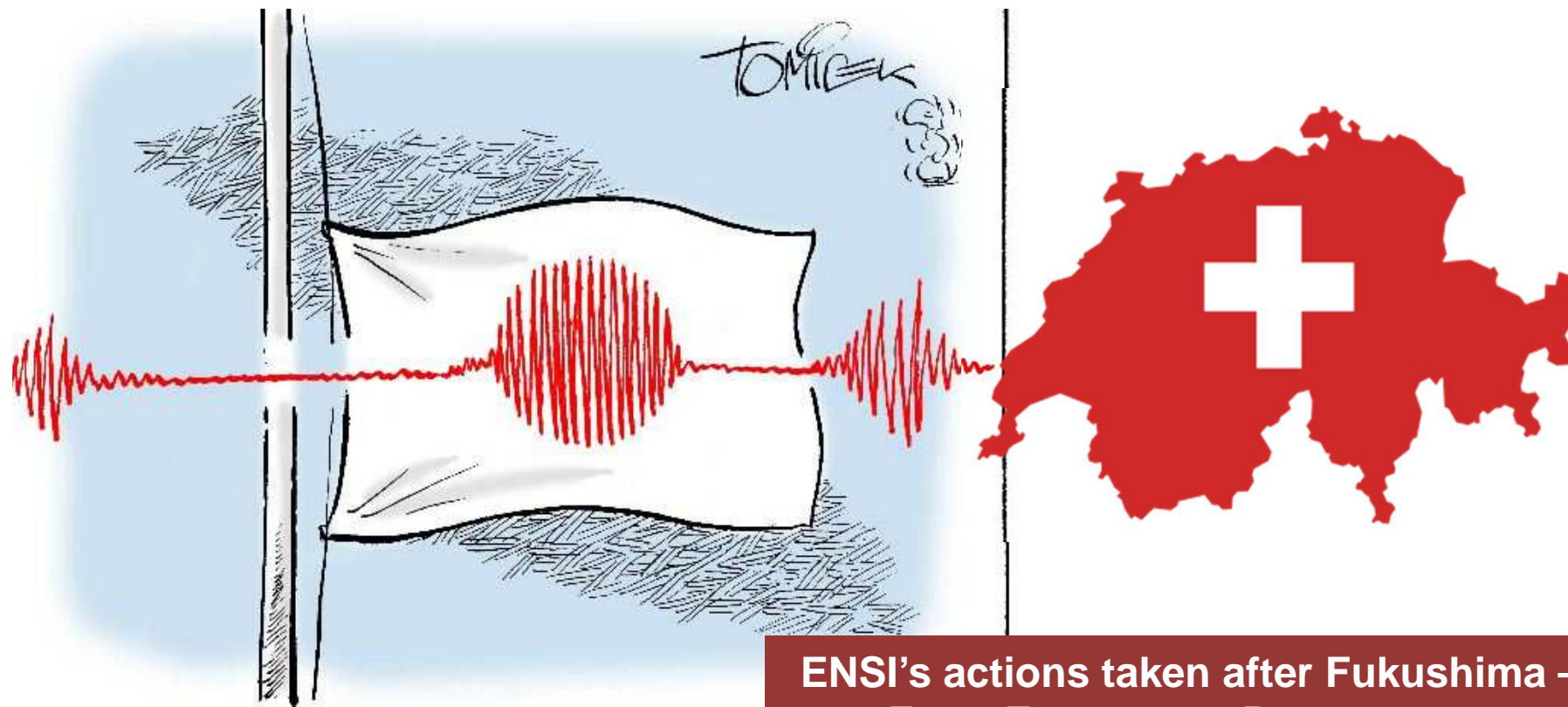




Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Federal Nuclear Safety Inspectorate ENSI



*Fukushima Ministerial Conference on Nuclear Safety  
15-17 December 2012*

## **ENSI's actions taken after Fukushima – From Emergency Response to Lessons Learned**

**Dr. Hans Wanner**  
Director General ENSI  
WENRA Chair



# Switzerland's response to the Fukushima accident

Fukushima Ministerial Conference on Nuclear Safety / Japan 15-17 December 2012 / Dr. Hans Wanner

## ENSI approach in three steps

- *In accordance with the Swiss legal and regulatory framework*
- *New findings added subsequently, as they emerge*

1. Is there an **immediate threat** for the Swiss population?

▶ If yes: immediate plant shutdown

2. Criteria for a **provisional shutdown** fulfilled?

For any INES > 1 worldwide: design reassessment

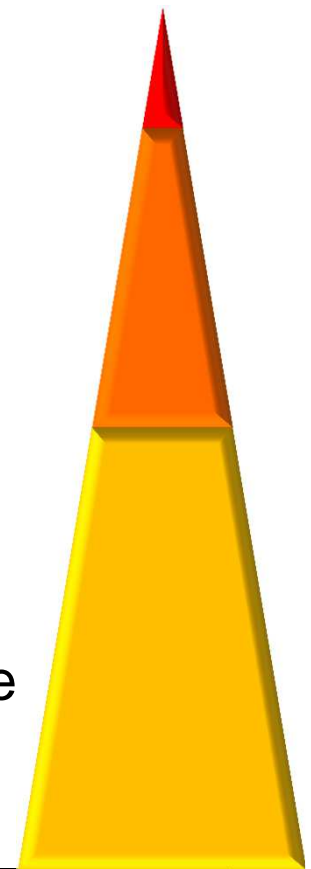
▶ If statutory dose constraints are not complied with:

Provisional plant shutdown ▶ corrective measures

3. Any measures to **improve safety**?

Detailed analysis, improvement measures as appropriate

▶ NPP stays in operation





# Actions at the national level



- Immediate actions
- First analyses
- Examination of the designs
- Focused inspections
- Backfitting



# Learning from Fukushima



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## 4 ENSI reports and an Action Plan

- Event analysis (2 reports)
- Radiological consequences (1 report)



### ▶ Running Action Plan Fukushima

- Lessons learned (1 report) ▶ **37 checkpoints**



# Measures taken since Fukushima



- **External storage facility** for emergency equipment (by 1 June 2011)
- Diverse **ultimate heat sink**
- Improvement of **spent fuel pool cooling** system
- **Design reassessments** of Swiss NPPs with respect to earthquakes (by March 2012), external flooding (by June 2011) and the combination of both events (by March 2012)
- Participation in the **EU Stress Tests**
- Review of **protection measures** for the Swiss population

**SAFETY IS NOT A STATE –**

**SAFETY IS A PROCESS**



# External storage facility

- Located at approx. 50km from the Swiss NPPs
- Operational since 1 June 2011
- Transport by helicopter < 2000 kg
- Bunkered army depot
  - Diesel generators incl. fuel
  - Pumps
  - Cables / piping
  - Boric acid
  - Radioprotection equipment
  - Documentation / tools





# Measures taken since Fukushima

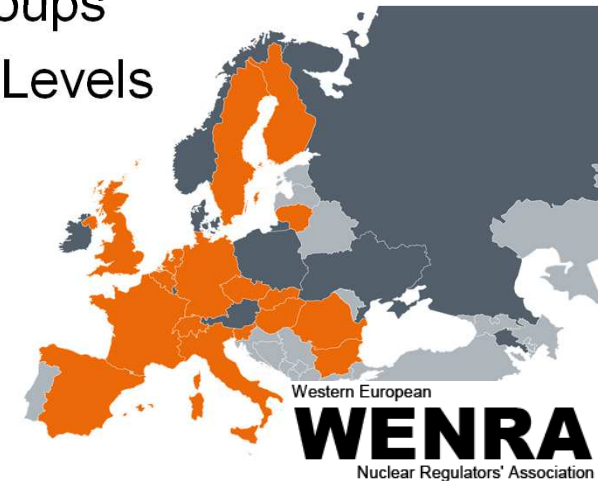
## *Part of the licensees*

		<i>Swiss Nuclear Power Plants</i>			
<i>Measure</i>	<i>Date</i>	<i>Beznau (1969/72)</i>	<i>Gösgen (1979)</i>	<i>Leibstadt (1984)</i>	<i>Mühleberg (1972)</i>
Back-fitting of accident-proof level and temperature instrumentation for the SFPs	2014	X	X	X	X
Back-fitting of a new SFP cooling system	2015	X			X
Improvement of earthquake resistance of the SFP storage building	2014	X			
Back-fitting of a venting duct to remove heat from the SFP storage building	2014	X			
Back-fitting of a diversified heat sink	2015				X



# ENSI's involvement at international level

- IAEA's **IRRS mission** at ENSI in 2011
- **EU Stresstests** (incl. Follow-Up)
- **IAEA Action Plan**
  - **OSART Mission** for Mühleberg NPP in October 2012
- **2<sup>nd</sup> Extraordinary Meeting of the CNS** in August 2012
  - Request for Amendments to the CNS
- Western European Nuclear Regulators Association **WENRA**
  - 5 new Technical Working Groups
  - Update of Safety Reference Levels





# ENSI's commitment at the international level to strengthen Nuclear Safety



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# After Fukushima we must

- establish **internationally harmonized state of the art standards**
- encourage **international Peer Reviews and Periodic Safety Reviews**
- make sure that **regulatory authorities are *de facto* and *de jure* independent**



**To strengthen Nuclear Safety  
we must not rest!**

