WENRA Seminar, February, 9th

General remarks with regard to WENRA Harmonisation Report of Reactor Safety

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Ladies and gentlemen,

I am not going to repeat what Mr. Ingemarsson has explained, but just let me say again that we completely share the WENRA objectives of nuclear safety requirement harmonisation in Europe for two main reasons:

- Firstly, it will enhance public confidence which is a necessary condition for nuclear power ,
- Secondly, the electric power market is now open and we, the nuclear power producers, need similar rules of operation and supervision in Europe.

So, we are very interested in the success of the work WENRA has undertaken. We are committed to working with WENRA to make possible a harmonisation benefiting the regulatory, operational and public side.

We recognise the quality of the work that has already been done. After a first quick overlook, about 2/3 of the reference levels do not call for comments from us.

We are fully aware of the difficulties of the task: indeed, on the one hand we need reference levels with sufficient precision to avoid diverse interpretations in different countries, but, on the other hand, they should leave enough flexibility to take into account different design approaches, different current legal frameworks and different histories. The reference levels should set similar safety objectives throughout Europe that could be reached by different means; but we all know that it is sometimes very difficult to agree on what an objective is, what a mean is.

Now, let me be more specific on our first comments. Of course we've only had a very short time to study the WENRA reference levels and those are just some very preliminary comments.
In the discussion you've proposed to initiate over the next weeks, or months, we will seek three main areas of improvements.

1. Improvements in the definition of the terminology used: There is clearly the need for a glossary and we need to spend some time on this, to be sure the same words mean the same things for all of us. It is all the more difficult and necessary that we use an unique language which is not our mother language except for UK people.

   Let me just take two examples: It is very important to have a clear and common understanding of the PIE (Postulated Initiating Event), external and internal hazards, design basis accidents, the articulation between these concepts should be very clear and consistent along the various sections of the document. It seems to us it wasn't the case.

   Here is an other example : safety issues B and D use different wordings which seem very close to each other if not similar such as "duties important to safety", "activities which are important to safety", "safety, related duties", "task important to safety", "safety critical activities". It is not clear whether these different wordings cover different concepts or not. This should be clarified.

2. Improvements in the expression of some requirements, to avoid possible bureaucratic interpretation that could have opposite effect from those sought at first. There are several examples where we understand and even approve the idea, the concept of the requirement, but as is formulated, it could be applied without due consideration of the safety importance of the problem. In other words in several instances, we would suggest a more graded approach to formulation. Let me give you two examples:

   a. One from B2.5 and H2.2 when these RLs call for continuous changes in plant activities and Limiting Condition of Operation (LCO) coming from operating experience, new safety standards or R&D results. We all

agree that we should make continuous progresses in the operation of our plants and in safety culture and there are no argument for quick modifications to solve a problem emerging from operating experience or from new R&D result with high potential impact on safety, but we should be very cautious not to disturb the plant staff continuously in the way they are doing their job and in the rules they have to comply with. Too frequent changes might have an adverse effect on safety. Therefore the pace and content of the improvement process should be supported by a global safety benefit analysis, and we prefer a step by step improvement process rather than a continuous one.

b. Similarly, RLs B1.1, B1.2 and B1.3 call for the justification and the documentation of staff responsibilities or a change in the organisational structure. There is no denying that these aspects should be clearly planned and assessed, but the level of details of justification and documentation should be clearly linked to their impact on safety. Every organisation or staff person working on a nuclear plant have some kind of responsibility for safety, but requiring too detailed a justification and documentation for people and organisations who only have an indirect impact on safety, may distract the plant management from much more important safety issues.

This graded approach is well taken into account in some other sections such as, for instance, the one dealing with modifications. Therefore we suggest a more extended application of this concept throughout the various safety issues.

3. Improvements in the consistency between the various safety issues: We've had the impression that the various appendices have been prepared by different expert groups without sufficient overview ; this results in some redundancies between sections and even inconsistencies.

   The best example is between the safety issues E (Verification, improvement of the design) and F (Design basis envelope for existing reactors), which, to our mind, should be reshuffled. They both deal with events to be considered and safety analysis rules to be used. It is

confusing to begin with RLs dealing with improvements and checking of the design, and then to propose design criteria for existing reactors as if they did not actually exist.

App. R on Probabilistic Safety Assessment (PSA) includes very detailed requirements on the content and on the scope of PSA, among which some are surprising (seismic PSA have not the same maturity level and scientific basis as other kind of PSA) and by the same token calls for extensive use of PSA at different stages of design and operations. But these requirements do not show up consistently in the corresponding other sections.

More basically a clear perspective of the contribution of deterministic and probabilistic approaches does not appear throughout the text.

Most operating reactors in Europe have been designed with a deterministic approach including very conservative assumptions and specific rules of safety analysis study such as the single failure criteria. This led to the introduction of large safety margins in their design. Anyway, I don't know of any other means for designing a new plant than using deterministic assumptions even if probabilistic consideration can help choosing these assumptions.

But WENRA's issue today is not the design of future plants but the level of safety of operating plants. Everybody might agree that new phenomenon, new hazards, that were not considered in the initial design of operating plant, should be addressed. But the issue is not to redesign these old plants completely but to check how they can cope with these new challenges and which reasonable changes should be made to improve their safety. This is where probability should have a prominent place. It's actually what most of the nuclear power industries have done during the past years.

This is not what we see in the WENRA document. For example, RL E.4.1 addresses severe accidents in a very pragmatic way, calling for engineering judgment and probabilistic methods to be used for the evaluation of reasonable and practicable preventive or mitigating measures. But in the same time, RL E.5.5 to E.5.9 ask for means to deal with severe accidents in a very deterministic form: the only way of

compliance would be to install specific equipments such as core catchers or dedicated depressurisation system that very few, if any, presently operating reactors in Europe are provided with and, if implemented, would be very costly or/and impossible. Here again we agree with the objective of avoiding containment melthrough but this issue should be treated with a probabilistic objective: to demonstrate that the probability of containment melthrough is below an acceptable value and to let the industry choose the best cost/beneficial mean to achieve this objective.

More generally, given the importance that is granted to PSA in the safety issue O, we don't understand why WENRA did not choose to set a global safety goal in probabilistic term as the IAEA has done. We strongly encourage WENRA to go along that way.

In conclusion, I hope I've convinced you, through these examples, that we are interested in your work and are ready to interact with WENRA in a very proactive attitude.

Let me set a challenge, an objective that we will try to reach together in the following months:

1- At the end of the consultation process, and it might take more than 4 months, we should come up with a text where national regulatory bodies and nuclear operators have the same assessment of the implementation status on our plants: this will mean that we will have reached a common interpretation of the reference levels.
2- By reaching this status, we will fix the measures of the national action plans in consensual manner, which will be the base of our joint success on harmonisation of nuclear safety requirements and their use in Europe.

Thank you for your attention.