The Fukushima accident
Consequences for Japan and France

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On behalf of the State, ASN regulates nuclear safety and radiation protection in order to protect workers, patients, the public and the environment in France against the risks related to nuclear activities.

ASN contributes also to informing the public.
ASN ROLES AND RESPONSIBILITIES

Nuclear Safety Authority

- Defines the general objectives of nuclear safety and radiation protection
- Propose practical details to reach these objectives
- Makes sure that the method is appropriate to reach these Objectives and authorize it (or propose authorizations)
- Implement the method approved
- Verifies the implementation through regulatory assessments and inspections. Inform the public.

BNIs licence holders
- EDF, CEA, AREVA, ANDRA, ...

Ionizing radiations users
ASN’s OBJECTIVES

To provide a nuclear supervision that is efficient, impartial, legitimate and credible, recognized by the citizens and which constitutes an international benchmark for good practices.
ASN’s VALUES

Independence

Competence

Rigor

Transparency
The French Safety Authority - ASN

Set up by the TSN act (13 June 2006) as an independent administrative authority
  • Part of the State
  • Fully independant from operators, promoters of nuclear energy and from the Government
  • Hearings at the French Parliament on a regular basis

Ensure the regulation and control of nuclear safety and radiation protection (civil applications)

Full compliance with regards to international conventions
The French Safety Authority - ASN

- Guarantor of the independency:
  - A board of five Commissioners
    - A unique 6 years term
    - irremovable
  - Transparency

- ASN’s missions
  - REGULATES
  - AUTHORIZES
  - CONTROL (inspection and sanctions)
  - Contribution to the management of emergency situations
  - Information of the public
ASN’s organization

In 2011

- ~ 450 personnel including 200 in regions
- Budget: 185 M$
  - 83.2 M$ for ASN
  - 101.4 M€ for technical support (mainly IRSN; ~ 400 full-time employees)
Cooperation between nuclear safety Authorities

- Information exchange
- Takes advantage of international good practices
- Efforts towards harmonization
- Makes the French doctrine and practices internationally known
- Relationships with border countries

Bilateral relationships: ~20 countries
Multilateral relationships: IAEA, NEA, EU
Clubs and initiatives: INRA, WENRA, MDEP, FRAREG
The Fukushima accident
The sequence of events
The site
March 11 – large earthquake (magnitude 9) followed by a tsunami (waves of 14 meters high)

- Impact of earthquake:
  - Emergency shut-down of all reactors
  - Loss of all off-site power
  - Start of emergency diesel generators (EDG)

- Impact of tsunami:
  - Loss of all on-site power (including EDG)
  - Destruction of the water intake (pumps or civil engineering)
  - Destruction with many debris on-site

Loss of all power sources and of cooling water
The Fukushima accident
The sequence of events
Tsunami affecting the site
The Fukushima accident
The sequence of events
Loss of power sources
The Fukushima accident
The sequence of events
Loss of cooling sources
The Fukushima accident
Crisis management in France

In case of an accident occurring in France, ASN:

- Controls the technical measures taken by the licensee
- Gives the competent authorities recommendations (to local authorities and to the Government)
- Informs the public (press conferences, press releases…)
- Ensure close relations with international counterparts

Accident of Fukushima:

- Gather accurate information
- Analysis of technical data
- Recommendations to Government and French Embassy

Evolution of emergency drills from 1990 to 2008
The Fukushima accident
Crisis management in France
March 11 to April 13: crisis

Handling of crisis:
- Crisis centre activated 24/7 since March 11
- Daily exchanges with:
  - IAEA emergency centre,
  - Foreign counterparts (including US NRC)
  - French Embassy in Japan

Contribution to the protection of population:
- Recommendations to the French Embassy concerning protective measures for french citizens living in Japan
- Strengthening the monitoring of radioactivity levels in France (including Dom Tom)
- Support for the systematic control of goods imported from Japan
• Information at national and local levels
  • 18 ASN Press conferences
  • 28 press releases
  • 2 statements from ASN’s Commission

• 10 to 15 people to answer to 1,200 media demands
• Dedicated website (700 000 visits)
• Dedicated phone number to answer questions from the public
The Fukushima accident
Complementary safety assessments
European stress tests

Following the accident:

• Campaign of targeted inspections focused on Fukushima related topics
  • 38 inspections conducted (June-October 2011), 116 days of inspection carried out by inspection teams composed of ASN inspectors + IRSN experts + 47 external experts (NGO, foreigners…)
  • Inspections campaign conclusions publicly released

• Complementary Safety Assessments (CSA)
  • Process based on European Stress Tests specifications
  • Concerns 150 nuclear installations (NPPs, NPP under construction, fuel cycle facilities, research reactor…)

• Complementary approach to existing safety regulation
5 May 2011: CSA specifications defined by ASN

15 Sept 2011: CSA reports submitted by operators to ASN – all reports made available on ASN’s website

Analysis performed by IRSN until mid-November. Implication of foreign experts and of NGOs representatives. Report available on ASN’s website

3 January 2012 – position of ASN and release of its report (all available to the public)

Next weeks:
- ASN will issue requirements (immediate implementation imposed)
- Joint effort at the European level
ASN considers that the facilities examined offer a sufficient safety level to require no immediate shutdown of any of them. At the same time, ASN considers that their continued operation requires an increase in their robustness to extreme situations beyond their existing safety margins, as soon as possible.

ASN will impose measures to licensees:

- A “hardened safety core”
- A “nuclear rapid response force” (for EDF)
- A reduce risk of dewatering in SFP
- Studies on protection of groundwater & surface water in case of severe accident
- No subcontracting for the monitoring of safety related activities
- Strengthened compliance of facilities
Conclusions

- The Fukushima accident is a major event
- Despite all precautions taken, an accident can never be completely ruled out
- As for past accidents (TMI and Chernobyl) the complete experience feedback will take time, probably a decade
- The stress tests process (Complementary Safety Assessments in France) must ensure an increase of safety level for all European nuclear installations