| | |
|---|---|
| **Active safety features** | Yes |
| **Fuel type / assembly array** | Industry Std $UO_2$ in 17x17 array |
| **Fuel cycle (months)** | 18 – 24 |
| **Emergency safety systems** | Passive and active |
| **Refuelling outage (days)** | 18 |

# Waste management

Unlike power stations that burn fossil fuels, such as coal and natural gas, nuclear power stations do not release harmful emissions into the atmosphere when they produce energy.

As with all industrial processes, there are some authorised discharges to the environment. These will be kept as low as possible, closely

record in safely handling and storing the waste that is generated whilst providing sustainable, zero-carbon power.

The cost of decommissioning and waste management is built into the cost of an SMR through a scheme called the 'funded decommissioning programme' to ensure the taxpayer won't face the bill for decommissioning and clean-up.

The Rolls-Royce SMR is being designed with waste minimisation in mind so during its construction, operation and decommissioning, we will generate as little conventional and radioactive waste as possible.

Detailed information about the management of spent nuclear fuel and radioactive waste will be published in the Documents section of this website. How we manage radioactive waste is one of the most common questions we face:

**How much radioactive waste does an SMR create over its lifetime?**

Over its 60-year lifetime, an SMR generates around **285m³** of spent nuclear fuel (about the size of a tennis court). The spent fuel contains more than 99% of the radioactivity. More detail about how we will manage our waste can be found in the Integrated Waste Management Strategy. [link]

**What type of waste is it?**

In addition to the spent fuel, the Rolls-Royce SMR produces gaseous, liquid and solid wastes including chemical wastes, waste oil, solvents, ion exchange resins, filters, sludges, waste metal and general waste (such as bags, packaging, tissues and gloves that might also come from a hospital X-Ray or radiotherapy department). Not all waste is

**How long will it be radioactive?**

The nuclear fission process produces a wide range of fission products, with radioactive half-lives that range from extremely short to very long timescales. There is rapid decay over the first few hours, days and weeks following irradiation, with increasingly slower decay as time progresses. The overall activity level falls from intense levels, immediately following irradiation, to increasingly low levels with time. The overall radioactivity falls below that of natural uranium after about 10,000 years.

**What will you do with it?**

Deep geological disposal, in a specifically designed and engineered vault constructed kilometres underground, is internationally recognised as the best solution for the disposal of higher activity waste.

The Government is progressing well towards finding a location for the UK's geological disposal facility (GDF) and is already in discussions with several communities across the UK about the possibility of hosting the GDF in their area. Well established waste disposal routes already exist for low-level radioactive waste, which is created in a range of industries.

Find out more about the Geological Disposal Facility, a permanent solution for the UK's higher-activity radioactive waste.

Geological Disposal Facility

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