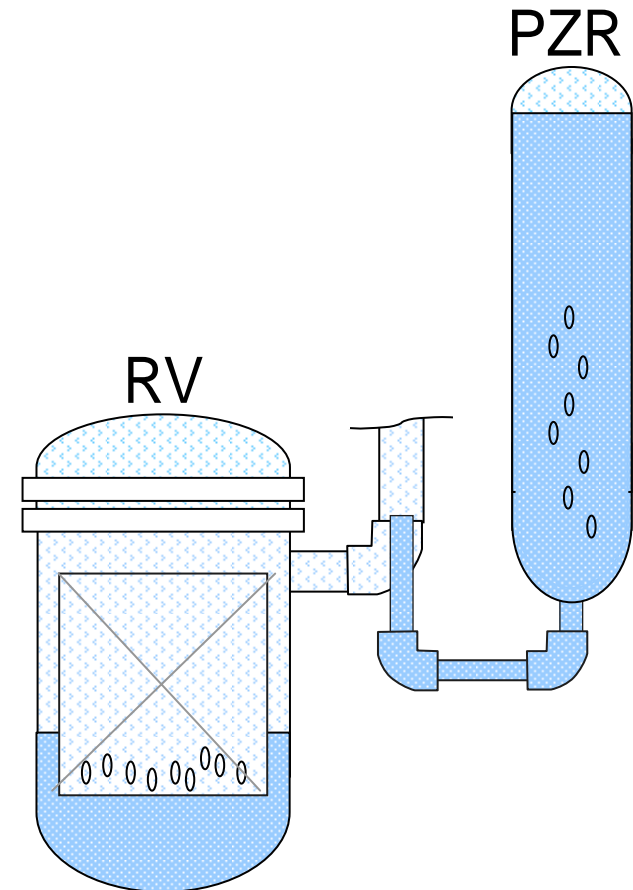
- A scram failure occurred in 1980 .
- The operators must have believed that SDV was not filled with water, because SIV was empty.





# TMI Accident

- A core melt accident occurred in 1979.
- The operators believed that the reactor core was full of water, because the pressurizer was full.





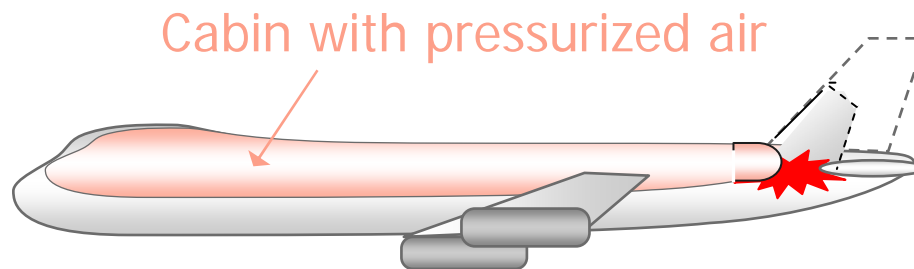
# Hamaoka Hydrogen Explosion Accident

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- The hydrogen explosion occurred in 2001.
- The two component flow has a possibility of separation especially where the reactor coolant was evaporated or condensed. (In Hamaoka, hydrogen was separated in RHRs.)
  - cf. Boron dilution has become a concern under severe accident conditions at PWRs.
- The rupture of high pressure piping or tanks may affect the surrounding equipment.
  - cf. Sump strainer clogging.

# Japan Air Line Jumbo Jet Crash

- In 1985 Jumbo Jet was crashed, killing 520 persons.
- The pressure boundary wall was breached and the high velocity air release collapsed the vertical tail and safety equipment.
- We may find something from it regarding high pressure rupture issues.





# Concluding Statements

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- Operating experiences suggest a lot.
- There are various approaches for extracting insights and feeding back the lessons.
- We can learn lessons even from non-nuclear events.
- Operational experiences have to be shared internationally.
- We may have to provide some mechanisms to recall the important lessons once learned from the past events.