2nd Meeting of the Emergency Preparedness and Response Standards Committee (EPRSc)
27 June – 1 July 2016

Agenda Item 4.1
DS478: Safety of Nuclear Fuel Cycle Facilities
*For information*

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Prologue

1) DS478 is a redevelopment of the Safety Requirements for Nuclear Fuel Cycle Facilities (NFCF).

2) DS478 is at SPESS step 10.

3) DS478 will be presented to the Safety Committees including EPReSC at meetings in November and December.

4) Different NFCF types can fall under EPR Categories I, II, III and V, see tables 4 & 6 in GS-G-2.1 (2007).

5) This presentation is for information only.
History

1. NS-R-5 was published in 2008;

2. Its scope covers all lifetime stages of all NFCFs, in addition to management of safety and regulatory supervision for:
   a) Processing, Refining, Conversion, Enrichment and Fabrication of Fuel (Including MOX fuel);
   b) Spent Fuel Storage, Spent Fuel Reprocessing;
   c) Fuel Cycle Research & Development;
   d) Pre-disposal & Pre-discharge treatment of radioactive waste.

3. Since NS-R-5 published, 5 related Specific Safety Guides (SSG) have been published, including criticality and spent fuel storage.

4. Guides for reprocessing and R&D near publication, following the approval of relevant safety requirements for specific facility types as appendixes to NS-R-5 (revised).
Need for Revision

1. The long term structure of safety standards approved by the IAEA Member States in 2008, after NS-R-5;

2. The need to ensure coherency and consistency of NS-R-5 technical contents with the other relevant IAEA Safety Standards, which include aspects that were not originally covered.

3. The need to incorporate experience from Member States and IAEA on application of the document.

4. The need to incorporate the relevant feedback from the accident at the Fukushima-Daiichi NPP, equivalent to NPPs and Research Reactors.
Revision Process

1. The existing scope of NS-R-5 will be retained, with clarifications for:
   a) Interface between safety and security;
   b) Isotope production facilities;
   c) Breeder material.

2. The use of Appendixes for specific facility types avoided.

3. DS478 covers Design Extension Conditions for NFCFs.

4. The revised draft received constructive feedback from Member States during formal consultation in 2014 and was presented to the Safety Committees by the normal process.

5. Hope to receive approval for publication as SSR-4 in 2017.
Suggested DEC

A graded approach must be taken when considering DEC for NFCF.....

The following list developed from list presented to NUSSC in June 2015:

1) Loss of two or more independent criticality controls
2) Overheating of spent fuel and vitrified high-level waste
3) Uncovering spent fuel or Th/U breeder in a pool
4) Extended blackout of a large reprocessing facility
5) Loss of cooling of Highly Active Liquor
6) Overfilling a UF₆ storage or process vessel
7) Major disruption of a plutonium facility

........these are not listed in DS478
Thank you!