Document Preparation Profile (DPP)

1. IDENTIFICATION

Document Category **Safety Requirements**

Working ID: **DS 439**

Proposed Title: **Appendix IV "Reprocessing Facilities" and Appendix V "Fuel Cycle Research and Development Facilities" of NS-R-5**

Proposed Action: **Addendum to a document**

[Safety of Nuclear Fuel Cycle, 2008, NS-R-5]

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

Technical Officer(s): **Geoffrey Jones (RRSS-NSNI)**

2. BACKGROUND/RATIONALE

The objective of NS-R-5 is to establish the safety requirements for fuel cycle facilities, including conversion, enrichment, fabrication of fuel (including MOX fuel), spent fuel storage, spent fuel reprocessing and associated waste conditioning and storage and fuel cycle research and development facilities.

The general safety requirements, applicable to all of these fuel cycle facilities throughout their life cycle, are established in the main text of NS-R-5, with additional specific facility related safety requirements included in appendices. NS-R-5 includes appendices covering, uranium fuel fabrication (Appendix I), MOX fuel fabrication (Appendix II) and conversion and enrichment (Appendix III). However, NS-R-5 does not contain the appendices which would establish the specific safety requirements for spent fuel reprocessing or fuel cycle research and development facilities. The specific safety requirements for these facilities need to be established and added to NS-R-5 before the appropriate Safety Guides can be developed.

3. OBJECTIVE

The objective is to complete the set of fuel cycle safety requirements within the scope of NS-R-5.

The proposed appendices will identify the specific safety requirements for spent fuel reprocessing, including storage and prior conditioning of process waste streams, and fuel cycle research and development facilities and will supplement the general safety requirements specified in NS-R-5.

Comment [GJ1]: Comment No 1 from UK (NUSSC)

4. JUSTIFICATION

At the time NS-R-5 was approved by the committees for publication (Sept 06-NUSSC, June 07-CSS), it was acknowledged that NS-R-5 was not complete. This was documented in NS-R-5 in Paragraph 1.15, which described the structure of NS-R-5, and included the following statement: *"Appendices I, II and III establish additional safety requirements specific to uranium fuel fabrication facilities, MOX fuel fabrication facilities and conversion facilities and enrichment facilities respectively. Further appendices will be added to later editions of this Safety Requirements publication when the relevant Safety Guides become available."*

In order to complete the corpus of fuel cycle facility Safety Guides, the safety requirements for the missing facilities need to be established. The inclusion of Appendix IV "Requirements Specific to Reprocessing Facilities" and Appendix V "Requirements Specific to Fuel Cycle Research and Development Facilities" will complete NS-R-5 and establish the safety requirements for all fuel cycle facilities currently within the scope of

NS-R-5. Completion of NS-R-5 will then allow the development and completion of the Safety Guides covering spent fuel reprocessing (DS360) and fuel cycle research and development facilities (DS381).

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

The appendices will form part of NS-R-5 which is part of the Specific Safety Requirements and allocated SSR No 4 “Safety of Nuclear Fuel Cycle Facilities”.

The safety requirements will be based on the principles established in the Safety Fundamentals SF-1.

6. OVERVIEW

The structure and content of the proposed appendices (Appendices IV & V) will follow the standard structure that has already been established in the existing appendices (Appendices I, II and III). The structure will cover the specific safety requirements during the whole life cycle of the facilities and include, where appropriate, consideration of the following topic headings:

SITING

DESIGN

- Safety functions
  - Cooling
- Engineering design
- Criticality prevention
- Confinement of nuclear and radioactive material
- Postulated Initiating Events
- Instrumentation & Control systems
- Radioactive waste and effluent management

CONSTRUCTION

COMMISSIONING

OPERATION

- Management system
- Qualification and training of personnel
- Criticality Prevention
- Radiation Protection
- Operating procedures
- Maintenance, Inspection, Record Keeping and Testing
- Radioactive waste and effluent management
- Emergency Planning and Preparedness

Comment [GJ2]: Comment No 3 from UK (NUSSC)

Comment [GJ3]: Comment No 1 from Japan (NUSSC)

Comment [GJ4]: Comment No 2 from Japan (NUSSC)

Comment [GJ5]: Comment No 2 from UK (NUSSC) and also comment No 3 from Japan (NUSSC) and also comment No 2 from USA

Comment [GJ6]: Comment No 1 from USA

Comment [GJ7]: Comment No 4 from USA

Comment [GJ8]: Comment No 3 from USA

7. PRODUCTION SCHEDULE:

Approval of DPP by the Coordination Committee – December 2009
Approval of DPP by the Safety Standards Committees – June 2010
Approval of DPP by the CSS – October 2010
Approval of draft by the Coordination Committee – March 2011
Approval by the Safety Standards Committees for submission to Member States for comments – June 2011
Approval of the revised draft by the Coordination Committee – December 2011
Review in NS-SSCS – December 2011
Approval by the Safety Standards Committees for submission to the CSS – June 2012
Endorsement by the CSS – Q4 2012
Approval by the Publications Committee – Q1 2013
Approval by the Board of Governors, as appropriate - Q2 2013
Target publication date – Q4 2013

8. RESOURCES

From IAEA: 2 staff months

From Member States: 3 Man-weeks