Nuclear Energy Agency of the OECD
Multinational Design Evaluation Programme (MDEP)

MDEP Workshop on LW-SMMR

Ankara, Türkiye 10-11 June 2024

Compliance with the Vienna Declaration on Nuclear Safety:

Surely mandatory for the news SMMRs!

Abel J. González

Member of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)
Member of the Commission of Safety Standards of the IAEA
Member of the Committee of Radiation Protection and Public Health of NEA (OECD)

Autoridad Regulatoria Nuclear; ✉Av. del Libertador 8250; (1429)Buenos Aires, Argentina ☎+54 1163231758; 🖷 abel_j_gonzalez@yahoo.com

Vienna Declaration on Nuclear Safety

On principles for the implementation of the objective of the Convention on Nuclear Safety to prevent accidents and mitigate radiological consequences

Adopted by the Contracting Parties meeting at the Diplomatic Conference of the Convention on Nuclear Safety

in Vienna, Austria
9 February 2015

Principle 1

New nuclear power plants are to be designed, sited, and constructed, consistent with the objective of preventing accidents in the commissioning and operation and, should an accident occur, mitigating possible releases of radionuclides causing long-term off site contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions.

Principle 2

Comprehensive and systematic safety assessments are to be carried out periodically and regularly for existing installations throughout their lifetime in order to identify safety improvements that are oriented to meet the above objective

Principle 3

National requirements and regulations for addressing this objective throughout the lifetime of nuclear power plants are to take into account the relevant IAEA Safety Standards

FOLLOWING UP

THE VIENNA DECLARATION OF NUCLEAR SAFETY

Informal Meeting of Nuclear Regulators

Convened by the Argentine Nuclear Regulatory Authority

Palacio San Martín,

Ciudad de Buenos Aires, Argentina, November 16-17, 2015

WORKING SESSION I:
On Technical Criteria and National Initiatives for Implementing the Vienna Declaration

WORKING SESSION II:
On National Reports to the CNS

SPECIAL SESSION:
Encouraging greater Contracting Parties' participation in the CNS Review Process

Vienna Declaration

Important technical issues

- **The implementation of the objective of the CNS to prevent accidents with radiological consequences and to mitigate such consequences should they occur.**
- **Reviewing the incorporation of appropriate technical criteria and standards for addressing the Vienna Declaration in national requirements and standards.**

- mitigating possible releases of radionuclides causing long-term off site contamination

and

- avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions

General Principles

- ***Prospective situations*** **via-à-vis** ***retrospective situations*****.**
- ***Quantitative criteria*** **to facilitate understanding.**

Our view on the implementation of the objective of the CNS to prevent accidents with radiological consequences and to mitigate such consequences should they occur.

For existing NPPs

- Safety reviews of existing NPPs: periodical renewal of operating licence for our existing plants.
- Comprehensive stress tests under the FORO

For new NPP projects

- **CAREM design features:** an example of how the basic objective in the Vienna Declaration could be implemented in future projects.

Reviewing the incorporation of appropriate technical criteria and standards for addressing the Vienna Declaration in national requirements and standards.

- **The Argentine Regulatory Framework is fully compatible with the objective to prevent accidents with radiological consequences and to mitigate such consequences should they occur.**
  - **Prevention**
  - **Mitigation**

- ARN has always adhered to the international safety standards established under the aegis or the IAEA.
- Argentina was the first country that established this observance as a contractual obligation at the time of acquiring its first NPPs.

CAREM

The Argentine LW-SMMR

- CAREM design has a long history and since the beginning, safety has been a high priority.
- A simple design, avoiding unnecessary complexity to comply requirements was a key element.

Compliance with the Declaration

"New nuclear power plants are to be designed, sited, and constructed, consistent with the objective of preventing accidents in the commissioning and operation……"

Consistency is achieved by…

The principle of Defense in Deep was systematically applied in the design including the classification of Structures, Systems and Components.

An integrated design allowed to exclude large LOCA accidents.

The use of natural circulation for core cooling makes possible to avoid the use of pumps in the primary cooling circuit.

Passive safety systems

achieve a much lower

failure probability.

Compliance with the Declaration

"…..should an accident occur, mitigating possible releases of radionuclides causing long-term off site contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions"

Operator intervention is not necessary during a 36 h “grace period” to cope potential accident scenarios.

Full probabilistic safety analysis, comprehending both prevention and mitigation system, is performed and results are checked against a risk criterion that does not require '*long-term protective measures and actions*'

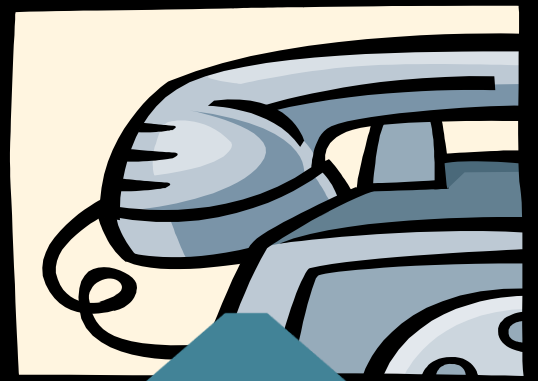
Epilogue

Thus, Argentina has become the first country to comply the political obligations associated with the the Vienna Declaration!

Argentina has already informed the Contracting Parties of the Convention of Nuclear Safety that CAREM design complies the requirements of the Vienna Declaration.

Autoridad Regulatoria Nuclear
PRESIDENCIA DE LA NACIÓN

Av. del Libertador 8250
Buenos Aires
Argentina



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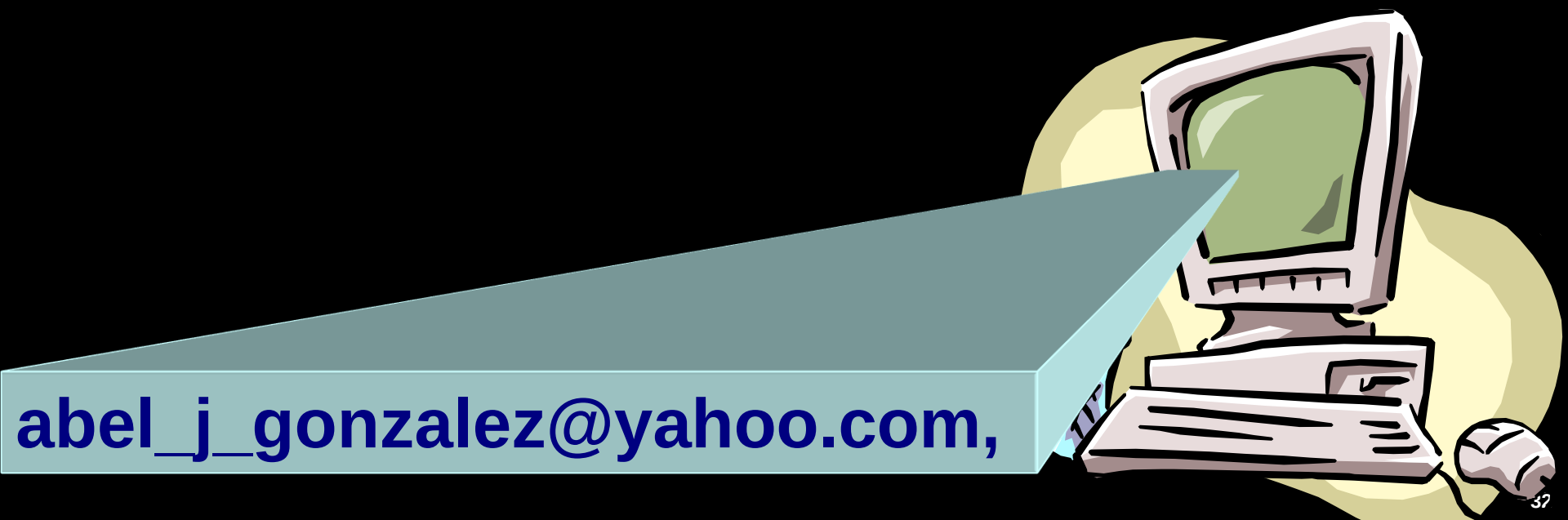

abel_j_gonzalez@yahoo.com,