Air Transport of Small Quantities of Irradiated Materials:
Flying Pig Concept Update

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Flying Pig Concept Update

1. Presentation of project
2. Flying Pig Characteristics
3. Flying Pig Operability
4. Contents Authorized
5. Schedule
6. Conclusion
Presentation of project

- Call for proposal by HOTLAB for a small B(U) cask for air shipment

- Cost-effective
- Flexible
- Less red-tape
- Transport small quantities of irradiated material
- Throughout the world
- AREVA TN was selected by HOTLAB
Presentation of project

- AREVA TN will propose in its lease:
  - Cask
  - Tools to operate the cask
  - Maintenance
  - Certificate of approval in France, ADR countries, USA (and we are working to accept Japan)
  - Renewal of certificate every 5 years

- AREVA TN is currently:
  - Designing (cask, transport frame, container, toolboxes…)
  - Licensing
    - French certification (first safety options were sent)
    - European and DOT validations
Flying Pig Characteristics

- B(U)/B(U) excepted fissile type
- Transportable by air, road, rail, and sea
- Maximum heat load: 10 Watts
- Maximum payload: 10 kg
- Revolving plug/direct connection to hot cell
- Load/unload in horizontal or vertical position
- La Calhene/Getinge CT105 compatible
Contents Authorized

- Large variety of content authorized thanks to an innovative calculation methodology used: an inequality system of loading

- Various materials: Irradiated pellets, Fuel rod sections, Fuel plate sections, Sources (sealed and non sealed), Metal samples….

- Various chemical forms: Metal, oxide, carbide, nitride form or mixtures with Si, Yr, Al….
Schedule

- Detailed design of the cask
- Manufacturing ~ 8 m
- French Certification ~ 1 yr
- ADR Countries validation ~ 2 months
- Cask cold trials
- Cask certified in France
- Cask certified for ADR countries
- Cask Certified in the U.S.

2016  2017  2018  2019
Cost-effective & flexible

Based on the TN®106 concept, an existing and established design

First cask to be manufactured and licensed by mid 2018

Next steps, we need your help:

- Laboratories interface data: crane capacities, tables, docking system...
- Radiolysis risk: we need to know what resin type you use
- Content definition: we need content example to check Flying Pig performance

And then, let the Pig(s) fly!!