



# IRE LEU conversion update

OSTP meeting – May 16, 2018

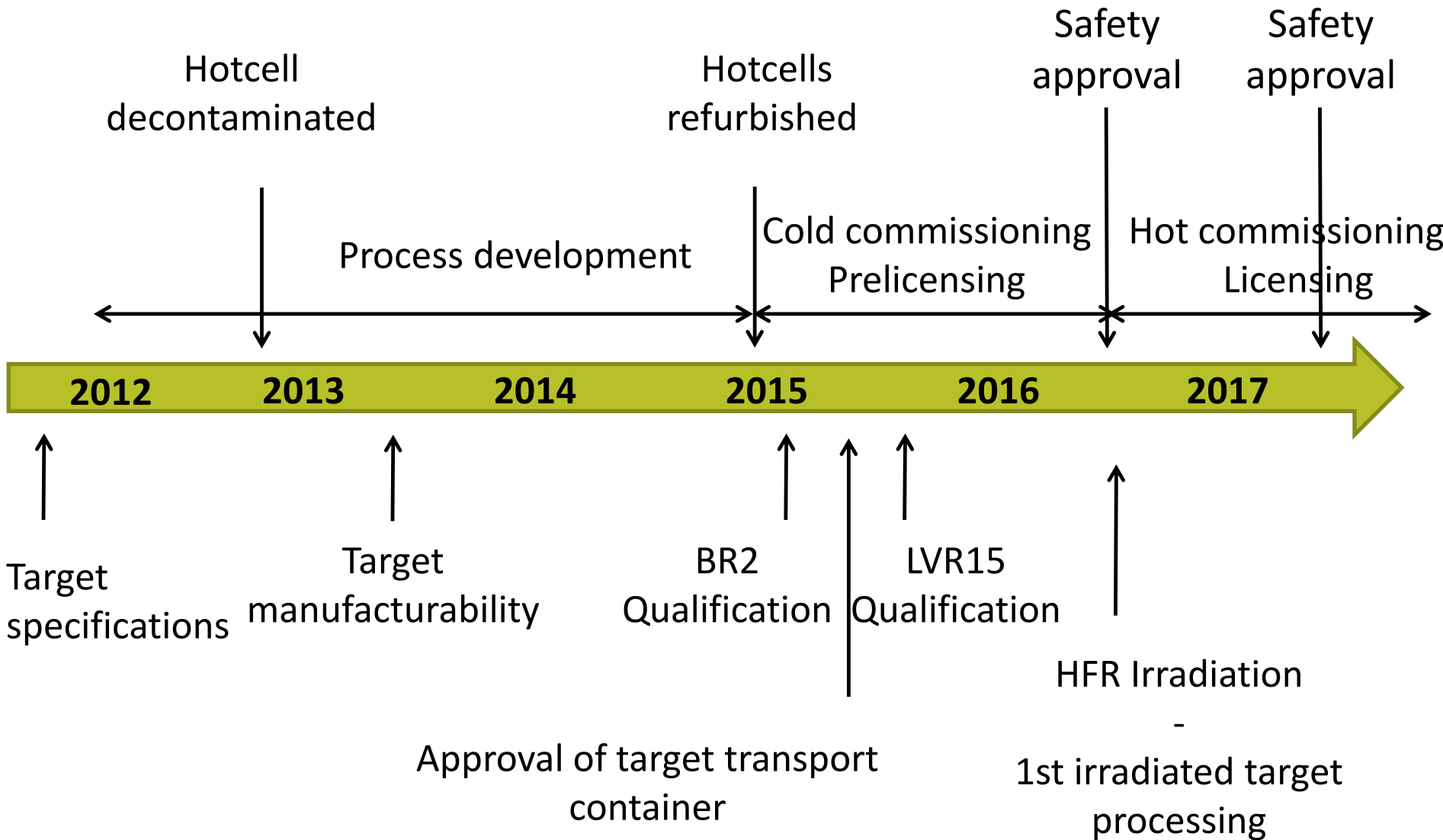


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# Specific LEU conversion challenges

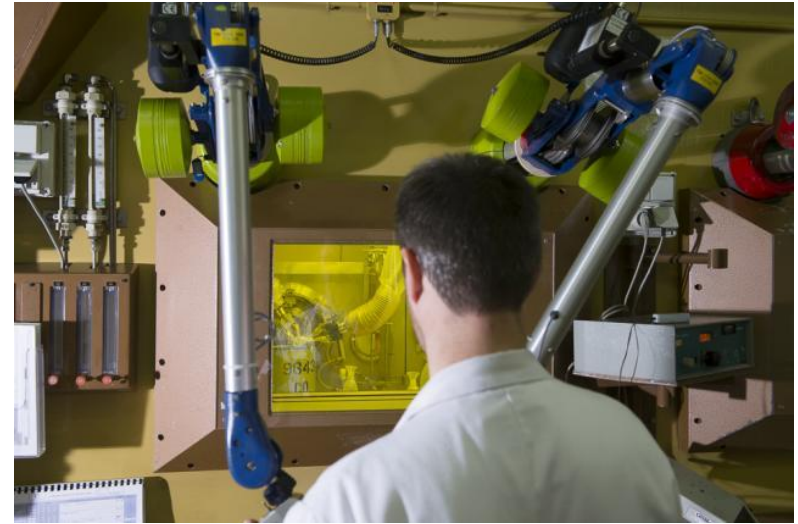
- Safety improvements required
    - Chemical process modifications
    - Production equipment modifications
    - Production environment updates : hot cells and ancillaries
  - Post Fukushima stress tests
  - 3 processes to convert
    - Mo-99
    - I-131
    - Xe-133
  - Product validation not under direct IRE control
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# IRE conversion : achievements



# Hot commissioning : status

- Ramp-up phase
  - 1:3 full scale achieved
- > 200 irradiated targets processed
- Production of pharmacopea specifications compliant LEU Mo-99



# Hot run feedback

- High impact of highly active targets
  - Good results from preliminary tests, not repeated at higher activity
- Variable fission product recovery with I-131 present in unwanted fractions



Safety issue

- Modifying operating and chemical conditions
    - Dedicated task force - Peer review
    - R&D tests
  - Production of small quantities of hydrogen confirmed
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# Hydrogen issue and status

- ATEX explosion risk assessment
  - Routine and incidental conditions assessed
    - New equipment and SOP
    - Segregate hydrogen containing streams
    - Prevent introduction of oxygen
  
- Hot tests resumed with modified operating and chemical conditions
  - Mo-99 and Xe-133 recovery at target
  - Still working on iodine recovery process

# Test planning

- Initial design of experiments is being reviewed
  - Systematic approach
  - List of actions for iodine management discussed
    - chemicals and other physical parameters
- Hot R&D tests on going
  - Without impacting HEU supply
- Validation
  - Will start as soon as tests finalized
- Final conversion planning under construction

# Conclusions

- Important milestones have been achieved:
  - Mo-99 and Xe-133 recovery at target
  - Hydrogen risk under control
  - Production of LEU Mo-99 meeting quality criteria
- Scaling up under progress
  - Process safety remains is our highest priority

 **No compromises on safety and security of supply**





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