

Document Preparation Profile (DPP)

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1. IDENTIFICATION

Document Category **Safety Guide**

Working ID: **DS479**

Proposed Title: **Operating Experience Feedback for Nuclear Installations**

Proposed Action: **Revision and extension of a document “A System for the Feedback of Experience from Events in Nuclear Installations”, Safety Guide NS-G-2.11**

Review Committee(s) or Group: **NUSSC, RASSC, TRANSSC, WASSC, NSGC**

Technical Officer(s): **Prohaska Guenter, NSNI**

2. BACKGROUND

An IAEA Safety Guide NS-G-2.11, “A System for the Feedback of Experience from Events in Nuclear Installations” was published in 2006 and plays a major role among international publications related to Operating Experience Feedback.

Operating experience (OE) is a valuable source of information for learning lessons and improving the safety and reliability of nuclear installations. It is essential to collect, document and evaluate such information in a systematic way throughout the lifetime of nuclear installations (including design, construction, commissioning, operation, surveillance and maintenance activities and decommissioning). The information to be collected and documented includes reportable events, low level events and near misses, error precursors, safety related results of periodic safety assessment or reviews and other findings that may contribute to the improvement of safety.

The overall approach of NS-G-2.11 is still valid and applicable for current and anticipated situations.

3. JUSTIFICATION FOR THE PRODUCTION OF THE DOCUMENT

NS-G-2.11 was published in 2006, although its preparation dates back to 1990's. Since its publication in 2006, however, there have been significant developments in operational safety policies. The most important documents, which were developed after publication of NS-G-2.11, are as follows:

- In 2006, the IAEA, jointly with 8 other sponsoring international organizations, published the Fundamental Safety Principles (SF-1). The 10 new principles constitute the basis of safety requirements for protection of people and the environment against exposure to ionizing radiation.
- General Safety Requirement GSR Part 1 establishes requirements for regulatory authorities to sharing of operating experience and regulatory experience and for dissemination of lessons learned via national and international reporting networks.
- Specific Safety Requirements SSR-2/2 “Safety of Nuclear Power Plants: Commissioning and Operation” establishes the requirements which, in the light of experience and the present state of technology, must be satisfied to ensure the safe operation of nuclear power plants.
- Safety Requirements GS-R-3 “The Management System for Facilities and Activities” (2006) and Safety Guides GS-G-3.1 “Application of the Management System for Facilities

and Activities” (2006) and GS-G-3.5 “The Management System for Nuclear Installations” (2009) define the requirements for establishing, implementing, assessing and continually improving a management system. A management system designed to fulfil these requirements integrates safety, health, environmental, security, quality and economic elements so that safety is not compromised.

Improvements have been made to OE processes since 2006, due to lessons learned, improvements in computer software and use of computer based tools, together with enhanced agreements in sharing operating experience information, both nationally and internationally. These improvements necessitate changes to many aspects of the overall process described in the Safety Guide NS-G-2.11 to reflect current best practices. Furthermore, lessons learnt from Fukushima Daiichi NPP accidents will be included as appropriate.

4. OBJECTIVE AND SCOPE

The objective of the Safety Guide will be to provide guidance for the establishment or enhancement of an OE feedback system from design to decommissioning of nuclear installation at the operator, operating organization, regulatory, national and international levels. It brings together common elements that typically constitute an effective OE system. It should be noted that the process of feedback of OE is undertaken by many different organizations throughout the world which, by cooperating, can help to ensure that the overall process of gathering and exchanging OE is efficient and effective. The Safety Guide will identify the various organizations within a State and their roles and responsibilities, and will give guidance on the timing of their involvement in the overall process.

The Safety Guide will provide guidance on all the main processes in the feedback of OE. It will highlight the interaction between the different organizations using feedback on OE. The publication will provide guidance for all the relevant organizations that are involved in the nuclear industry, such as regulatory bodies, technical support organizations, operating organizations with on-going or planned nuclear programmes, vendor companies (designers, engineering contractors, manufacturers, etc.), research establishments and technical universities with studies in the nuclear field.

5. PLACE IN THE OVERALL STRUCTURE OF THE RELEVANT SERIES AND INTERFACES WITH EXISTING AND/OR PLANNED PUBLICATIONS

This Safety Guide would fall within the thematic areas of operational safety and will interface with the following IAEA Safety Standards and other publications (this is not, and cannot be, regarded as an exclusive list):

- SF-1 Fundamental Safety Principles (2006).
- GSR Part 1 Governmental, Legal and Regulatory Framework for Safety (2010)
- SSR-2/2 Safety of Nuclear Power Plants: Commissioning and Operation (2011)
- GS-R-3 The Management System for Facilities and Activities (2006)
- NS-R-4 Safety of Research Reactor (2005)
- NS-R-5 Safety of Nuclear Fuel Cycle Facilities (2008)
- SSG-15 Storage of Spent Nuclear Fuel (2012)
- SSG-25 Periodic Safety Review for Nuclear Power Plant (2013)
- GS-G-3.1 Application of the Management System for Facilitation and Activities (2006)
- GS-G-3.5 The Management System for Nuclear Installations (2009)
- INSAG-23 Improving the International System for Operating Experience Feedback (2008)
- NS-G-2.4 The Operating Organization for Nuclear Power Plants (2001)
- Relevant nuclear security guidance
- IRS Guidelines (IAEA Services Series No. 19, 2010)

- IRSRR Guidelines (2000)
- FINAS Guidelines (IAEA Service Series No. 14, 2006)
- PROSPER Guidelines (IAEA Service Series No. 10, 2003)
- INES documents

This Safety Guides will interface with the following documents under development:

- DS456 Leadership and Management for Safety (Draft)
- DS462 Revision through addenda of GSR Part 1, NS-R-3, SSR-2/1, SSR-2/2 and GRS Part 4
- DS476 Safety of Research Reactor (Draft)
- DS478 Safety of Nuclear Fuel Cycle Facilities (Draft)

As applicable, it will be necessary to coordinate with the development and revision of other relevant IAEA Safety Standards.

6. OVERVIEW

- The title should be changed to: “Operating Experience Feedback for Nuclear Installations”. The purpose for this change is to take account for reporting and analysis of important issues, not just events. Reporting of OE as a minimum requirement should include Events, Near Misses, Error Precursors, Low Level Events, and Best Practices. A successful OE feedback process utilizes feedback from nuclear installations (both domestic and abroad) and information from other relevant industries.
- Since NS-G-2.11 was published, the IAEA has produced several related documents especially in the areas of management systems and good practices in the management of operating experience. The revised guide should reflect the current approved and draft documents.
 - Examples of the new documents and changed documents include:
 - Fundamental Safety Principles – No.SF-1
 - Safety of Nuclear Power Plants: Commissioning and Operation No. SSR-2/2 has changed
 - The Management Systems for Facilities and Activities No. GS-R-3
 - Draft standard DS472 “Organization, Management and Staffing of a Regulatory Body”
 - Draft standard DS 473 “Regulatory Body Functions and Processes”
- The NS-G-2.11 needs to be structured to address experience at operating organization, national and international levels, with specific guidance for each area on reporting, screening and dissemination and feedback of information. In the current document, the differentiation is not clear between operating organization, national, and international levels.
- Since the publication of the NS-G-2.11, identification and dissemination of OE has become important due to a large number of plants being constructed, commissioned, and decommissioned. New plant designs are being developed that necessitate the sharing of OE to implement those lessons learned into the new plant designs. Also newcomer States are planning to construct nuclear installations. The new revised NS-G-2.11 will provide more comprehensive guidance for reporting of issues identified during design, construction, commissioning, and decommissioning.
- The revised NS-G-2.11 will emphasize a more proactive approach to:
 - evaluating low level events, near misses, or error likely situations that could be consequential
 - determining the risks and opportunities that need to be addressed to prevent or reduce undesired effects
- The revised NS-G-2.11 will emphasize the effective use of error prevention tools.
- The emergent issue of counterfeit, fraudulent, and suspect items (CFSI), as well as the increase in non-conforming and sub-standard components will necessitate the improved sharing of OE between designers, manufacturers, suppliers, and nuclear installations.

- The revised NS-G-2.11 will emphasize the role of management and their commitment to the utilization of the OE program in enhancing safety performance and safety culture. Management expectations need to be clear for outcome of the identification, screening, analysis and each element of the OE process. It should be emphasized that management should be committed to the timely implementation of corrective actions from relevant operating experience. The new NS-G-2.11 will emphasize the need for a blame free reporting culture within a safety conscious working environment to ensure that all issues and events are reported.
- The new NS-G-2.11 will contain improved guidance on the ranking of the significance of events. To assist in this, the document will include the “significance triangle” diagram.
- The new NS-G-2.11 will improve guidance on the approval, time extension, or cancellation of important corrective actions. It will also include guidance on the use of interim or compensatory actions (actions taken to mitigate the problem, until the long term actions are completed).
- The revised NS-G-2.11 will place more emphasis on areas such as:
 - The importance of a harmonized coding system for OE
 - The use of performance indicators for performance review and plant comparison
 - The role of the OE program within the continuous improvement model
 - The utilization of common OE programmes in operating organizations and vendors with more than one facility
 - The utilization of OE by designer/vendors of nuclear installations
 - The importance of transferring information on event and lesson learnt from the operating organization to designers and vendors for the proper account at the design stage of similar facilities
- The new NS-G-2.11 will stress the need for the proper selection, and training, of multi-disciplined and experienced individuals involved in the OE programme.
- The new NS-G-2.11 will provide recommendation on communication to stakeholder on events warranting an INES rating.

7. PRODUCTION SCHEDULE: Provisional schedule for preparation of the document, outlining realistic expected dates:

STEP 1: Preparing a DPP	DONE
STEP 2: Approval of DPP by the Coordination Committee	August 2013
STEP 3: Approval of DPP by the relevant review Committees	October/November 2013
STEP 4: Approval of DPP by the CSS	2014
STEP 5: Preparing the draft	2014
STEP 6: Approval of draft by the Coordination Committee	2014
STEP 7: Approval by the relevant review Committees for submission to Member States for comments	2015
STEP 8: Soliciting comments by Member States	2015
STEP 9: Addressing comments by Member States	2015
STEP 10: Approval of the revised draft by the Coordination Committee Review by SSC and NSGC	2015
STEP 11: Approval by the relevant review Committees for submission to the CSS	2016

STEP 12: Endorsement by the CSS	2016
STEP 13: Establishment by the Publications Committee and/or Board of Governors (for SF and SR only))	
STEP 14: Target publication date	2017

8. RESOURCES

Estimated resources required:

1P staff – 0, 5 man year

4 CS meetings

1 TM meeting

Secretariat:

Member States:

ANNEX I

PROPOSED STRUCTURE

1. INTRODUCTION

- 1.1. Background
- 1.2. Objective
- 1.3. Scope
- 1.4. Structure

2. SYSTEM FOR THE FEEDBACK OF OPERATIONAL EXPERIENCE FOR THE OPERATOR OF NUCLEAR INSTALLATIONS

- 2.1. Identification of events
- 2.2. Screening of events
- 2.3. Investigation and analysis of events
- 2.4. Corrective actions
- 2.5. Trending and Review
- 2.6. Utilization, dissemination, reporting and exchange of information
- 2.7. Reviewing the effectiveness of the process
- 2.8. Management System

3. CENTRALIZED SYSTEM FOR THE FEEDBACK OF OPERATIONAL EXPERIENCE FOR OPERATING ORGANIZATIONS

- 3.1. Screening of events
- 3.2. Exchange of event information
- 3.3. Trending and review
- 3.4. Utilization, dissemination, and reporting of information
- 3.5. Centralized review of the effectiveness of the process
- 3.6. Programme development
- 3.7. Management System

4. INVOLVEMENT OF THE REGULATORY BODY

- 4.1. Criteria and procedures for reporting of events
- 4.2. Screening of events
- 4.3. Investigation, analysis and evaluation of events
- 4.4. Regulatory review and inspection
- 4.5. Utilization, disseminating, and reporting of information

5. INTERNATIONAL SYSTEMS FOR THE FEEDBACK OF OPERATIONAL EXPERIENCE

- 5.1. Operating organization international system (IAEA/WANO/INPO)
- 5.2. International Reporting System (IRS, IRSRR, FINAS)

REFERENCES

CONTRIBUTORS

APPENDICES AND ANNEXES (as required)