



*The French Nuclear Safety Authority*

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# **Operating Experience for Fuel Cycle Facilities in France**

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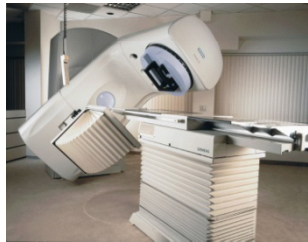


- 1. ASN, the French regulatory authority**
- 2. The French Fuel Cycle facilities**
- 3. Fuel Cycle Operating Experience management**
- 4. Integration of the experience feedback from the Fukushima accident**
- 5. Future OpE challenges for ASN?**



# 1. ASN, the French regulatory authority

## Medical uses of ionizing radiation



- Radiotherapy
- Scanners
- Dental examination
- etc...

## Basic Nuclear Installations

- NPP
- Research centers
- Fuel cycle facilities
- Irradiators
- Decommissioning



## Waste Management



## Industrial uses of radioactive sources

- Gamma radiation
- Food irradiation



## Transport of radioactive substance





# 1. ASN, the French regulatory authority

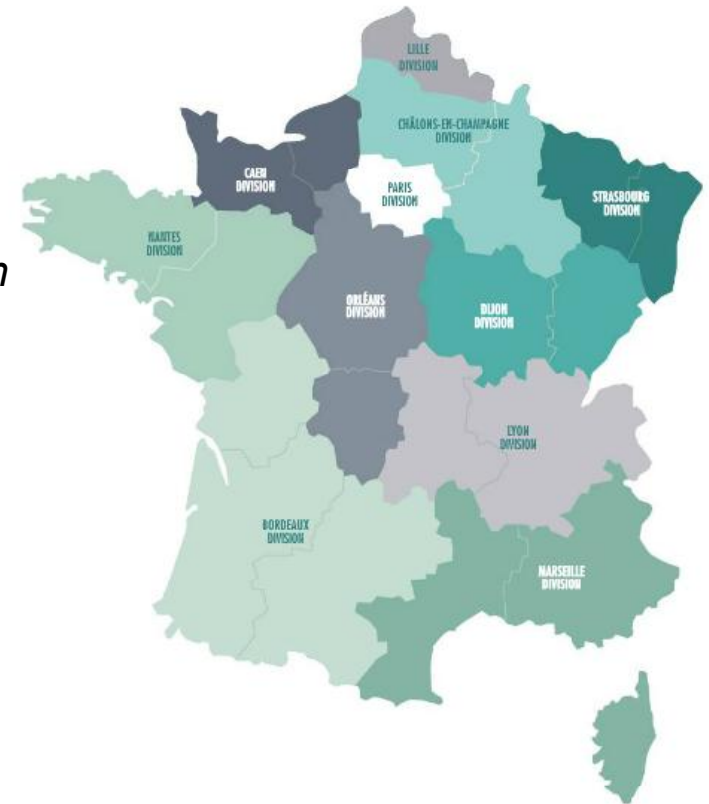
■ **Staff : 470** industrial and medical engineers, physicians and pharmacists, human scientists as well as legal and administrative specialists.

- 240 persons in the Montrouge Headquarters
- 230 persons in 11 regional offices divisions with competence for one or more administrative regions
- **~25 ASN staff work for the control of the FC facilities**

■ **Budget : 75 M€**

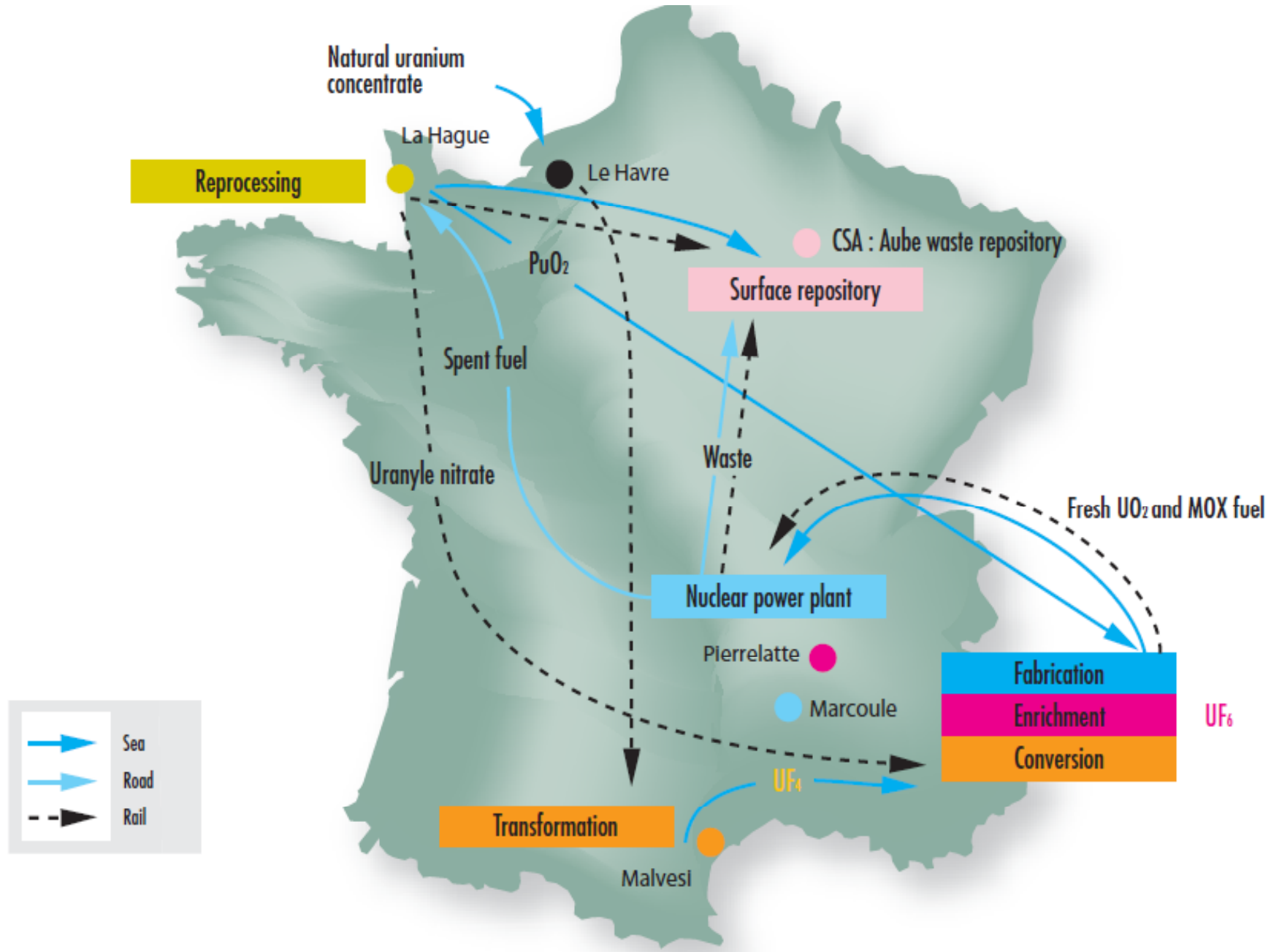
■ **Additional experts: ~ 400** within ASN's Technical safety organization IRSN (Institute for Radiation Protection and Nuclear Safety) which provides expert analysis – with an additional dedicated budget of 80M€.

**IRSN**



→ **Civilian nuclear facility supervision: ~ 870 pers. and 155M€**

## 2. The French Fuel Cycle Facilities





## 3. Fuel Cycle Operating Experience management

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### ASN surveillance

Inspections program

**GPEs** (10-year safety reviews for each BNI)

Internal/external expertise...



### International cooperation

AEIA, NEA, Working groups, foreign regulators...

### Licensees' information

Event Reports  
Annual compliance reports  
Modification applications



### Advisory Committees of Experts (GPE)

	GPR	GPU	GPD	GPT	GPESPN	GPRAD	GPMED
Specialty	Reactors	Laboratories and plants	Waste	Transports	Nuclear pressure equipment	Radiation protection	Medical exposure
Number of members	35	32	35	23	29	27	30

**The GPEs comprise experts:**

- **nominated for their individual competence;**
- **coming from various backgrounds;**
- **who can also be licensees of nuclear facilities or come from other sectors;**
- **French but also foreigners.**





## 3. Fuel Cycle Operating Experience Management

### 10-year safety reviews:

=> the UP3-A plant example (BNI 116/AREVA NC La Hague)

**ASN has received in 2010 the AREVA BNI 116 safety review report**

### **5 meetings of GPU and GPT in between 2012 and 2015:**

- Implementation of the safety review process;
- Operating experience;
- Internal transport operations review;
- Compliance review and aging;
- Final safety review

**AREVA NC has taken nearly 200 safety commitments**





## 4. Lessons learned so far in France

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### ■ Feedback experience from Fukushima: international consensus

- An accident is always a possibility
- A minimum of 10 years to draw all the lessons from the accident

### ■ Main measures implemented after Fukushima

- Stress tests at a national and european level (only for reactors for EU)
- The « hardened-safety-core » will include mechanisms designed to prevent a severe accident, mitigate the consequences of accidents and allow the operator to handle his emergency management duties.
- The AREVA group is creating a national task force named “FINA”. The goal of FINA is to provide additional technical support to a AREVA site within less than 48 hours



## 4. Integration of the experience feedback from the Fukushima accident

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### ■ Timeline:

#### ■ May 5, 2011 :

- ASN post-Fukushima specific inspections
- All FC licensees supplied stress test reports (“ECS”) in September

#### ■ June 26, 2012:

- ASN set additional prescriptions for the Areva Group facilities assessed in 2011, in the light of the conclusions of the stress tests
- « hardened safety core »

#### ■ January 9, 2015

- ASN resolutions prescribe for each facility the hazard levels and associated requirements for the hardened safety core and the deadlines for deployment of this hardened safety core.





## 4. Integration of the experience feedback from the Fukushima accident

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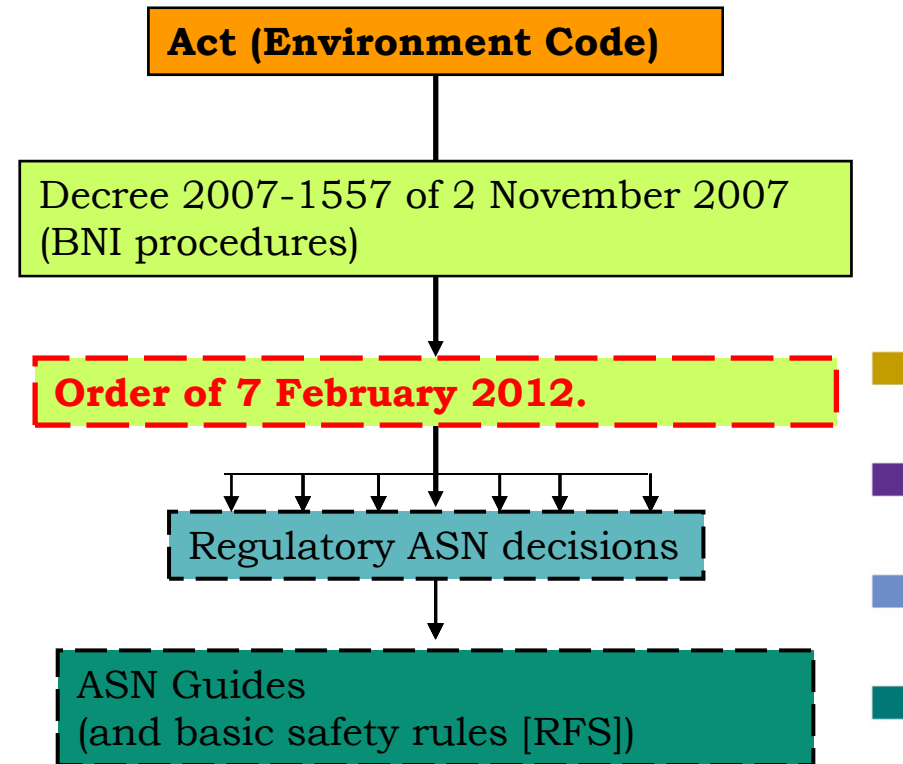
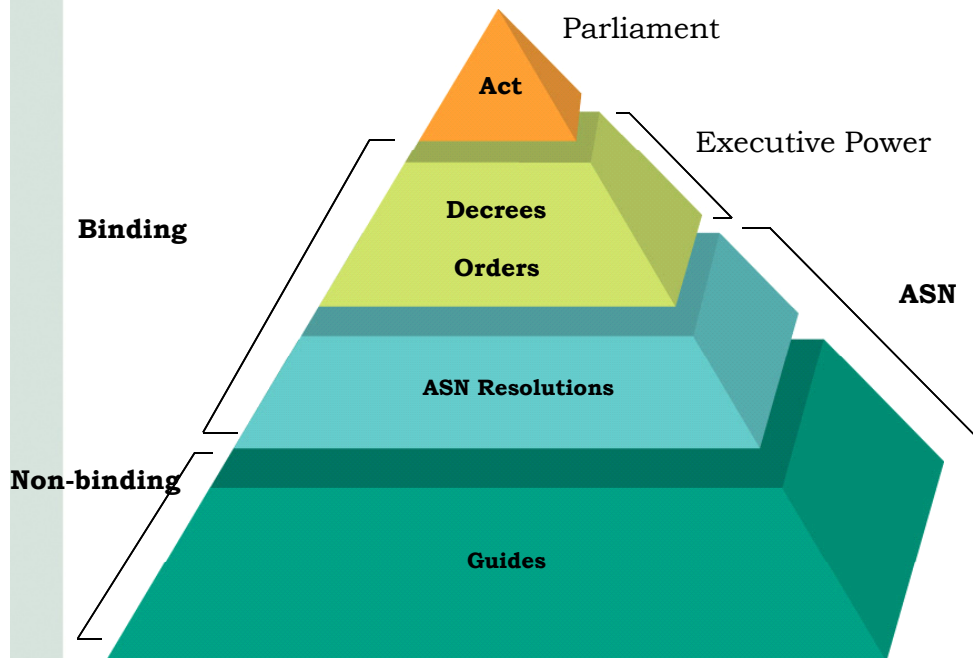
### ■ AREVA NC La Hague examples => 21 new safety commitments

(ASN Decision n° 2015-DC-0483, January 8th, 2015)

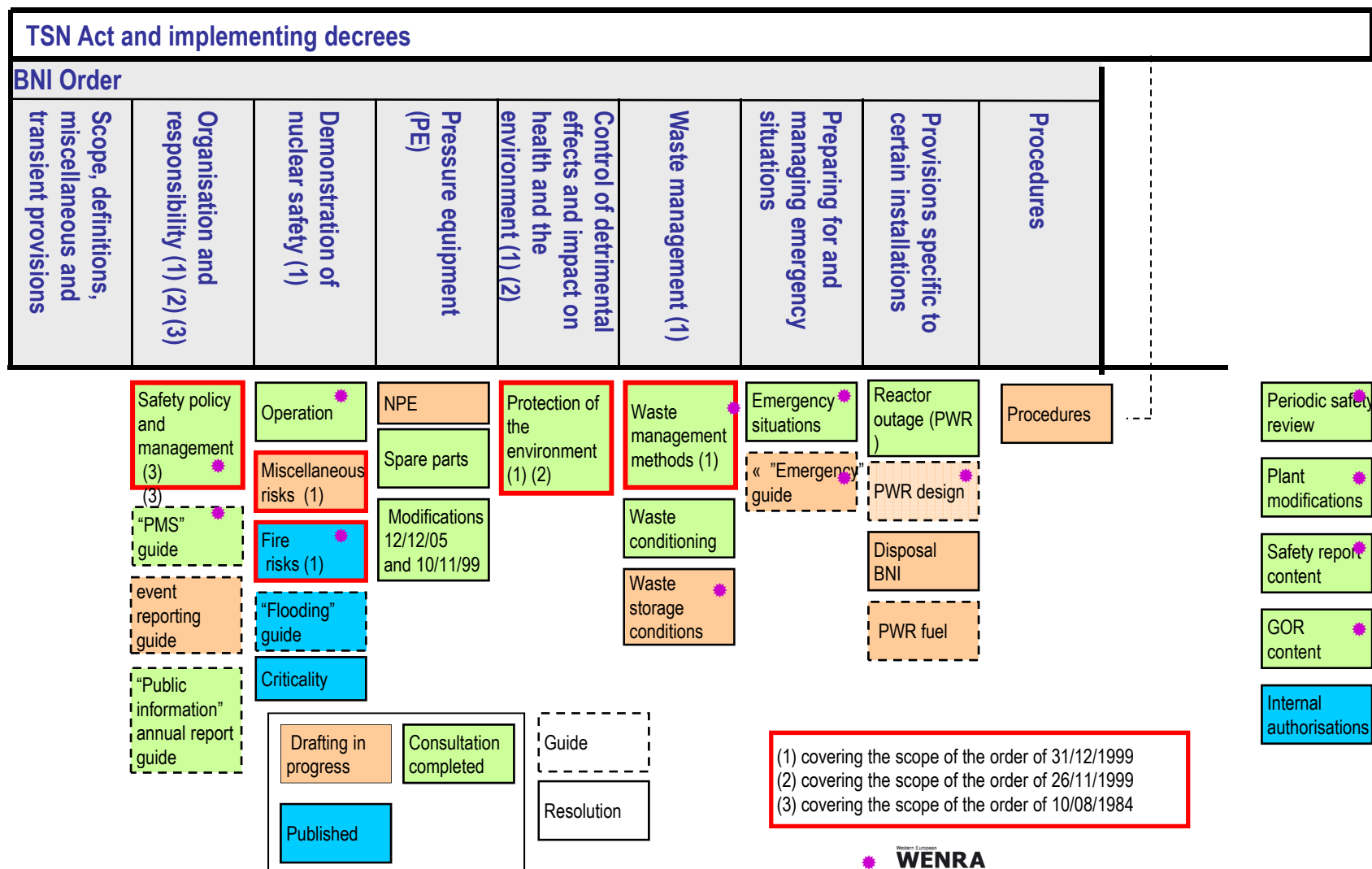
- Construction of a new robust building (« bunker »)
- New ultimate cooling water supply for spent fuel pools
- New ultimate air supply for FP and Fines tanks
- New mobile EDGs
- Human Factors => training and awareness enhancement for operators in the management of emergency situations
- ...



## 5. Future OpE challenges for ASN?



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**Je vous remercie pour votre attention**

**Thank you for your attention**

