

International Conference on Fast Reactors and Related Fuel Cycles: Next Generation Nuclear Systems for Sustainable Development (FR17)



Contribution ID: 407

Type: **POSTER**

ASTRID hot cells

Tuesday, 27 June 2017 17:30 (1h 30m)

Authors: René-Paul BENARD, Bernard GUILLOU (SEIV)
Christoph DÖDERLEIN (CEA)

The ASTRID reactor is the French demonstrator for Generation IV sodium cooled fast reactors and needs as such to respond to challenges in the qualification of innovative components and materials. Considering its role as R&D platform for the fast reactor line to come, ASTRID will be endowed with a set of hot cells. The French company SEIV, subsidiary of the ALCEN group, has been in charge since 2013 of the full preliminary design of this facility.

The main purpose of the ASTRID hot cells is to perform non-destructive examinations (NDE, such as visual inspection, 3D X-ray tomography, dimensional inspection, eddy current testing) on the spent core sub-assemblies and fuel pins. To extract the latter from the sub-assemblies, a dismantling unit is foreseen in the facility.

The proposed paper gives a description of the components and capabilities of the ASTRID hot cell facility. The facility consists of a main cell, where the NDE equipment are installed, the lower cells with the dismantling machine and 3D X-ray scanner device and finally the upper cell which serves as an airlock for handling functions.

The ASTRID hot cells will feature remote operations of NDE equipment, eg. with new generation manipulator with electrical master arm using haptic technology. This design aims to minimize of the use of expensive lead windows, increase handling capabilities and improve operator ergonomics.

Country/Int. Organization

SEIV is a french company from ALCEN Group, CEA partner for the 4th generation reactor.

Primary author: Dr GUILLOU, Bernard (SEIV)

Co-authors: Dr DODERLEIN, Christoph (CEA); Mr BENARD, René-paul (SEIV)

Presenter: Dr GUILLOU, Bernard (SEIV)

Session Classification: Poster Session 1

Track Classification: Track 5. Fast Reactor Materials (Fuels and Structures) and Technology