



CORDEL View of the Multinational Design Evaluation Programme (MDEP)

Cooperation in Reactor Design Evaluation and Licensing
(CORDEL) Working Group

POSITION PAPER

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3 February 2015

M.Sc. Petteri Tiippana, Chairman, MDEP Policy Group
Director General, STUK - Radiation and Nuclear Safety Authority, Finland

Subject: WNA CORDEL View of the Multinational Design Evaluation Programme (MDEP)

Dear Mr. Tiippana,

The World Nuclear Association Working Group on Cooperation in Reactor Design Evaluation and Licensing (CORDEL) was established for industry to provide its views and inputs on international harmonization and standardisation. Many of the issues initially evaluated evolved from discussions among our experts and nuclear regulators who had committed support and resources to MDEP.

At the September 2014 meeting between the CORDEL and MDEP Steering Committees, CORDEL was asked to provide a position paper regarding its views on MDEP, any issues within its scope of work, and the future of continued collaboration on common issues. As a result, we are pleased to present this position paper, "CORDEL View of the Multinational Design Evaluation Programme (MDEP)" to the members of MDEP.

In the paper we provide an overall CORDEL statement on the future of the MDEP program, recommendations on various aspects of the program, including collaboration with CORDEL, and also a number of proposals on potential issues. CORDEL greatly appreciates the work achieved within MDEP, its willingness to exchange information with CORDEL over the past 7 years and, while we maintain a neutral position in relation to the future of MDEP program, we fully recognise the need for continued exchanges between industry and regulators.

We also appreciate and thank the Secretariat of the NEA for their offer to disseminate copies of the paper to MDEP members and other interested governmental stakeholders.

With our sincerest regards,



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Director General, World Nuclear Association



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Foreword

The World Nuclear Association's (WNA) Cooperation and Development of Reactor Design, Evaluation and Licensing (CORDEL) Working Group recognises that the Multinational Design Evaluation Programme (MDEP) has been a valuable counterpart in achieving a future in which regulators move towards harmonization in regulatory requirements across borders.

As the first new reactors designs (EPR, VVER and AP1000) near operation and the completion of

their license reviews, CORDEL believes it is not only appropriate to look at future MDEP programmes, but for both CORDEL and MDEP to assess how they are achieving their objectives.

In this paper we provide an overall CORDEL statement on the future of MDEP, recommendations on various aspects of the MDEP work including collaboration with CORDEL and also a number of proposals on potential issues.

Background

MDEP was established in 2006 as a multinational initiative to develop innovative approaches to leverage the resources and knowledge of the national regulatory authorities who are currently or will be tasked with the review of new reactor power plant designs.

WNA's CORDEL was created as a forum for industry to exchange views and consolidate positions on international harmonization of regulatory requirements and standardisation of reactor designs. Many of the issues initially evaluated evolved from discussions among nuclear regulators who had committed to the MDEP. In fact, one of the main reasons behind the creation of CORDEL was to be an industry counterpart and interlocutor to MDEP Issue Specific Working Groups.

The 3rd MDEP Conference was held in May 2014 in Bethesda, Maryland with the objective of providing a forum where MDEP could share its results with stakeholders, Industry and Standards Development Organisations (SDOs) included, and provide them opportunities to present ongoing activities related to new reactors. A goal of that conference was also to use the results in formulating the future programme of MDEP.

At a follow-up meeting between CORDEL and MDEP Steering Committee members in September 2014, CORDEL was asked to provide a position paper regarding its views on future collaboration and issues with MDEP.

Table 1, at the end of the paper, shows a comparison of MDEP and CORDEL programmes.

CORDEL Statement on Future of MDEP

The CORDEL Working Group believes that any decision to continue, change or close MDEP is entirely up to the MDEP membership. However, CORDEL regards it as essential that regulators, through whatever means appropriate, maintain a discourse on regulatory reviews of new reactor designs.*

* This includes continuation of MDEP in full, continuation of parts of MDEP with other parts either closed down or incorporated into other international organisations, etc.

CORDEL considers the work performed by MDEP including its products as a necessary counterpart to CORDEL efforts. The CORDEL 3-Step approach to facilitate standardisation (1) share design assessment; 2) validate and accept design approval; and 3) issue international design certifications) is dependent on international cooperation amongst regulators and, as such, is dependent on a programme such as MDEP wherein regulators work together on common issues.

CORDEL members have recognised the value of being able to provide comments to MDEP position papers prior to publication. CORDEL intends to expand this cooperation further in the future, by providing draft reports to MDEP for comments.

CORDEL does recognise that other international organisations such as IAEA and NEA are capable and can perform some of the MDEP tasks, while others could not be undertaken in an open forum. The NEA's CNRA (Committee on Nuclear Regulatory Activities) and CSNI (Committee on the Safety of Nuclear Installations) already have Working Groups in some of the key MDEP areas (i.e., Working Group on the Regulation of New Reactors (WGRNR), Working Group on Inspection Practices (WGIP), etc.).

Additionally, CORDEL notes one drawback. A number of regulatory authorities that are currently reviewing or actively considering new reactor designs are not members of MDEP and therefore their reviews may not be harmonised with those of MDEP.

PROPOSAL 1

Proposal: *In order to further international harmonisation MDEP should endeavour to ensure, as much as possible within their terms and conditions, the sharing of their insights with non-MDEP regulatory authorities.*

CORDEL Statement on Coordination between MDEP and CORDEL

The CORDEL Working Group notes that cooperation with MDEP has been very beneficial and sees the need to increase coordination and communication in certain areas. This includes improved communication between the Secretariats, longer term planning in scheduling of meetings, and increased sharing of information.

Participation (and the exchange of concepts) by CORDEL and MDEP in each other's meetings continues to increase and improve. However, there is a need to better coordinate the different activities of MDEP and CORDEL to increase effectiveness and efficiency.

The Secretariats need to communicate more frequently and exchange information on the status of work being completed. At present the scheduling of Steering Committee meetings is done on an ad-hoc basis and no official exchanges have occurred between the CORDEL and MDEP Chairs over the past few years.

It is important for both CORDEL and MDEP to understand their respective roles and to have in place processes to help achieve common understandings. In several cases MDEP or CORDEL have produced position papers or documents on similar topics. For example, MDEP has noted that a process should be in place to minimise further divergence between the SDO codes¹. CORDEL's position is that codes often reflect national regulatory requirements, and any convergence effort needs to be taken collaboratively between the regulatory body and the SDOs.

PROPOSAL 2

Proposal: *Develop a licensing and operating process for formal approval of codes and standards by regulatory authorities.*

Description: *CORDEL intends to initiate discussions on the principles, criteria and processes needed to provide a regulatory authority with the capability, should they decide, to formally "approve" or "endorse" a code or standard. MDEP participation in these discussions would be valuable for both organizations*

Objective: *Achieve and ensure a common understanding and/or message*

PROPOSAL 3

Proposal: *CORDEL proposes that a more formal meeting schedule arrangement be established in order to ensure that both organisations are benefitting from the other's work.*

Description: *Include regular meetings (at least twice per year) between the Steering Committees and Secretariats and a meeting between Policy Group members in alternate years.*

¹ CP-CSWG-01_v1_Public; Common Position on Findings from Code Comparisons and Establishment of a Global Framework towards Pressure-Boundary Code Harmonisation

CORDEL General Statement on MDEP Working Groups

CORDEL notes that the Design-Specific and Issue-Specific Working Groups each play a key role towards understanding similarities and differences in reactor designs. The issuance of Technical Reports and Common Positions has been beneficial and every effort should be made to continue this practice.

MDEP carries out its work through two different types of working group, design- and issue- oriented. This statement reflects CORDEL's view on the outputs of both types of WG, while Statements 4 and 5 are based on each WG individually.

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CORDEL Statement on MDEP Design Specific Working Groups (DSWGs)

In general the work of DSWGs is not open to CORDEL. However, as previously noted, CORDEL supports the development of Common Positions.

CORDEL also recommends the sharing of generic safety issues that result from different DSWGs with other groups (including ISWGs) as appropriate.

While CORDEL does not have a position on their future roles, it does have concerns on resources expended by industry experts to attend DSWG meetings and sees the need for both organisations to use shared experts as efficiently as possible.

DSWGs are groups that are set up to share information and co-operate on specific reactor design evaluations and construction (EPR, AP1000, APR1400, VVER and ABWR). Due to their nature, participation is necessarily limited to only those countries assessing the design. However, they issue Common Positions in order to promote understanding among regulators, enhance communications, identify areas of harmonisation of regulations and support standardisation of reactor designs.

DSWGs and ISWGs (Issue Specific Working Groups) partially depend on information provided by industry experts at their meetings. While the importance and priority of answering regulators' questions is fully recognised by CORDEL, it notes

that both secretariats need to carefully coordinate their meetings when using shared experts (e.g. Digital I&C specialists).

While several new DSWGs are at the start of their work, the first EPR and AP1000 units are nearing the final phases of construction. At the MDEP Conference in May 2014, Policy Group members indicated that the groups should continue their work through the start-up and testing phases. In addition, new countries that are considering building the EPR or AP1000 may join MDEP. This elicits some important questions on the dissemination of lessons learned to those outside DSWGs and the potential for duplication with other international organisations.

PROPOSAL 4

Proposal: Address "generic issues" from DSWGs across all designs

Description: CORDEL recommends that generic safety issues discussed in the DSWGs should be brought to the ISWGs and addressed consistently among the different designs because many are common and their resolution should be based on common positions. These may be issues relating to: Fukushima accidents, I&C, commissioning, severe accidents, etc.

Objective: Address safety issues consistently.

CORDEL Statement on MDEP Issue Specific Working Groups (ISWGs)

CORDEL notes that the Issue-Specific Working Groups play a key role towards understanding similarities and differences in reactor designs. The issuance of Common Positions has been beneficial and every effort should be made to continue this practice.

CORDEL does have concerns on resources expended by industry experts to attend meetings and sees the need for both organisations to use shared experts as efficiently as possible.

ISWGs have been established for selected technical and regulatory process areas (Vendor Inspection Co-operation, Codes & Standards and Digital I&C). A key part of the discussion at the May 2014

Conference was on the future mandate of each ISWG. CORDEL has reviewed each of these WGs and derived the following positions:

Digital I&C (DICWG) and Mechanical Codes & Standards (CSWG) Working Groups

Based on the work being performed by the CORDEL Task Force on this same issue, CORDEL supports continued regulatory work either by the MDEP/DICWG and MDEP/CSWG or in another related forum in order to ensure a continuing exchange of information.

The CORDEL Digital I&C Task Force (DICTF) recently initiated a number of tasks, including work to resolve differences that exist in safety classification. DICTF has and will continue to disseminate its outputs to regulators and SDOs with the objective of achieving consistency among different approaches. Having regulatory input and dialogue is essential during the development of a report and in approaching SDOs to make changes in international standards.

The CORDEL Codes & Standards Task Force recently issued its first report on certification of NDE personnel. The report provides a comparison of international codes on this issue and recommends SDOs take action toward harmonisation. Similar to the DICTF, having regulatory input and dialogue is essential during the development of the report and in approaching SDOs to take the recommended actions.

PROPOSAL 5

Proposal: Develop process for collaboration on harmonisation/standardisation.

Description: CORDEL and MDEP should collaborate when both agree there is a need to modify international standards in order to help achieve standardisation/harmonisation.

Objective: Achieve and ensure a common understanding and/or message.

Vendor Inspection Cooperation (VICWG) Working Group

CORDEL does not have an active role in this area at the present time; however the WNA Supply Chain WG, in reviewing the progress and success made by VICWG, supports moving these activities to a wider number of countries and therefore would advocate moving these to the CNRA Working Groups.

The Vendor Inspection WG is more aligned with the WNA Supply Chain Working Group (SCWG) Vendor Oversight and Control of Suppliers (VOCS) Task Force than any CORDEL group. VOCS has especially noted its appreciation of the exchanges provided by VICWG and has emphasised its desire to maintain a link with regulatory groups working on these issues.

Unlike the other two ISWGs, the main activity undertaken by VICWG, cooperation in inspections,

involves a continuing exchange of information over the short term. The VICWG has conducted a number of multinational vendor inspections and the process has been shown to work successfully. CORDEL and the Supply Chain WGs agree that further success is dependent on opening this process to countries outside of MDEP. In so doing, we would expect that the work of MDEP in this area would not end but would be distributed to other international groups such as the CNRA/WGIP and/or CNRA/WGRNR.



CORDEL Statement on International Cooperation

CORDEL notes the importance of maintaining contact and exchanging information to ensure accuracy in products and lower the possibility of duplication.

There are a number of international organisations performing work in the reactor design evaluation area, which can draw upon a wide range of expertise around the world. CORDEL interacts with other international organisations such as the World Association of Nuclear Operators (WANO), the International Atomic Energy Agency (IAEA) and the OECD Nuclear Energy Agency (NEA).

As noted, Table 1 shows topics being investigated by both MDEP and CORDEL. It also shows a number

of CORDEL issues that are not shared. In most of these cases CORDEL is working with one of the other international organisations.

CORDEL and MDEP have shared information concerning potential new topics over the past few years. This has led to areas being identified where both have an interest (e.g., concrete standards, structural codes & standards) and others where no shared interest exists at present (SMRs).



Additional Proposals

Besides strengthening the effectiveness and efficiency of regulatory design reviews, which are part of each country's licensing process, CORDEL has maintained that: "In order to retain the benefit of standardization throughout plant operation, an international fleet-wide approach to design change management has to be seen as a vital concept."²

Achievement would help ensure that stakeholders (e.g. owners, operators, vendors) benefit from a consistent regulatory approach throughout the plant life cycle (pre-licensing to decommissioning). Accomplishing this will require the development of processes needed to maintain design basis standardisation.

PROPOSAL 6

Proposal: *Develop processes for maintaining design standardization involving all stakeholders (NEPIO* / Vendor / Owner / Operator and Regulatory Authorities) throughout the entire plant life cycle (pre-licensing to decommissioning).*

Description: *Enable all stakeholders for standard plant designs to have a voice in maintaining standardization and optimization of those designs as they apply to relevant safety standards.*

Objective: *Ensure that common regulatory approaches and expectations for maintaining safety standards are consistently applied to standard plants.*

* Nuclear Energy Programme Implementing Organization

As noted throughout this paper, CORDEL and MDEP work and share information on a continuing basis and the results have been very beneficial to both organisations. CORDEL believes that a formal

Memorandum of Understanding (MoU) would cement this relationship and bring value to the international community.

PROPOSAL 7

Proposal: *Formalise the CORDEL/MDEP relationship.*

Description: *Discuss the feasibility of establishing a Memorandum of Understanding (MoU) between CORDEL and MDEP.*

Objective: *Make the CORDEL/MDEP relationship clearly understood by the international community.*

² WNA Report; Design Knowledge and Design Change Management in the Operation of Nuclear Fleets.

Summary

The views expressed by CORDEL in this paper evolved from discussions and exchanges among its members. They reflect the fact that for CORDEL to meet its objectives, a facility, programme, or other initiative is needed through which the nuclear industry can continue to exchange ideas with nuclear regulators. CORDEL greatly appreciates the work MDEP has achieved, acknowledges that continuation would be beneficial, while at the same time recognises that other forums exist that could fill the gap were the MDEP programme to terminate.

In addition to the need for continued communication, the paper provides a number of statements based on the MDEP structure, the roles of its different working groups and their products. Finally the paper also presents a number of proposals for the future. These represent 'opportunities' where CORDEL and MDEP can work together to achieve greater effectiveness in their activities through more efficient processes and exchanges of information.

Table 1: Comparison of Issues Covered

(Shaded cells denote topics being covered by both CORDEL and MDEP)

CORDEL TFs/AGs or WNA WGs	MDEP WGs	Other Interactions
Codes & Standards	Codes & Standards	
Digital I&C	Digital I&C	
IAEA Nuclear Safety Standards		IAEA NUSSC ³
Probabilistic Safety Goals		IAEA
Design Change Management		WANO, IAEA
Licensing & Permitting		NEA WGRNR
Small Modular Reactors		IAEA ⁴
Vendor Oversight and Control of Suppliers ⁵	Vendor Inspection	
	EPR	
	AP1000	
	APR1400	
	VVER	
	ABWR	

³ CORDEL has an agreement with ENISS in providing comments to the IAEA NUSSC.

⁴ IAEA had an initial meeting in mid-2014 to set up an expert group on SMR Regulators.

⁵ Part of the Supply Chain Working Group, not CORDEL.

The World Nuclear Association Working Group on Cooperation in Reactor Design Evaluation and Licensing (CORDEL) was established for industry to provide its views and inputs on international harmonization and standardisation. Many of the issues initially evaluated evolved from discussions among our experts and nuclear regulators who had committed support and resources to the Multinational Design Evaluation Programme.

This position paper, written at the request of MDEP, provides a neutral position in relation to the future of MDEP. CORDEL greatly appreciates the work that MDEP has achieved and its willingness to exchange information over the past years and recognises the need for continued exchanges between industry and regulators. It also provides CORDEL's view on future collaboration along with a few general recommendations and proposals that can be taken forward.



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