

Development of Corrective Action Tracking System for the Operating Experience Feedback in Korea

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1. Introduction

Operating experience is a valuable source of information for learning about and improving the safety and reliability of nuclear installation(nuclear power plant, research reactor, nuclear fuel fabrication, and so on). It is essential to collect such information in a systematic way that conforms to the reporting criteria (reporting requirements) for events occurring at nuclear installations during commissioning, operation, surveillance and maintenance activities and decommissioning, and on deviations from normal performance by systems and by personnel, which could be precursors of events. Thus for the Operating Experience Feedback (OEF) program of Korea, especially occurring event in the nuclear power plant(NPP), KINS(Korea Institute of Nuclear Safety) have developed a Corrective Action Tracking System (CATS) that is a part of the OEF system.

2. OEF in Korea

The IAEA Safety Guide, NS-G-2.11, explains a basic OEF scheme, that is, Reporting, Screening, Immediate Actions, Investigation, Corrective Action, Trending and Review, Dissemination and Review, Monitoring of Effectiveness, and Quality Assurance. Fig. 1 explains a brief scheme of the OEF program. According to the guide, the OEF program in Korea is composed of six stages which are Collecting, Investigation and Analysis, Tracking, Classification, Dissemination, and Feedback on Regulation.

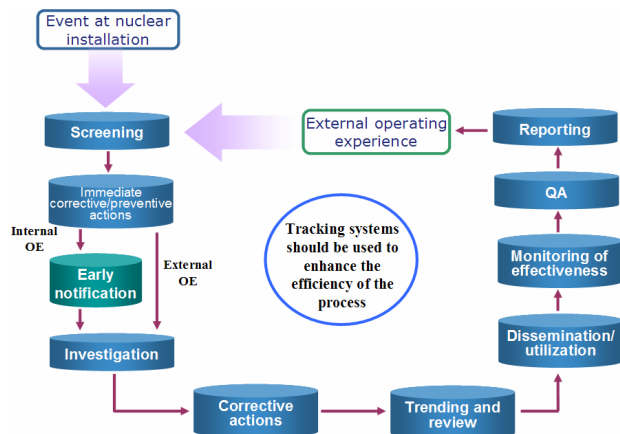


Fig.1. National Feedback System for Operating Experience

The Ministry of Education, Science and Technology (MEST) Notice defines the reporting requirement for occurring events in the nuclear installation in Korea which was established in 1992 for the first time and thereafter have been amended 4 times. The present Notice is 2008-29. In the view of the OEF, the regulatory body requires the utility to reflect the findings or recommendations drawn from an event and also the utility itself voluntarily should feedback the lesson-learned drawn from serious accident like the TMI accident regardless of its nationality. However, it is difficult to trace how the OEF is being implemented and how each finding or recommendation is being actually reflected on the domestic NPPs.

Thus, there is necessity for developing of the tracking system which helps 1) to analyze the accumulated operating experiences and recommendations, 2) to monitor the status of the implementation, and 3) to ensure the approved corrective actions completed properly. Managing the utility's implementation in timely manner helps to improve the safety of NPPs.

3. Overview of the CATS

The CATS is an integrated event management system and a web-based system that helps to exchange and trace all information about occurring event, such as event and investigation report, corrective actions, etc., between major organizations (i.e., MEST, KINS, and KHNP) concerned. The objectives of CATS are 1) to manage the lessons learned effectively and efficiently, 2) to monitor utility's implementation in a timely manner, and 3) to manage all information about events from Commissioning to Decommissioning.

Thus, the CATS version 1.0 was developed on August 2006 and version 2.0 have been developed on April 2008. Fig. 2 shows the main screen of the CATS web-site.

There are briefly four steps in the CATS system. Each step has a different role that MEST, KINS, and KHNP(Korea Hydro & Nuclear Power co.) need to perform, respectively. Detailed contents in the CATS are as follows.

- 1) Reporting Event
 - In this step, KHNP reports an occurring event when the event satisfies the reporting requirements(MEST notice 2008-29).
- 2) Event Investigation

- KINS performs event investigation for the event and suggests corrective actions to MEST in second step.
- 3) Request of Implementation of Corrective Action
 - MEST requests implementation of corrective actions for the event to KHNP in the third step.
- 4) Verification of Implementation of Corrective Action
 - In final step, MEST and KINS evaluate results of implementation of corrective actions that KHNP performs and all following steps for the event are finished.

The Information that MEST, KINS, and KHNP need to input in the CATS is as follows.

- 1) KHNP
 - Event notification report, Event investigation report, Plan to implement corrective actions, Result of implementation of corrective actions, etc
- 2) KINS
 - Detailed event information, Event investigation report, Suggestion of corrective actions, Evaluation of the results of corrective actions, etc
- 3) MEST
 - Request of Corrective actions, Approval of restart the NPP, Evaluation of the appropriateness of corrective actions, etc

approved corrective actions completed properly. Also, it can play an important role of the R-TRACER that is being developed to manage the national OEF system in Korea.

It can give practical tracking process for follow-up actions of domestic events and assist to make an effective national framework regarding OEF. Ultimately, the proper implementation of OEF program is the best and the most positive way to enhance the nuclear safety and the economy of NPPs.

REFERENCES

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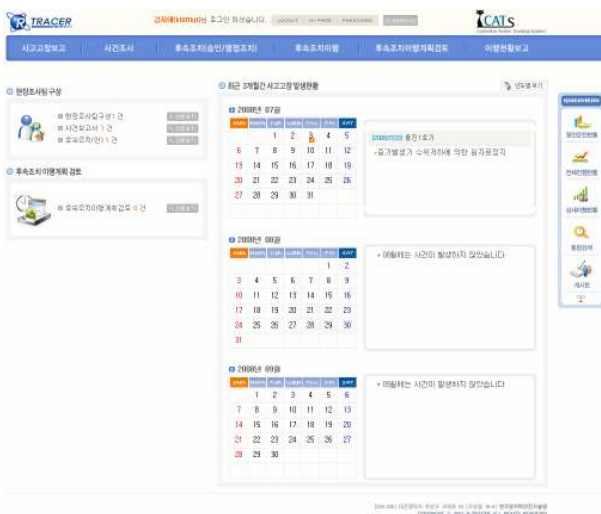


Fig.2. Main screen of the CATS

4. Conclusion

The CATS have been developed to support R-TRACER which is “Tracking System for the Implementation of Nuclear Regulation.” The CATS version 2.0 has been developed and is being ready to be used. It is going to operate on January 2009 after performing validation and verification.

It can play an important role in tracking and dissemination stages of the national OEF. And it helps 1) to analyze operating experiences, 2) to monitor the status of the implementation, and 3) to ensure that the