Session 2: Molybdenum-99 Supply
Production Overview: Current and Future

National Academies: Opportunities and Approaches for Supplying Molybdenum-99 and Associated Medical Isotopes to the Global Market
17-19 July 2017; IAEA, Vienna
Outline

• Brief Overview

• Capacity

• Transition HEU to LEU
NECSA MANDATE

The Company derives its mandate from the Nuclear Energy Act, No. 46 of 1999. In terms of Section 13 of this Act, Necsa is mandated to:

• Undertake and promote research and development (R&D) in the field of nuclear energy and radiation sciences and technology and, subject to the Safeguards Agreement, to make these generally available;

• Process source material, special nuclear material and restricted material and to reprocess and enrich source and nuclear material; and

• Co-operate with any person or institution in matters falling within these functions, subject to the approval of the Minister.
Brief Overview

NTP Radioisotopes SOC Ltd

- AEC Amersham SOC Ltd (100%)
- NTP Logistics SOC Ltd (51%)
- Gammatec NTD Supplies SOC Ltd (55%)
- NTP Radioisotopes (Europe) S.A. (99%)
- Gamwave Gauteng (Pty) Ltd (40%)
  - Gammatec Middle East (90%)
  - Gammatec Aseana (100%)
  - Lectromax (90%)
  - Oserix (25%)
Our Operation

NTP Mo-99 Supply Chain

NTP
Actively enhancing life
Capacity

Investment and Improvement

- SAFARI-1
  - Proactive maintenance
  - Lifetime extension

- Processing Plant
  - Additional production hot cells
  - Plant systems upgrade

- Waste infrastructure
Capacity

Capacity Expansion

• Irradiation space
  – License an additional reactor position

• Processing
  – Continuous process improvements.
  – Application to increase operational envelope.

• Waste management
  – Increased Volume
Capacity

Previously

• 2 production lines (HEU design)

Currently

• 1 LEU designed and 1 HEU designed production line

Future

• 2 LEU designed and 1 HEU backup production line
Transition from HEU to LEU

Mo-99: % LEU Distribution relative to all LEU runs
Transition from HEU to LEU

I-131: % LEU Distribution relative to all LEU runs


Distribution of LEU runs increasing from 2009 to 2017.
Financial Implications

**Pioneers in Conversion Technology**
- A World First
- Exceed Full Compliance

**Massive Capital Investment**
- Higher Reactor Operational Costs and Lower Fluxes
- Lower MO-99 Production Capacity
- Higher Waste

**No Noticeable Therapeutic Benefits to Patient**
- The Patient Pays More
Thank you for your attention