

Nuclear Safety Council (CSN)

Plenary Session Nº 1651

(December 21, 2022)

Nuclear Safety Council Commissioner Javier Dies disapproval voting formulated in CSN Plenary 1651 relative to point 1 of the agenda: "CSN report relative to Radioactive Waste General Plan (7PGRR).

This vote in disapproval of the adopted plenary resolution is formulated in conformance to Royal Decree 1440/2010, 5 November in approval of Consejo de Seguridad Nuclear Statute, arts. 26.1 & 35.3.

In connection to the debate of mentioned point 1, Commissioner Javier Dies, PhD in Industrial Engineering Energetic, Professor in Nuclear Engineering (30 years as professor in nuclear engineering, currently in special live), emits to the best of my knowledge and belief, his NEGATIVE VOTE against the CSN Plenary agreement because:

My obligation as CSN Commissioner is to contribute, to maintain and increase nuclear safety in Spain.

Concluding the Temporal Central Storage (ATC) in Villar de Cañas (Cuenca) is notably safer than having 7 Individual Temporal Storage (ATI) in operation until the availability of Deep Disposal Storage (AGP). It is said in some instances that AGP could be in operation around 2040-2050, but the 7PGRR clearly indicates 2070.

The safety level in favor of the ATC increases once a nuclear power station is fully dismantled leaving behind only the ATI. This situation is already present at José Cabrera Nuclear Power Plant and soon at Stª Mª de Garoña NPP.

To have all the irradiated fuel in an ATC implies an improvement on nuclear security against having that fuel in 7 ATI, mainly once the NPP are fully dismantled. The ATC security increase can be estimated in a factor of 20.

The Villar de Cañas ATC design has two Hot Cells available for fuel recuperability. The ATC increases the safety beyond ATIs as its design contemplates severe earthquakes and direct impact of airplane, that is not considered in ATIs that were initially designed for a short time until ATC was available. The Villar de Cañas ATC surpassed the site selection process and most of the assessment process was close to an end pending 15 days and then get building permission by the CSN once approved.

Considering all issues in contribution to safety (Security, Recuperability, Airplane crash, earthquake, site radiological impact,...) it is safer to have all the Spanish irradiated fuel in the Villar de Cañas ATC until AGP is in operation (2040, 2050, 2070,...) than having 7ATI.

This argument valid at nation (Spain) level is also valid for the Castilla La Mancha Community.

With regard irradiated fuel Recuperability, it can be checked the Javier Dies disapproval voting formulated in CSN Plenary dated November 12 2022 accessible via [CSN Web Page](#).

Several appreciations presented by this Commissioner are in line with the Strategic Environmental Impact (EAE) of 7PGRR subject to public comment in joint with the 7PGRR by the Responsible Government Office (MITECO). These appreciations are also in line with the USA “Blue Ribbon Commission on America Nuclear Future”, which I expose as follows.

Although the 7PGRR only considers 7ATDs (Decentralized Temporal Storage) for spent fuel storage and for special waste, the EAE as original cause of the 7PGRR also considers the ATC and presents two important benefits over the ATD.

- i) ATD option implies the presence of seven nuclear facilities and corresponding radioactivity impact, whereas the ATC would eliminate the radioactivity impact allowing for full release of the seven sites. As a consequence, option ATD against ATC violates the basic ALARA (As Low As Reasonably Achievable) principle, in this case preventing the full elimination of radiological impact to people and environment in 7 sites and full release.
- ii) Fuel dispersion in 7 sites is contrary to basic security principles, being appropriate to centralize the security control and supervision in a single facility

According to 7PGRR arguments, the elimination of ATC relies on difficulties to reach the “*needed social, politics and institutional consensus*” thus prevailing over the people general interest.

The option of Storage dispersal against a centralized storage was also matter of study at the USA [“Blue Ribbon Commission on America’s Nuclear Future”](#) who strongly recommends the development of one or more Centralized Temporary Storage. Development of a centralized temporary storage allows for the maximum of nuclear security and safety, as well as provides for the progress in final disposal.

It is important to mention the main milestones achieved in the building project of the ATC in Villar de Cañas. That is, the seals of quality:

1. December 2004. The Congress Industry Commission unanimously approved a resolution asking the government to carry on the development of a temporal storage facility for spent fuel high activity wastes. J.L.R. Zapatero was President of Spanish Government at the time.

2. April 2006. The Industry, Tourism and Commerce Congress Commission approved, by April 27th 2006, a law proposal asking the government to create an inter offices department commission to establish criteria to comply with by the Centralized Temporal Storage Facility for irradiated fuel and high activity radioactive waste and for the associated Technology Center. That was finally approved by the Government on June 23rd 2006.

On the functions declared for the Commission with assistance of a Technical Advisory Committee, it was the development of a procedure for the municipalities at will to opt for the candidacy for the siting. J.L.R. Zapatero was President of Spanish Government at the time.

3. June 2006. Positive approval by the Spanish Nuclear Safety Council (CSN) of the conceptual design for the Temporal Central Storage including two hot cells allowing for fuel recuperability.
4. Year 2009 Spanish Official Gazette publishes the announcement for candidacy to accommodate the ATC. This announcement was subject to news on papers and media as example of maximum transparency. The process was positively recognized at international level . 13 different municipalities applied for the ATC. J.L.R. Zapatero was President of Spanish Government at the time.
5. 2011, after two years, the commission concludes that Villar de Cañas as viable location with maximum social and institutional (municipality, province and regional community) support. This institutional support is maintained for 6 years until a change in Autonomy political government. Municipality support is still present and positive.
6. Thanks are given to all candidates municipalities that applied for the ATC, and now asking them for support to the outcomes and winner.
7. July 2015, CSN Plenary approves permit for the siting for the ATC in Villar de Cañas. The siting is declared as adequate for the ATC design. Report and Plenary resolution is available in CSN WEB page.
It is worth to mention that the ATC is designed against the worst-case earthquake and airplane direct impact. This design makes the ATC more robust and safe than ATI

<https://www.csn.es/almacen-temporal-centralizado>

8. July 2018. ENRESA (Radioactive Waste National Company) has dedicated 1.000.000 engineering working hours in cooperation with best Spanish engineering companies for the design and ATC site characterization in Villar de Cañas.

The CSN has devoted 47000 hours for the assessment of ATC in Villar de Cañas involving 18 different CSN branches each of them in charge of the corresponding report that must be signed by the experts and hierarchy. The Plenary session for the study and resolution was programmed for September 2018. On July 2018 the Energy Secretary of State mailed the CSN with indication to temporarily stop the CSN assessment as the new Government requires time to study the project. It would have been appropriate to conclude all pending reports whose

conclusion was planned in 15 days; in this way the Government would have had available all reports concluded and signed.

9. October 2018. 30 international experts with an average experience of 29 years members of the ARTEMIS mission (Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation), which is requested at the European Union member states every 10 years, qualified the Villar de Cañas ATC as a “Good Practice” that is the maximum qualification.

The international experts came from: United States, Australia, Japan, Argentina, Finland, Eslovenia, France, Pakistan, United Kingdom, Germany, Sweden, Belgium, and Brasil. The lider of the joint IRRS-ARTEIMS mission was the USA expert and high level technical responsible at the NRC.

<https://www.csn.es/informe-de-resultados-2018>

10. Since 2004 until 2021 Spain has considered the ATC as the best option in terms of nuclear security above having the fuel in 7 independent storage facilities. And this strictly true.

Having a stable national irradiated fuel management policy would be an important objective. On the contrary, having an unstable policy impairs safety and introduces difficulties for the CSN to proceed with dismantling of St^a M^a de Garoña NPP and José Cabrera NPP and the construction of 4 ATI that were totally unnecessary if the ATC was constructed.

Apart from the mentioned difficulties for the CSN, the temporal freezing of Villar de Cañas ATC project since July 2028, has implied throwing to trash about 300 million € paid by citizens, and the unnecessary generation of 9500 tons of contaminated material corresponding to the irradiated fuel casks. Every year and a half there is a need to buy 14 irradiated fuel casks with a cost of 28 million Euros.

Specific comments on 31 pages CSN report on the 7 Radioactive Waste General Plan object of Plenary session on 21-12-2022

1. This important report could have been improved as requested by this Commissioner in previous plenaries by specific reports from the technical branches affected by the 7PGRR signed by authors and hierarchy, as it is the case for other projects, including much less relevant others.

As an example, several branches are mentioned:

- High activity radioactive waste
- Low and Medium activity radioactive waste
- Nuclear security

- Mechanical and structural engineering
 - Life management and maintenance
 - Radioactive impact assessment
 - Radioactive material transport
2. Page 11 from 31. It is said Ministries Council approved the 6PGRR on June 23 2006. It should be added *“having unanimity from the Parliament Energy Commission”*. This is an essential point. Without political stability in the radioactive waste policy, nothing can be achieved as it could be the case for the AGP whose availability may be by 2040, 2050 or 2070.
 3. Page 12 third paragraph. IRRS-ARTEMIS mission is mentioned. It should be added that the mission provided the maximum qualification to the Villar de Cañas ATC as a “Good Practice”

Good Practice:

ATC design. *“The process of incorporating the best in class in the design of the CSF together with multiple capabilities for the management for spent fuel is considered as good practice”*.

Good Performances:

“The Team also observed that Spain has developed a strategy to describe the safe management of current and future radioactive waste and spent fuel generated in the country, including waste from the decommissioning of existing facilities. The Team considers that the proposed strategy is commendable and consistent with international safety standards.”

4. Page 14 from 31. An inventory of spent nuclear fuel is shown. When a PGRR of this magnitude is elaborated, several scenarios must be analyzed with consideration to all relevant variables affecting the final result.
 - a. Several scenarios must be analyzed with probabilities estimation if available.
 - i. Scenario 1: NPP operation according to PNIEC calendar.
 - ii. Scenario 2: NPP operation for 60 years.
 - iii. Scenario 3: NPP operation for 80 years.
 - iv. Scenario 4:
5. Page 15 chapter 11 Financing Regime Plan. There is a no null probability for the Spanish nuclear power plants to operate for 60 years. A financing study for this scenario should be provided. As for the inventory case seen before, several scenarios should be considered in financing. For a longer operation time, more incomes from taxes would be available for waste management including a potential tax reduction and electricity price for the customers as a consequence.

6. Page 16 from 31. It should include the good practices identified by the Peer Review members, in particular ATC Villar de Cañas as mentioned in point 2.

Conclusion:

In connection to the 7thPGRR and particularly the High Activity Level Radioactive Waste, a solid long term strategy allowing to have a high safety level would be to maintain the policy initiated in year 2004 with JLR Zapatero as president of the Spanish Government that was approved by unanimity by the Parliament (with exception of IU). Before availability of ATC's casks storage building in Villar de Cañas, the construction of ATI in Vandellós II should proceed as well as enlargement of existing ATIs as well as the purchase of necessary casks.

By means of this strategy, Spain would have a PGRR with a good practice, in other words a "9 over 10" in safety terms and an outstanding international position.

On the contrary, discarding the ATC and proceeding with 7 ATI would place Spain in the group of countries failing to produce an optimum high level radioactive waste management, or in other words a "5 over 10" in terms of safety.