

IAEA Activities on Minimizing HEU in Mo-99 Production

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Mo-99 Topical Meeting

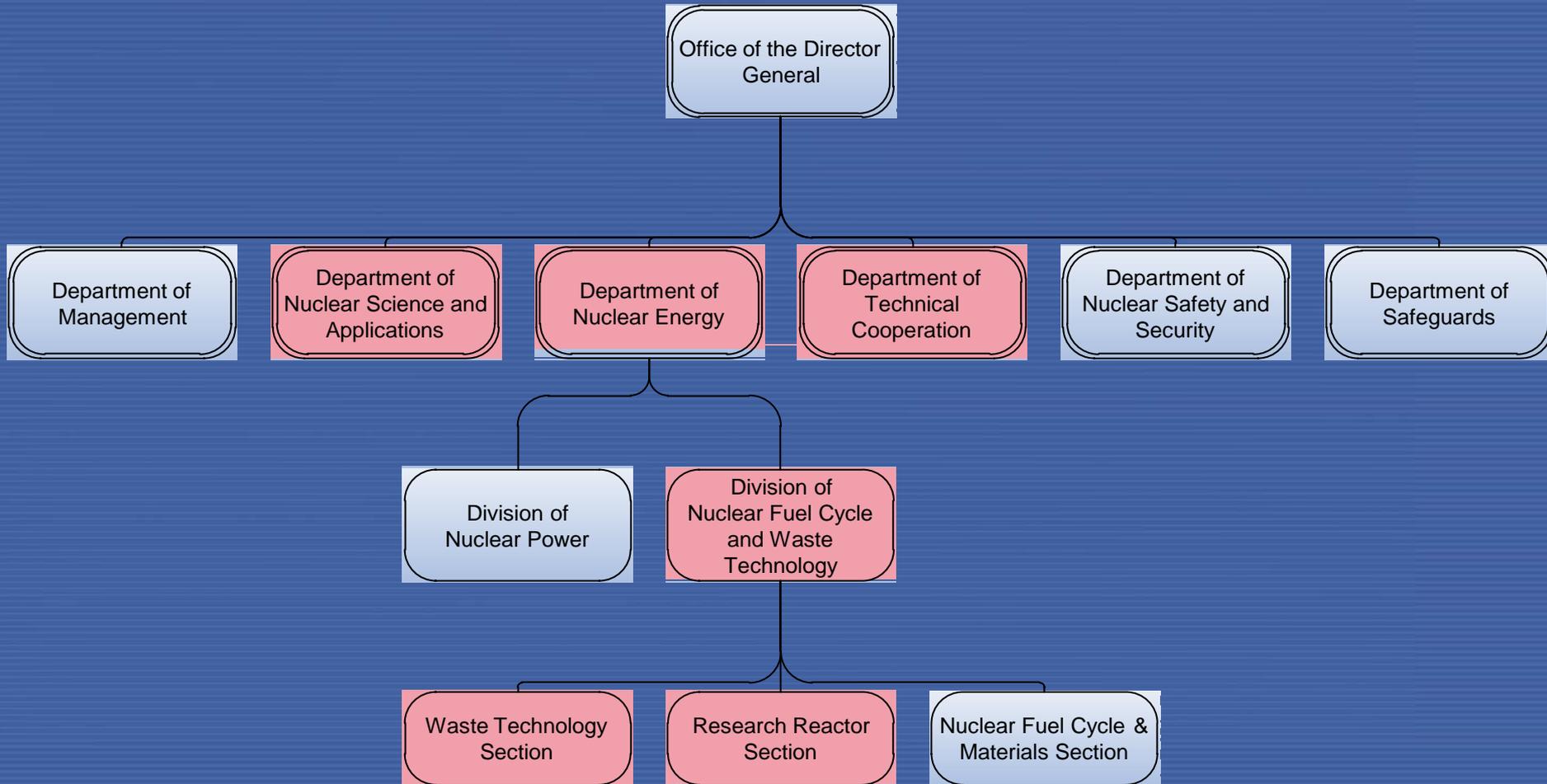
Chicago, Illinois 1-4 April 2013



IAEA

International Atomic Energy Agency

IAEA Organization for Mo-99 Work



RRS Priorities for Mo-99

- **HEU Minimization**

- Several projects aimed at producing Mo-99 without using HEU

- **Stability of Supply**

- Various supply issues led to increased emphasis on finding ways to diversify supply and ensure the global demand was met

Mo-99 Research Reactor Projects

Working with other Agency departments and key external partners, the RRS leverages numerous types of activities to assist Member States in their Mo-99 work. These include:

- Coordinated Research Projects
- Technical Cooperation Projects
- Regular Program activities
 - Networks and Coalitions
 - Participation in complimentary, international activities
 - Meetings
 - Missions
 - Publications
 - General Conference Side-events



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RRS Mo-99 Projects

Report on Non-HEU-Based Production Technologies for Mo-99

- Available online (http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1589_web.pdf) and in hard copy from the IAEA's Publications Department
- Examines status of numerous non-HEU Mo-99 production technologies
- Small to large scale, basic concepts to fully deployed technologies
 - Reactor-based production
 - Accelerator-based production
 - Neutron Activation and Photo-neutron processes
 - Various target types, processing technologies

RRS Mo-99 Projects

TC Project on assisting with small-scale, non-HEU production:

- Project started in 2013
- Aimed at assisting small-scale, national-level producers in setting up their production capability;
 - NOT aimed at creating commercial producers
- Will rely on LEU fission or n,gamma-based production
- Open to any IAEA Member States wishing to receive advice and assistance becoming national suppliers of Mo99

RRS Mo-99 Projects

Assisting small-scale production, continued:

- **Draft publication** on Feasibility of Small-Scale Mo99 Production using LEU Fission or Neutron Activation Methods
 - In draft form now; scheduled for publication in 2013
 - Incorporates the results of the Coordinated Research Project on small-scale production, 2005-2011



RRS Mo-99 Projects

Assisting small-scale production, continued:

- Expert Missions

- Mo99 production project progress review missions
- Production infrastructure readiness missions
- IAEA and project counterpart missions to Mo99 production facilities and laboratories

- EURASIA Coalition work

- Reactors in Eastern Europe and former Soviet states cooperating to produce low specific activity, Mo-99 via neutron capture of Mo-98 (launched in 2008)

RRS Mo-99 Projects

Assisting Conversion of Major Mo-99 Producers to LEU:

- Supported by US DOE/NNSA and the Government of Norway
- Series of working group meetings for key stakeholders to review progress, exchange information and explore opportunities for mutually beneficial collaboration
- Examining feasibility of “optimizing” LEU dispersion targets
- Receiving updates on LEU high-density targets, and accompanying chemical processes

RRS Mo-99 Projects

Managing Mo99 Waste Streams:

- Cooperation with the OECD/NEA
- Study of technical and economic aspects of Mo99 waste streams
- Technical: looking at how producers currently deal with HEU and LEU waste streams, and new technologies that may be employed
- Economic: looking at who pays (not how much) for waste management

RRS Mo-99 Projects

- NAPC running a CRP on Production of Mo-99 Using Accelerators

International/Inter-organizational cooperation:

- WOSMIP
- Cooperation with the OECD HLG-MR since 2008
- Cooperation on the Mo99 Waste study with OECD/NEA
- Observers in the EU Observatory on the Supply of Medical Radioisotopes (*NAPC*)

RRS Points of Contact

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