

Safety First at Nuclear Plant

Submitted by: Ainsworth Maguire

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HVAC specialist, Senior Hargreaves, have completed acceptance trials by BNFL Environmental Services for a new extract and filtration system that has been installed at Sellafield. The system will be used in the Windscale Advanced Gas Reactor (WAGR) decommissioning project. It will provide negative pressure in the vault area and ensure complete recovery of all airborne particles during the oxy-propane cutting of the remaining reactor shell.

Before acceptance by BNFL the plant was fully assembled at Hargreaves' Bury factory and operated continuously for two weeks. Over this time, materials similar in size and density to the cutting residues were introduced in controlled quantities. Coarse, medium, fine and superfine residues, down to particle sizes of 0.12 micron (less than 1/200,000 of an inch), were captured with a 100 per cent recovery rate.

The plant was designed by engineers from BNFL Environmental Services and was fabricated by Hargreaves to their exact specification. The system has four stages of separation and filtration. Contaminants first enter the plant at high speed so that particles stay suspended in the air stream. A primary momentum separator reduces air speed and forces the air around a series of baffles so the heaviest particles fall out of suspension and into a recovery vessel. Air then goes through a metal filter to arrest sparks before passing through a cyclone to remove medium and fine particles. Finally, air is drawn through HEPA filters to capture even the finest particles. All ductwork and major plant items are stainless steel.

The system includes a duplicate parallel set of separation, filtration and fan units so that extraction continues even when plant modules are serviced. Design detailing, building and acceptance trials have gone to plan and budget. It will be in use by from late 2003 and is expected to run continuously for the foreseeable future.

Hargreaves has a long association with BNFL at Sellafield having installed high integrity ductwork and other ventilation equipment over a 30-year period.

More information: Kevin White, Senior Hargreaves, Tel. +44 (0)161 764 5082 Fax. +44 (0)161 762 2336
E-mail: kevin.white@senior-hargreaves.co.uk Web: www.hargreaves-ductwork.co.uk

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