AGENDA

► AREVA Group
► FUEL BU
► ZIRCONIUM DIVISION
► ZIRCONIUM SPONGE PRODUCTION PROCESS
► FUSED ZIRCONIA FOSKOR PROJECT
AREVA – A UNIQUE INTEGRATED MODEL
ORGANIZATION OF THE GROUP
The first safety barrier in a nuclear reactor
Integrated process from Fused Zirconia to final tube
PRODUCTION OF THE FUEL ELEMENTS

UF₆ into UF₆ → UF₆ into UO₂

Tablets → Zr Tubes → Tube feeding → Fuel Elements

Pencils

Frame

Components

Guiding tubes → Grids → Heads
ORGANIZATION OF THE FUEL BUSINESS UNIT

Fuel Design Division

Zirconium Division

Fuel Manufacturing Division

Products & Technologies Division

Contracts & Services Division

Supply Chain Division

- Production of Zirconium
- Fusion
- Lamination
- Tube and Sheets

4800 people

1400 people
ABOUT THE ZIRCONIUM DIVISION...

2000 t of Zirconium Sponge
Semi-finished products deliveries > 1600 metric tons
6 000 km of tubes
5 facilities in France, 1 in Germany, 1 JV in China
Turn over: 175,6 M€
Workforce: 1 400 employees
Share older: 100% AREVA -NP

The Zirconium World Leader
LOCATIONS OF THE Zr DIVISION

- 1 plant in Duisburg.
- 1 JV in Shanghai

- Montreuil-Juigné
- Head Quarter Paris
- Rugles
- Paimboeuf
- Ugine
- Jarrrie

Sheets
Tubes
Tubes and structure bars
Zirconium Sponge
ZIRCONIUM SPONGE PRODUCTION PROCESS

1. Carbochlorination
2. Separation
3. Kroll - Reduction

Fused Zirconia

Rad-Waste

ZrCl₄ /HfCl₄

ZrCl₄

HfCl₄

Zr sponge
In 2009, it has been decided to change the raw material to produce Zirconium Sponge

From Zircon sand to FUSED ZIRCONIA

For safety and security reasons

Further to new government constraints which will be applicable in 2014
Fused Zirconia – Foskor Project

Sourcing

Foskor has been identified as a potential partner

BUT

♦ Their manufacturing process was not capable of answering our technical requirements
PILATUS & AREVA collaborate in the implementation of OFFSET projects in the world

FOSKOR decided to invest in a new technology allowing them to produce a new grade of FUSED ZIRCONIA

PILATUS decided to participate in the financing of the investment
FUSED ZIRCONIA – FOSKOR PROJECT
MAIN STAKES FOR THE Zr DIVISION

Strategically
- Secure our raw material supply
- A better control of the value chain
- Implementation of the AREVA group policy related to our relationships with developing countries

Minimize safety risk and our impact on environment

Improve our purchasing costs
- Competitiveness within developing countries
- No customs duties between UE and RSA
Bearing OFFSET in mind and developing an Offset network can become a key success factor of a purchasing policy.

It’s a virtuous circle between companies to create value and build partnerships.
FUSED ZIRCONIA – FOSKOR PROJECT
FUSED ZIRCONIA – FOSKOR PROJECT

THANK YOU FOR YOUR ATTENTION