

Document Preparation Profile (DPP)

1. IDENTIFICATION

Document Category **Safety Guide**

Working ID: **DS 440**

Proposed Title: **Design Auxiliary Systems in Nuclear Power Plants**

Proposed Action: **new document**

Review Committee(s) or Group: **NUSSC**

Technical Officer(s): **N. Tricot, C. Toth**

2. BACKGROUND/RATIONALE

In the current set of safety guides under NS-R-1 there is no dedicated safety guide dealing with the auxiliary systems. Recommendations to meet the current NS-R-1 requirements related to auxiliary systems, like reactor coolant associated systems, fuel storage and cooling systems, containment systems are found in different safety guides:

- NS-G-1.3, Instrumentation and Control Systems Important to Safety in Nuclear Power Plants
- NS-G-1.4, Design of Fuel Handling and Storage Systems in Nuclear Power Plants
- NS-G-1.8, Design of Emergency Power Systems for Nuclear Power Plants
- NS-G-1.9 Design of the Reactor Coolant System and Associated Systems in Nuclear Power Plants
- NS-G-1.10 Design of Reactor Containment Systems for Nuclear Power Plants
- NS-G-1.12 Design of the Reactor Core for Nuclear Power Plants
- NS-G-1.7 Protection Against Internal Fires and Explosions in the Design of Nuclear Power Plants
- NS-G-1.11 Protection against Internal Hazards other than Fires and Explosions in the Design of Nuclear Power Plants;

In addition in the above safety guides not all important auxiliary systems are included

3. OBJECTIVE

The Safety Requirements for the Design of Nuclear Power Plants is under revision. In the revised version which was approved by NUSSC in June 2009 for submission for Member States comments, there is a new separate dedicated section identifying requirements for Auxiliary Systems

To follow the logic of this revised version of NS-R-1 there is a need to develop a corresponding Safety Guide accordingly.

The purpose of this Safety Guide is to provide recommendations to meet requirements for Auxiliary systems listed in the revised Safety Requirements for the Design of Nuclear Power Plants

In addition, this Safety Guide will also provide guidance for the content and the review of the corresponding sections of the Safety Analysis Report related to Auxiliary Systems.

This publication is intended for use by organizations designing, manufacturing, constructing, maintaining and operating nuclear power plants, as well as by regulatory bodies for the conduct of the regulatory review and assessment.

4. JUSTIFICATION

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

The new Safety Guide will be included in the series of the design of NPPs and will mainly interface with the Safety Standards below:

Fundamental Safety Principles (SF-1)

Safety of Nuclear Power Plants: Design-NS-R-1 and the related Safety Guides

Site Evaluation for Nuclear Installations-NS-R-3 and the related Safety Guides

Safety Assessment for Facilities and Activities GS-R-4 and the related Safety Guides

Format and Content of the Safety Analysis Report for Nuclear Power Plants-GS-G-4.1

6. OVERVIEW

The structure of the safety guide will basically follow the structure of the existing safety guides related to the NS-R-1.

The Safety Guide will provide a detailed list of auxiliary systems, their definitions and descriptions of their functions. According to the structure of revised NS-R-1, the Safety Guide will address the general and specific requirements for the design of these systems giving recommendations to meet the corresponding NS-R-1 requirements.

LIST OF CONTENTS

INTRODUCTION

Background
Objective
Scope
Structure

EXTENT OF THE AUXILIARY SYSTEMS

Definition and functions of auxiliary systems
List of main auxiliary systems (consistent with a list of NS-R-1)
Other auxiliary systems

GENERAL CONSIDERATIONS

This section will be mainly based on the corresponding structure of NS-G-1.9 (Design of the Reactor Coolant System and Associated Systems in Nuclear Power Plants). If applicable, it will provide guidance to meet the general requirements of NS-R-1 for following items:

Design basis
Objectives of the design (DID...)
Safety classification
Qualification

Reliability
 Postulated initiating events
 Internal and external hazards
 Interface with other systems
 Considerations for multi-unit nuclear power plants

SPECIFIC CONSIDERATIONS

Process and post accident sampling systems
 Auxiliary heat transport systems
 Compressed air systems
 Air conditioning and ventilation systems
 Fire protection systems
 Overhead lifting equipment
 Lighting systems
 Other auxiliary systems

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

Approval of DPP by the Coordination Committee:	December 2009
Approval of DPP by NUSSC:	June 2010
Approval of DPP by the CSS:	October 2010
Approval of draft by the Steering Committee:	April 2011
Approval by the Safety Standards Committees for submission to Member States for Comments:	June 2011
Review in NS-SSCS:	June 2012
Endorsement by the CSS:	October 2012

8. **RESOURCES**

Estimated resources involved by the Secretariat and the Member States:

Drafting: 3 CSs with 3-4 experts each, 1 Technical Meeting

Resolution of Comments by NUSSC: 1 CS with 3 experts

Resolution of Comments by MS : 1 Cs with 3 experts

Finalization of the draft: 1 Cs with 3 experts