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## ETSON Proposal on the European Operational Experience Feedback System

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### 1 INTRODUCTION

The new IAEA Safety Fundamentals [1] states regarding the operating experience feedback: *The feedback of operating experience from facilities and activities — and, where relevant, from elsewhere — is a key means of enhancing safety. Processes must be put in place for the feedback and analysis of operating experience, including initiating events, accident precursors, near misses, accidents and unauthorized acts, so that lessons may be learned, shared and acted upon.*

This presentation deals with the proposal of the ETSON (European TSO Network) to optimize the European operating experiences feedback (OEF).

It is generally recognized that the efficiency of nuclear safety supervision by public authorities is based on two key requirements:

- the existence of a competent authority at national level, benefiting from an appropriate legislative and regulatory basis, from adequate (quantitatively and qualitatively) human resources, particularly for inspection purposes,
- the availability of resources devoted to highly specialised independent technical expertise, in order to provide competent authorities with pertinent technical opinions on:
  - the safety files provided by operators, for the purpose of licensing corresponding activities,
  - the exploitation for regulatory purposes of the operating experience feedback from licensed nuclear installations.

There are two worldwide systems intended to learn lessons from experience: the WANO (World Association of Nuclear Operators) system established by the licensees with access restricted to operating organizations and the IRS system jointly operated by IAEA and OECD/NEA accessible to regulators and to some other users nominated by the regulators in their countries. The IRS itself is dedicated to the analysis of safety significant operating events. NEA/CNRA runs a permanent working group on operating experience (WGOE). WGOE provides among other things also generic reports on safety concerns related to operating experiences and organizes workshops and conferences on specific OEF topics. IAEA organises, besides the yearly meeting of the IRS coordinators, consultancies and technical committees on the subject.

On the international conference on operating experience feedback jointly organised by NEA and IAEA in 2006 [2], there was a consensus that the OEF system should be strengthened. The clearinghouse approach of the US NRC seemed to be a potential method to enhance also the OEF in Europe. Jukka Laaksonen (STUK, Finland) proposed to the WENRA members to establish a European Clearinghouse. According to this proposal the tasks of the clearinghouse could involve, among other things:

- collecting operating experience from a number of existing international sources (also directly from the national regulatory bodies),
- keeping contacts with the authors of the incoming reports as needed to improve the clarity and usefulness of the reported information,
- screening of most important events and alerting the national regulatory bodies specifically on them,
- providing summary reports of events with similar features or causes,
- conducting precursor studies of events at all European nuclear facilities, and
- disseminating information on corrective actions taken at some facilities in response to lessons learned from experience.

Based on this proposal, the ETSO members have developed suggestions for first practical steps to enhance the European OEF process.

## 2 ASSESSMENT OF THE EXISTING INTERNATIONAL OEF

Despite the IRS system which provides information on the major nuclear events from reactors all over the world, there are significant limitations in the international and European OEF process. Main limitations are related to the use of the lessons learned described in the IRS reports. The assessment of the application of the lessons learned to domestic reactors is one of the main tasks of the supervisory body and its TSO. This assessment requires not only a very good knowledge about the design of domestic reactors (which can be presumed) but also a profound technical understanding of the safety significance of the event to be evaluated is indispensable.

Another limitation deals with the actions taken after foreign events in different countries. Up to now there is no systematic sampling and assessment of the actions taken in different countries. This information could support the authorities in defining the necessary actions (Note: safety authorities should not propose “solutions”; that is the job of the licensees) for their reactors and assess the adequacy of the licensees’ actions, respectively.

A concern is related to the resources necessary to evaluate the lessons learned from foreign reactors. Especially countries with a small nuclear program may have insufficient technical resources to analyse the internationally reported events. Even in case of unusual domestic events there may arise problems in the investigation of technical details if specific expertise cannot be maintained.

Moreover the quality and timeliness of international event reports can be a concern. In some countries a lack of resources seems to be one of the main causes for inadequate reporting. On a European level the dissemination of generic evaluations, e. g. on recurring events, precursor studies and insights on further operating experiences, is not organised in a systematic way.

### 3 EUROPEAN OPERATING FEEDBACK SYSTEM FROM A TSO POINT OF VIEW

ETSON supports the efforts to strengthen the European OEF process as an important task to improve the safety of nuclear installations. In order to contribute to these efforts, the TSO Network proposes the establishment of a European OEF System consisting of an expert network with a Technical Board formed by high level experts to assist the European OEF process.

The performance of the proposed tasks of the European OEF System needs a comprehensive and very detailed knowledge about design and operation of the nuclear power plants in the EU. The tasks could be performed by a network of experts still based in their home organisation (TSO or regulatory body) and working together while they would still benefit from the technical support of their organisations.

This expert network should perform the following tasks:

- The expert network should evaluate OEF reports from Member States and other international event reports with significant lessons to be learned to draw conclusions and to give recommendations with respect to the various designs in the European countries.
- On request of a European Member State, the expert network could provide support for the evaluation of significant events, the development of international event reports and the definition of specific actions to be taken. This could be in particular useful for countries with a small nuclear program.
- The expert network should also collect and evaluate the responses – e. g. the actions taken after foreign events - of the Member States. The evaluation should give additional advice on further potential actions, with a special attention devoted to avoid recurring events.
- In addition the expert network could also develop reports on various topics within the OEF on request of the EC/JRC or Member States.

The TSO Network is convinced that an international group of high level experts should support the OEF process. This Technical Board should be formed by high level experts of different TSOs and regulatory bodies representing a broad knowledge and expertise. The Technical Board should meet regularly, ensures proper function of the network and serves as an interface with the safety authorities as well as international organisations and encourage the Member States to take actions based on the results and recommendations of the OEF System.

The Member States should also report regularly about the implementation of the recommendations. These reports would close the operating experience feedback loop.

### 4 ADVANTAGES OF THE ORGANISATION RETAINED BY TSOS

There are at least two different possibilities how the work of the expert network could be organized. The first option is a standing group situated at one location. The second option (option proposed by the TSOs) is the organisation of the expert network as a “virtual” group. According to the second option, the group members stay in their “home” organisations and communicate with the other group members mainly via electronic media.

In the following some differences of the two options are highlighted.

According to the first option the TSOs and regulatory bodies have to designate high level experts to a standing group. These experts should work in the European OEF system for 1 to 3 years. The cooperation within the group and the direct and fast interaction of the European OEF system to the Member States seem to be advantageous. On the other hand it has to be taken into account that OEF work requires interaction between many complementary specialties and specific working methods ensuring that such interaction is achieved. Even if designating organizations send high level experts to the European OEF system it might be difficult to achieve the proper balance of different specialties. Implementing and maintaining the proper working methods within the system might also be difficult. The necessary fluctuations of experts may support to gain and maintain knowledge for the designating organisation, but it may also discontinue the work of the European OEF system.

One main advantage of the second option is the easy integration of different experts in the work of the expert network. The experts can be supported in their “home” organisation using the already established working procedures at their organisation. It can be easily taken advantage of the pool of experience existing in the different organisations. From the point of view of ETSON, the advantages of the second option supersede the advantages of the first option. The second option can be developed in shorter time and needs less organisational efforts.

## 5 CONCLUSIONS

The TSO Network supports the efforts to strengthen the European OEF process as a important task to improve the safety of nuclear installations. ETSON is convinced that most of these tasks can be put into practice in a short time span.

ETSON proposes the establishment of an expert network including a Technical Board formed by high level experts to assist the European OEF process. The work of the expert network and the Technical Board should be financially supported by the EC. The EC/JRC should provide or contract a secretariat to coordinate and technically support the works of the European OEF System.

This European OEF system will need to aim at three complementary objectives:

- Set up a central database of userfriendly information, and a coordination team to oversee the system operations.
- Mutualise progressively the benefits of the robust OEF services which exist today in several countries for national purposes, by at first facilitating the full exploitation across Europe of the existing IRS system, and later by developing new services, on the basis of advanced national experiences. This task is technically complex, due to the heterogeneity of the reactor designs in operation across Europe, and to the significant variations in the nature of information made available via the IRS system. This will be the task of the TSOs and RB experts, acting as a network. The corresponding work will be managed in continuity of the existing national OEF teams, provided that an appropriate extra funding is made available by the EU, in compensation of appropriately defined deliverables.
- Develop the capacity of safety authorities and TSOs in participating countries to make full use of the European OEF system, and to progressively contribute information into the system.

## **6 REFERENCES**

- [1] IAEA Safety Fundamentals, No. SF-1, Vienna, 2006
- [2] IAEA/OECD Topical Conference on Improving Nuclear Safety through Operating Experience Feedback, Cologne, Germany, May 29 – 31, 2006