

**ENSREG First Topical Peer Review on  
*Ageing Management of Nuclear Reactors*  
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# **Critical remarks on the PLEX-process of Tihange 1 and Doel 1&2**

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# According to the Belgian national report on Ageing Management ...

*“The present national assessment report on ageing management highlights that the ageing management program by ENGIE-Electrabel is now in line with the international standards and should ensure an adequate management of the ageing of the safety related SSC’s during the rest of the lifetime of the NPP’s”*

**... is it, does it ??**

**2 preliminary remarks →**

# 1. “Online with international standards” is not enough

**Doel:** 30 km zone = 1.5 million people

Antwerp (500.000 inhabitants) at 10 km

**Tihange** : 30 km zone = 840.000 people

Huy 3 km, Namur 22 km, Liège 25 km

**Siting of NPP's and population density around NPP's in Belgium require more stringent precaution norms than the general international standards and guidelines**



## 2. “adequate ageing management of the safety related SSC’s” is not enough

Not only components are ageing, also the physical (e.g. Seveso companies) and societal environment change (e.g. post 9/11 terrorist threat)

Reactors and spent fuel storages buildings are not designed to cope with these changes and upgrades are not or not sufficiently imposed

**Ageing management should also take the societal changes into consideration and cover *safety* as well as *security* related ageing phenomena**

# Critical remarks on the PLEX process of Tihange 1 and Doel 1&2

- FANC's first strategic LTO note (1999) on T1, D1&2 : *“The re-evaluation [of the safety level] should not only be done compared to the design of the most recent Belgian units, but compared to the most recent PWR's. Specific attention should be payed to recent evolutions in the design (e.g. core catcher)”*.
- But... after consultation with the nuclear operator, FANC weakened its requirements: not anymore the safety level of the EPR, but of the most recent “Belgian” reactor units became the benchmark for safety, i.e. Doel 4 and Tihange 3 of 1985

# Critical remarks on the PLEX process of Tihange 1 and Doel 1&2

The benchmark for “ageing management” in Belgium is the safety level of >30 years old reactors.

→ If today, a new build reactor, identical to T1, D1&2, would not get an operation license, how can such a 40 years old reactor get permission to run for another 10 years?



# Critical remarks on the PLEX process of Tihange 1 and Doel 1&2

- 2012 EU Stress Tests identify the **replacement of the Reactor Pressure Vessel Heads** as a precondition for PLEX
- FANC confirms necessity of D1&2 RPVH replacement in 2012 LTO dossier
- ...but in 2015 FANC approves ENGIE-Electabel's LTO dossier for D1&2 without the requirement to replace the RPVH's. The operator only needs to ***investigate*** if there is a **necessity** for RPVH replacement

# Critical remarks on the PLEX process of Tihange 1 and Doel 1&2

- FANC first strategic LTO note (1999) on T1, D1&2 :

*“The agreed **design upgrades** need to be realised as much as possible **before 2015**. (...) As far as the **‘ageing’ aspect** is concerned, the adjustments to the installations or programs need to be accomplished **before the 40 years operation lifetime expires**. Concerning the **‘design’ aspects**, the improvements or adjustments need to be realised as much as possible **before the expiry of the 40 years exploitation**.”*

# Critical remarks on the PLEX process of Tihange 1 and Doel 1&2

But...

- in 2015 FANC agreed that the operator realizes important **improvement actions only 5 years after** the extended lifetime period starts (=after  $\frac{1}{2}$  of the extended lifetime period expires).  
→ for example: Filtered Containment Venting Systems.

# CONCLUSIONS

- “Ageing management” must not only deal with age-affected components, but also with outdated **societal aspects** → **changing environmental surrounding, new threats, etc.**
- “Ageing management” must not only deal with safety related aspects, but also with **security issues** → **NPP’s are not designed or upgraded to withstand terrorist attacks.**
- Regulators must put the safety of the public before the economic considerations of the nuclear operators. Actions to remediate ageing phenomena, must be realized unconditionally: Without weakening the requirements or delaying their implementation deadlines. → **If not considered “possible”: SHUT DOWN THE REACTOR (temporarily) !**

# CONCLUSIONS

- PLEX (LTO-programs, ageing management programs) must be subject to an **Environmental Impact Assessment** and a **cross border public consultation proces**
  - **Citizens have the righth (Espoo & Aarhus Conventions) and an added value in the proces**
  - **3 legitimate court cases undermine the PLEX of T1, D1&2**