Waste Safety Standards Committee
42nd Meeting

30 November 2016

Agenda W 6.9

Z. Fan and J. Rowat
Waste and Environmental Safety Section
Division of Radiation, Transport and Waste Safety
Outline

• Background
• Objective
• Scope
• Status of development
• Structure
• Way-forward
Background (1/3)

• Uranium supply is essential for the development of nuclear power
• Uranium production activities in the past caused legacy issues requiring costly and complex remediation
• Documents have been published to address various issues related to uranium production
• No document has addressed the issue regarding establishing a national infrastructure for uranium production
• Lessons learned show that new legacy will very likely to create without appropriate national framework for safety and regulatory aspects of uranium production
An evaluation of the IAEA’s support to uranium exploration and production activities conducted by the IAEA’s Office of Internal Oversight Services (OIOS) in 2011

- Identified that there was no single source reference for countries to consult relevant to development and oversight of uranium production and

- Recommended (Recommendation 2) that a publication on uranium production be developed to “serve as a guidebook to various publications, including standards, or portions of publications on exploration, mining, processing, etc., already available that are relevant to the uranium production cycle.”
Background (3/3)

- DS455 Establishing the Infrastructure for Radiation Safety
- DS486 Establishing the Safety Infrastructure for a Nuclear Power Programme
- Safety documents under development:
  - DS459 Management of Radioactive Residues from Uranium Production and Other NORM Activities, revision of WS-G-1.2
  - DS468 Remediation Process for Areas with Residual Radioactive Material, Revision of WS-G-3.1
  - DS453 Occupational Radiation Protection
  - Safety Aspects of Development and Management of Uranium Production by In-situ Leaching
Objective of the Safety Report

• Provide advice on the establishment of oversight and regulatory programmes for uranium production
• Support existing IAEA publications applicable to uranium production and provide references to pertinent publications
• Serve as foundation material for further development of relevant IAEA publications
• Targeted primarily to decision makers, regulatory bodies and operating organizations
Scope

- Information on the prevention of safety, health, and environmental impacts associated with intrusive exploration for and mining (underground, open pit, and in-situ leach) of uranium and the production of uranium, as well as uranium production from unconventional resources.
- Aspects relating to the legal and regulatory framework, licensing and oversight of operating facilities, decommissioning, closure and remediation of sites and facilities after ores are exhausted and production has terminated, and long-term management of residues.
- Apply, in accordance with a graded approach, to other industries including mining and processing of other ores (e.g. copper, gold, rare earths or phosphate) resulting in the production of uranium concentrates as a secondary product.
Status of development

• Consultancy meeting, 28 April – 2 May 2014
• Consultancy meeting, 25 – 29 August 2014
• Consultancy meeting, 13-17 April, 2015
• Consultancy meeting, 22-26 June 2015
• The DPP was approved by the 257th Coordination Committee Meeting held on 13 May 2016.
• Workshop on Safety Infrastructure for Uranium Production was held from 29 August to 2 September 2016, Vienna, Austria, with twenty participants representing seventeen Member States
1. Introduction
2. Overview of Uranium Mining and Production
3. Aspects Relating to the Legal and Regulatory Framework
4. Human Resources and Financial Implications
5. Licensing
6. Construction and Operation
7. Transportation
8. Termination of operations
9. Long term institutional controls
Appendix I. Life cycle and milestones for uranium production
Appendix II. Sample regulations for uranium production
Appendix III Regulatory guidance
Appendix IV. Competencies and skills of operator and regulator
Appendix V. Licensing
Appendix VI. Operator management plan
Appendix VII. Regulator management plan
Conclusions (Excerpt)

• The Safety Report will be valuable to MSs involved in uranium production including remediation of legacy uranium production facilities.

• In particular, it will be valuable to those MSs that are still developing their radiation safety and regulatory programs for uranium production.

• The draft Safety Report is in a good state and suitable for finalization.

• A final critical review of the draft is required to address some consistency and language issues.
Recommendations (excerpt)

- Initiates a project to determine how to most effectively assist Member States that are developing their radiation safety and regulatory programs, those that may be initiating uranium production activities for the first time, and those that are faced with legacy sites. Areas that this project should consider include:
  - Frameworks for **funding regulatory effort** through fees, and developing financial assurance mechanisms for decommissioning and long term management
  - Calculating **decommissioning costs** and determining long term monitoring costs
  - Developing and maintaining an independent regulatory framework
  - Developing regulations, including providing templates such as **model licences**
  - Providing access to specialists in training programs for management of legacy sites
  - Prioritizing sites based on risk
  - Managing access of people to **legacy sites**, and educating people of the hazards
  - Establishing institutional controls (passive/active) and managing and treating long term issues such as acid mine drainage and contaminated water

- Develops standards for long term management of sites including end-state criteria.
Thank you!