

Cooperation in Reactor Design Evaluation and Licensing (CORDEL)



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Vice-Chairman CORDEL

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Towards more standardization: CORDEL in Brief

CORDEL = Cooperation in Reactor Design, Evaluation & Licensing

Mission: Promote the standardization of nuclear reactor designs

- Every reactor vendor offers one or more standard designs (EPR, AP1000, ESBWR, AES2006, APR1400, etc.). These ‘*standardized*’ designs normally have to be adapted to comply with the national safety standards in each country where they are built.
- If the safety standards in all countries were harmonized, the design could go through the licensing process without these adaptations or changes (except for site specific circumstances) and would therefore be internationally standardized design.
- **A standardised design approval process** and worldwide nuclear power plant designs would boost investment attractiveness and predictability of nuclear new build worldwide, both in established nuclear countries and in emerging nuclear countries. Safety would also be improved through more efficient sharing of operating experience, through enabling more cost effective licensing and safety analysis, and through providing more effective nuclear power plant monitoring.

CORDEL Roadmap

Step 1. Sharing design reviews and assessments

Step 2. Validating and accepting design approvals of other countries

Step 3. Issuing international design certification

- Three steps for a increasing level of international cooperation among national regulators and governments
 - serving the goals of increased safety; and of regulatory and industrial efficiency.
- Expansion of regulatory harmonization requires alignment of licensing processes together with harmonization of national safety requirements.

CORDEL in Brief

Maintain/grow commitments of our members to further our ability to harmonize requirements worldwide.

In order to achieve the objective of harmonization, CORDEL needs to respond to the concerns of the operators and vendors involved in new build, as well as to those operating current plants.

⇒ In pursuing international standardization, CORDEL needs to look at the entire nuclear industry.



Cordel – International Focal Point On Standardization

**International and
Regional Industry
Organizations:**

WANO, NEI, EPRI,
INPO, FORATOM,
EUR, ENISS....

**International and
Regional
Governmental
Agencies:**

MDEP, IAEA,
OECD/NEA, WENRA

CORDEL

Codes & Standards

ANS, ASME, AFCEN,
KEPIC, JSME, NIKIET,
CSA,
IEC, IEEE, ISO....

CORDEL at a Glance

- Manages 7 Task Forces and 2 Ad-Hoc Groups
- Issued 5 major reports in 2015 and 6 planned for 2016.
- Internationally recognized as nuclear industry voice on standardization of reactor designs and licensing processes.

CORDEL Structure

CORDEL Working Group (Chairman: J. Head)

Vice-Chairmen : H.R. Hwang - J. Barbaud - D.Hoffman

CORDEL Steering Committee

Task Forces

Mechanical Codes & Standards
(N. Prinja)

Design Change Management
(TBD)

Licensing & Permitting
(V. Jakovich)

Probabilistic Safety Goals
(N. Buttery)

Ad-hoc Groups

Small Modular Reactors
(T. Bergman)

IAEA Nuclear Safety Standards
(F. Lignini)

Digital Instrumentation & Control
(J. Pickelmann)

Structural Codes & Standards
(TBD)

CORDEL – COWG/LTO
Regional Workshops

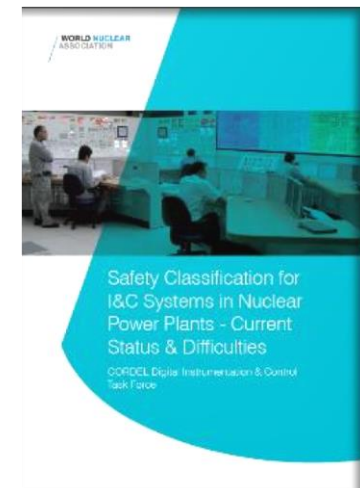
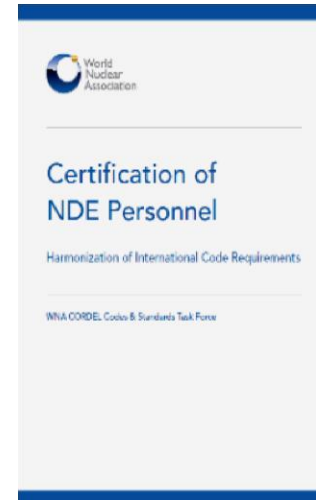
CORDEL Task Forces & Ad-hoc Groups

PROGRAMME OF WORK - HIGHLIGHTS

Note: Organisations depicted in parenthesis [] are main interfaces

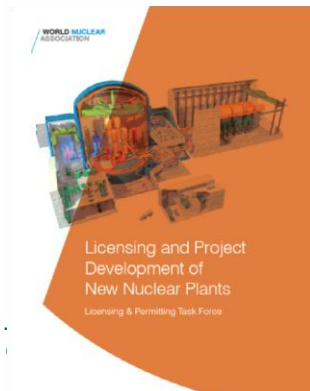
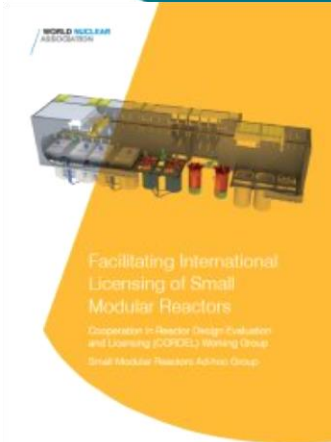
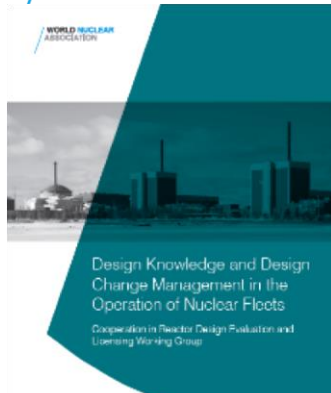
Program of Work (1)

- **Mechanical Codes & Standards** [MDEP, SDOs]
 - Certification of NDE Personnel
 - Qualification of Welders and Welding Methods.
 - Non-linear analysis methods in nuclear mechanical design codes.
 - Harmonisation of fatigue assessment methods.
- **Structural Codes & Standards** [MDEP, IAEA, NEA/OECD]
 - Concrete degradation.
 - Development of International standards and guidelines (i.e., steel plate concrete composite).
- **Digital Instrumentation & Control** [MDEP, IAEA, IEC]
 - Safety Classification for I&C Systems .
 - Defense in Depth & Diversity
 - Industry input in the development of IAEA reports and TecDocs
- **Nuclear Safety Standards** [IAEA, ENISS, EUR, WANO]
 - Comments on new or revised safety standards at the request of the IAEA.



Program of Work (2)

- **Design Change Management** [WANO]
 - Report: *Design Knowledge and Design Change Management in the Operation of Nuclear Fleets.*
 - Design Authority within the Operating Organization.
 - Owner's Groups practices.
- **Small Modular Reactors** [IAEA, NEA/OECD]
 - First Report: *Facilitating International Licensing of SMRs*
 - In-Factory Inspection and Release Certification
 - Very Small Modular Reactors [VSMR]
 - Road Map for the deployment of SMR in Embarking Countries
- **Licensing & Permitting** [MDEP, IAEA, NEA/OECD]
 - Reference plant concept
 - Case Study on Licensing SMRs
 - De-Licensing

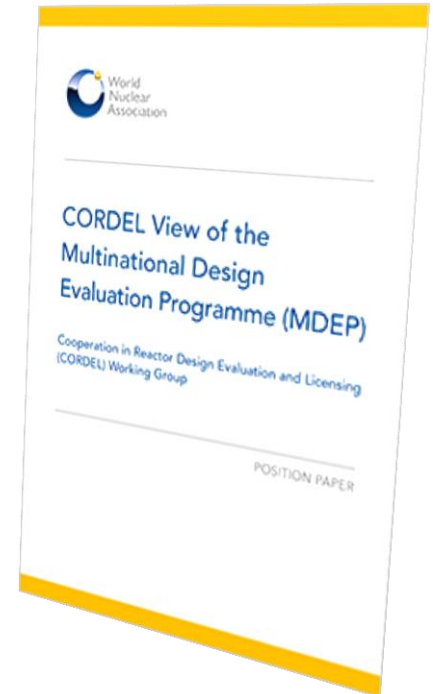


CORDEL WG

INTERFACE WITH MDEP

Multinational Design Evaluation Programme - MDEP

- CORDEL and MDEP Steering Committee Members regularly meet.
- Recent discussion on MDEP Policy Group (PG) g Highlights include:
 - MDEP has been extended for another 5 years through 2022.
 - Main focus is on Design Specific WGs (DSWGs).
 - Issue Specific WGs will work based solely on requests of DSWGs (Can be performed by other such as CNRA, CSNI)
- Proposals made by CORDEL in their review of MDEP were also discussed. In brief:
 - CORDEL has some concerns on how generic issues will be resolved.
 - Both projects notes the good improvement in their relationship over the years.
 - MDEP SC positively answered to CORDEL for further exchange and improvements.



CORDEL WG

REGIONAL WORKSHOP SERIES

Regional Workshop Series

Technical and Regulatory Issues Facing Nuclear Power Plants – Leveraging Global Experience

- To solicit information on the main technical and regulatory issues facing nuclear power plants.
 - Outputs from the workshops will be used to:
 - help address regional issues,
 - where necessary, inform the Association's own global programme of work performed through its Working Groups.
- 1st WS last June in Chicago – 2nd this October in Moscow

Overview of Workshops

