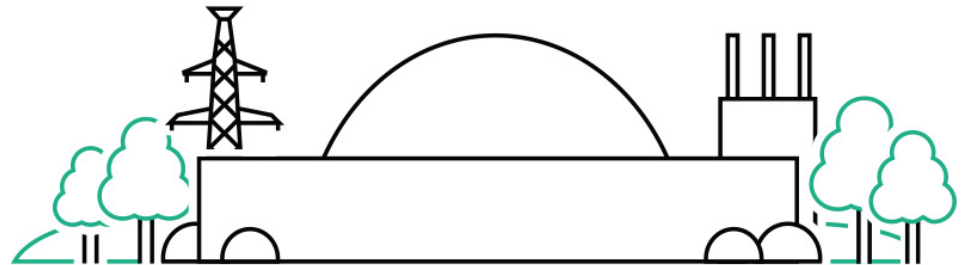




ONR engagement on AMR Technology

P Donnelly

14th June 2023



Initial Engagement – BEIS Feasibility and Development Project

BEIS Feasibility and Development project started 2018 looking at AMRs

- Covered four reactor types – Sodium cooled (SFR), Lead cooled (LFR), Molten salt (MSR) and High Temperature Gas (HTGR).
- Initial assessment of vendor submissions and subsequent detailed regulatory discussions with two vendors – Westinghouse (LFR) and U-Battery (HTGR).
- Additionally ongoing engagement in international fora – IAEA and OECD-NEA re regulation and safety standards for AMRs and SMRs.
- **Current status** – Ongoing DESNZ funding for the international engagement for consideration of AMR technologies in safety standards and approaches.

Current Programme – BEIS Research, Development and Demonstration Programme (RD&D)

Initial phase (phase A) – engagement with ONR and EA on four HTGR design vendors and two fuel manufacturing vendors (TRISO fuel).

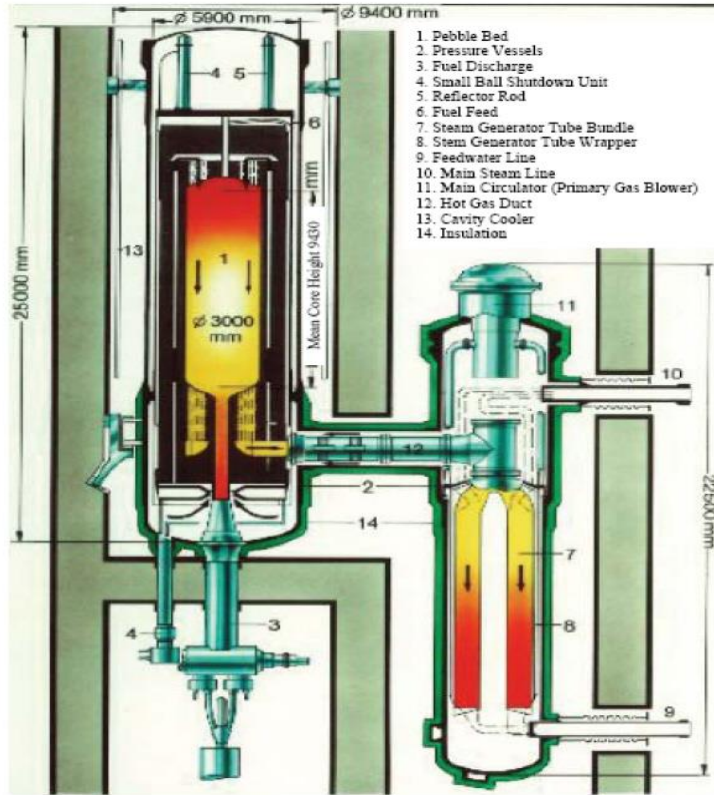
Vendors provided regulatory submissions which were assessed by ONR and Environment Agency. We have provided feedback to DESNZ (formerly BEIS) on our observations as to whether technologies could meet UK regulatory expectations.

Current status (phase B) – engagement with two reactor vendors for detailed regulatory discussions, engagement with one fuel manufacturing vendor.

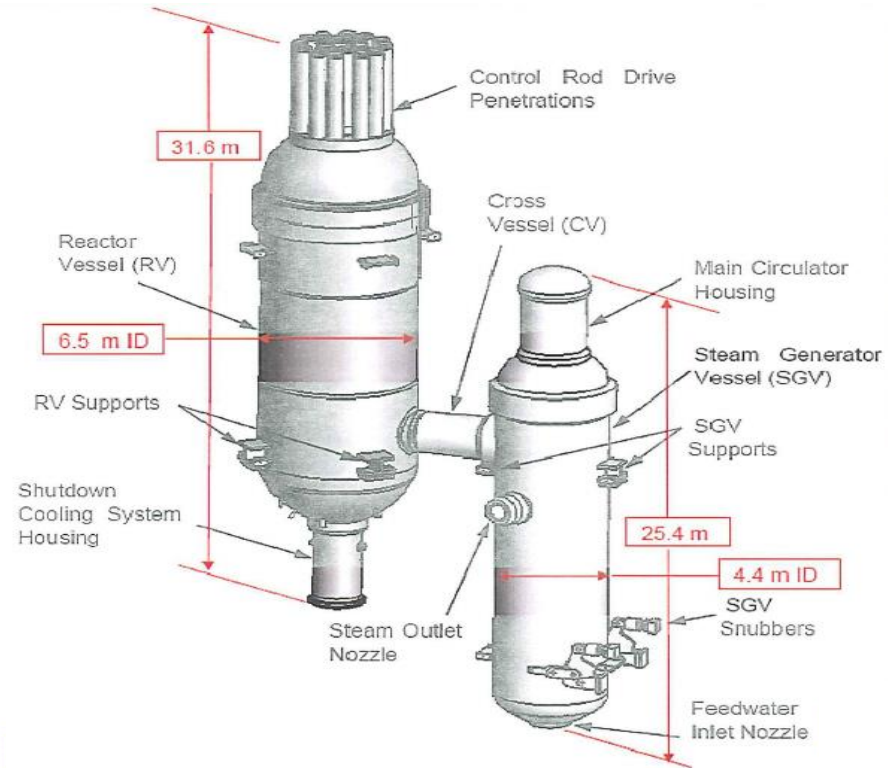
Through phase B we will engage with vendors and provide regulatory advice and guidance as they develop their designs through the FEED stage.

HTGR – what they look like

Pebble Bed Reactor



Block Reactor



Licensing of new reactor and facilities

For new reactors, regardless of site, a new nuclear site licence will be required. For reactors, the licence is reactor specific and thus even on existing licensed sites relicensing would be required for the construction of a new reactor.

For new fuel manufacturing facilities on existing licensed sites, it depends on what the existing NSL covers:

- If the existing nuclear site licence covers the proposed operations then relicensing would not be required.
- If the proposed operations are not covered by the existing NSL then relicensing would be required - see the Nuclear Installation Regulations 1971 on what can or cannot be prescribed.

Once licensed - construction would be under Licence Condition 19 with others supporting.

Thank you for your time

Questions ?