



A PRELIMINARY EXPLORATION APPLICATIONS OF SMART/PRO-ACTIVE MATERIALS IN
21ST CENTURY SHIELDED NUCLEAR FACILITY

ABSTRACT

Today's growth of technology across many fields of engineering is rapid and progressive, however, the field of Nuclear Power has been delayed in its response. The existing technology developed in the early 1990's makes the construction and operating cost of current hot cells excessive, their design is conservative with large, thick concrete structures that are not designed for Post Operational Clean Out (POCO) and decommissioning.

This paper outlines examples of smart material technology, their current applications and the developing ideas which have the potential to heavily decrease contamination needs of a nuclear shielded facility. It explains in detail the research carried out and discusses the feasibility of each possibility. The report focusses on exploring the possibilities of analysing smart materials such as super hydrophobic or sensitive surface finishes for future hot cells.

Prepared by: Amy Elizabeth Gibson
Undergraduate Mechanical Engineering Student

Reviewed by: Harvey Walters AIMEchE
John Eldridge CEng FIMEchE

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