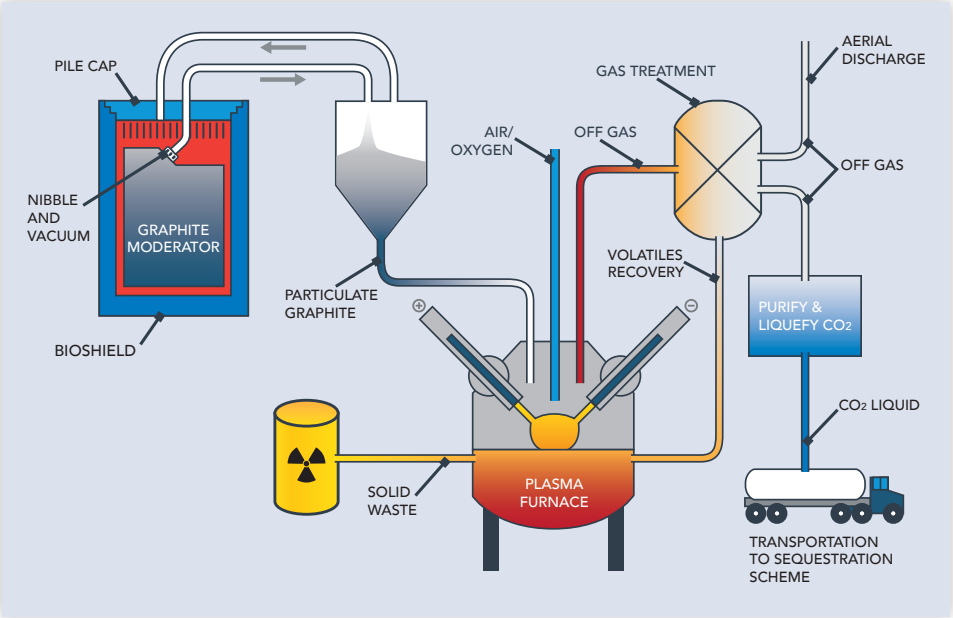
NUCLEAR WASTE MANAGEMENT – GRAPHITE THERMAL TREATMENT

» REDUCING THE VOLUME OF NUCLEAR WASTE

- The current baseline technology is to store graphite in blocks in a long term disposal facility
- Our approach is to gasify the graphite (turning carbon into carbon dioxide) and to store the CO_2 with gases removed from power stations (providing a link to our carbon capture and storage work) or to achieve isotopic dilution of the CO_2 and safe release to atmosphere. The total volume of irradiated graphite in the UK is equivalent to about 3 days of coal supply for a power plant, so diluting the CO_2 for a single power plant is a very practical proposition



KEY INDUSTRY CHALLENGES

- Graphite is a major component of the UK's nuclear reactor fleet
- Graphite will occupy up to 40% of the volume of the proposed long term storage facility
- Currently, graphite is being stored on reactor sites, delaying ultimate site clearance

CUSTOMER BENEFITS

- Potential for a significant reduction in waste volume of up to 95%
- The graphite no longer needs to be stored - huge reduction in the volume of the planned geological disposal facility
- Facilitates early site clearance for re-use
- Substantial cost reductions, >£2 billion

CURRENT STAGE OF DEVELOPMENT

- The elements of the technology have been proven for other waste handling processes
- The main challenge is to achieve regulatory approval for a change in approach. Discussions with regulators will continue throughout the programme

PROGRAMME PARTNERS

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