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Recent Activities in INRA and MDEP

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1. Introduction

Currently, many countries have plans to increase their nuclear energy use in several areas, especially in electric power generation. Those countries include not only the developed countries such as, U.S.A., Russia, U.K., Canada but also the developing counties like China, India, Vietnam, Indonesia, Nigeria and so on. The worldwide trend to increase nuclear energy use is due to recent rapid increase in energy demand for economic growth, Kyoto Protocol and the advance in nuclear technologies resulting in enhancement of the safety level and the performance of NPPs. In this situation, the international nuclear community is continuously making effort to ensure and to improve the global nuclear safety through Conventions (Convention on Nuclear Safety and etc.), the development and application of international safety standards and the international cooperation. Among these efforts for global nuclear safety, recent activities in INRA (International Nuclear Regulators' Association) and in MDEP (Multinational Design Evaluation Program), which have caught attention from many countries, will be introduced in this paper.

2. INRA

The INRA was established in 1997 to influence and enhance nuclear safety and radiological protection from the regulatory perspective. The members include the most senior officials of well-established independent national nuclear regulatory organizations. It had 9 members from 8 member countries; U.S., France, Sweden, U.K., Canada, Germany, Spain and Japan. As of March 2006, the Director General for Atomic Energy Bureau in MOST of Korea became the 10th member of the INRA. [1]

As a member, Korea firstly participated in its 19th Regular Meeting, held in France in September 2006. During the meeting, the TOR (Terms of Reference) of INRA was amended to increase the role of INRA to the area of safety in radiation protection and radioactive waste materials. The activities of INRA have focused on the safety of nuclear installations before the amendment. Also, the members discussed the following topics. [2]

- The status of nuclear safety in member states
  - Plan for application of IRRS of IAEA
  - Code of Conduct on the Safety and Security of Radioactive Sources
  - Feedback system of operational experiences in NPPs
- New recommendations of ICRP
  - Radiation protection on non-human species
  - Effects from a revision of the IAEA's BSS
- The 4th CNS (Convention on Nuclear Safety) National Report and Review Meeting
  - Format of national report
  - Effective and efficient process of the Review Meeting
- New INRA membership

During the 19th meeting, Spain was announced to have a chairmanship of INRA during the year of 2007. Also, it was agreed tentatively that Korea would be the chairman in the year of 2008 but it will be confirmed at the October meeting in 2007.

The 20th Regular Meeting is scheduled to be held in Spain in May 2007 and Korea is to give a presentation on "Current status of radiation protection, licensing process and safety assessment for construction of radioactive waste disposal facilities in Korea" during the meeting.

With the membership of INRA, Korea is now recognized internationally to have high level in the area of nuclear safety regulation. In addition, it is expected that the membership of INRA will have positive feedback to the further enhancement of national nuclear safety and its related nuclear technology development.

3. MDEP

The MDAP (Multinational Design Approval Program) was proposed in June 2005 by Mr. Nils J. Diaz, the former-chairman of U.S. NRC. This program has three phases; Phase 1 - Transition and Formation Phase, Phase 2 – Consolidation and Initial Implementation Phase and Phase 3 – Implementation and Expansion Phase. During Phase 1, the EPR design will be reviewed by multinational collaboration, U.S.A., France and Finland. In Phase 2, substantial degree of standardization and multinational acceptance of safety-approved designs will be achieved. In Phase 3, the Gen III+ and IV reactor designs will be reviewed by multi-nations with the standards and procedures established during Phase 2. Korea was invited as one of the core group members for Phase 2 work.

In June 2006, the preparatory meeting of MDAP Phase 2 was held at OECD/NEA headquarters in Paris to review the progress of Phase 1 and to discuss on the scope and objectives of Phase 2. IAEA, OECD/NEA and 10 countries from U.S.A, France, Finland, U.K., Canada, Russia, Japan, China, South Africa and Korea participated in the meeting. It was decided that working groups on topics of Licensing basis/ Scope of design safety review/ Safety goals and Component Manufacturing Oversight would be formulated to perform the feasibility projects. [3]

During the PG (Policy Group) meeting in September 2006, all participants have agreed on the proposal of MDAP Phase 2 TOR that includes objectives, scope, expected outcomes, Phase 2 implementation plans and participation of IAEA. In addition, it was decided that working group on aforementioned topics would be formulated at the STC (Steering Technical Committee) meeting to perform the feasibility projects by October 2007. The name of MDAP was changed to MDEP during the meeting. [4]

The MDEP Phase 2 STC and WGCMO (Working Group on Component Manufacturing Oversight) meetings were held in October 2006, respectively. During the meetings, the area of Severe Accidents, ECCS performance and Digital I&C were agreed to be surveyed and STC decided the survey questionnaire material on these areas. Also, the scope of activities and work products of the WGCMO was also discussed. [5]

Considering the possibility of the export of Korea-designed nuclear power plants in the future, it is highly recommended that Korea should participate in the MDEP from the early stage since design certificate by the MDEP can be a pre-requite condition for exporting of any nuclear power plants. In addition, the strategic plans should be developed with inclusion of related governmental authority, academy, research institutes and industry to cope with the MDEP.

4. Conclusion

Aforementioned several reasons like, rapid increase in energy demand for economic growth, Kyoto Protocol and the advance in nuclear technologies are resulting in the global trend of increase of nuclear energy use, especially in electric power generation area. In this situation, international community is paying special attention to ensure and to improve nuclear safety.

Two recent activities for nuclear safety, INRA and MDEP are introduced through the paper. These two international activities are important to ensure and to improve the nuclear safety in Korea and to enhance our national prestige in the international nuclear community. Especially, the MDEP will be expected to play a key role in the international market for nuclear power plant export. Therefore, it is essential to pay attention to the international activities, including INRA and MDEP and thus, to develop strategic plans to cope with international situations.

REFERENCES

[1] Terms of Reference for INRA
[2] INRA 제 19 차 정기회의 참가결과 보고서, KINS/DR-1542
[3] MDEP 2 단계 준비회의 참가결과 보고서, KINS/DR-1497
[4] MDEP 2 단계 정책그룹회의 참가결과 보고서, KINS/DR-1542
[5] MDEP 2 단계 기술운영위원회 및 기기제작검사 실무작업반 참가결과 보고서, KINS/DR-1553