



SOUTH AFRICAN NUCLEAR ENERGY CORPORATION (Necsa)

**MEDIA Release
Date: 12 March 2007**

THE DEVELOPMENT OF A HOT CELL FOR HANDLING AND CONDITIONING OF HIGH ACTIVITY SOURCES (SHARS)

The South African Nuclear Energy Corporation (Necsa) has successfully developed and commissioned the first mobile hot cell for the handling and conditioning of Spent High Activity Radioactive Sources (SHARS). Its unique quality would be used in countries that do not have the facilities for the safe handling of SHARS.

Necsa was requested in December 2003 by the International Atomic Energy Agency (IAEA) to perform a basic design for a mobile unit. Necsa has at that stage for many years, in collaboration with the IAEA, been involved in African countries with a very successful programme in handling and making safe of spent sealed radioactive sources. The IAEA has found that SHARS have become a major safety hazard in many countries due to the fact that specialized facilities (hot cells) are required to handle these radioactive sources in order to provide for a safe storage configuration. Most developing countries do not have hot cells or the financial means to develop them. The recent additional security threat where SHARS could be used for acts of terrorism added to the need for a solution to the problem.

Necsa was awarded a contract by the IAEA for the detail design, manufacturing and commissioning of the SHARS conditioning unit after it has been evaluated by an international team of experts. The unit, with dimensions of 4,5 m x 5,5 m, is constructed out of steel panels with 1,5 m thick walls filled with river sand to provide the required shielding against radiation and concrete roof slabs over the inside of the hot cell. Sand was chosen as shielding due to the fact that it is available anywhere and does not have to be taken with the equipment to specific country. A window, filled with a water and zinc-bromide solution for shielding, provides the view inside of the cell. Remote handling devices, called master-slave manipulators, are used for handling the SHARS inside the hot cell.

The SHARS conditioning unit, dismantled and packed inside a 20 foot shipping container, is transported to a specific country where it will be assembled and filled with sand. The SHARS, still inside its original working shield, will be lifted into the unit through the roof (concrete roof slabs are removed and placed back into position). The SHARS will then be removed from the working shield by means of the master-slave manipulators and welded into a stainless steel canister, where-after it will be placed in a long-term storage container, designed to keep the sources in a very safe and secure configuration for up to 50 years. The long-term storage container will be kept in safe storage in the country where the conditioning operation has been performed.

The commissioning of the unit will be completed and launched on 14 March 2007. Experts from both national and international arenas are going to attend. Necsa in collaboration with the IAEA,

will begin with SHARS conditioning operations in the African continent. The IAEA is planning to introduce the SHARS conditioning units also in South America and the East.

Ends

FOR FUTURE INFORMATION CONTACT:

Chantal Janneker
Senior Manager: Corporate Communication
South African Nuclear Energy Corporation (Necsa)
Tel: +27 12 305 5750
Fax: +27 12 305 5751
Cell: +27 083 488 3850
E-mail: chantal @necsa.co.za

or

Shaun Chetty
Chief Media and Publications Officer
South African Nuclear Energy Corporation (Necsa)
Tel: +27 12 305 5713
Fax: +27 12 305 5751
Cell: +27 083 628 0875
E-mail: shaun @necsa.co.za