

Hinkley Point C Marine Works – Tunnels



Taking more than three years to construct, the team completed all the onshore primary lining tunnel construction works, the excavation of one of the two Intake tunnels and launched the Tunnel Boring Machine (TBM) for the Outfall Tunnel, all of which form part of cooling water supply system for Hinkley Point C, the first new nuclear power station to be built in the UK in over 20 years. The construction of these tunnels was undertaken despite the global pandemic

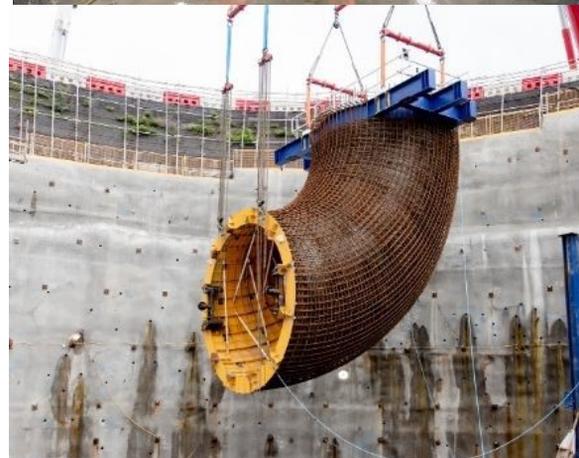
- **Date of completion: Dec 2020**
- **Cost: £90m**
- **Location: Hinkley Point, Somerset**

Challenges and solutions

The team overcame unique logistical challenges, difficult ground conditions and challenging weather to build the tunnels and shafts to nuclear standards during a global pandemic. The tunnel drive and sprayed concrete lining (SCL) works involved a highly complex mining operation and took a high level of skill and expert planning to ensure its success. This was achieved through collaborative teamwork, the project team's expertise and extensive tunnelling experience which ensured that project milestones were met.

In total, the SCL team worked close to 1.6 million hours over 1,625 shifts and completed their work safely and on time. They were also able to take lessons learned from one unit to another and demonstrate continuous improvements.

The HCA elbow works were safely delivered through digital rehearsal techniques with 3D and 4D planning tools and visualisation, this allowed instant and accurate dimension and constructability checks and demonstrated to all stakeholders how these digital tools can be used to improve safety, productivity and achieve cost and milestone certainty.



Benefits and achievements

The project ensured that it left a positive impact in the local community, delivered educational experiences, and offered employment opportunities, which will bring lasting benefits at both the local and national levels.

More than 200 primary schools in Somerset were invited to enter a name suggestion for the Tunnel Boring Machines. The winning schools attended a naming ceremony with activities, goodie bags and a site tour.

Through relentless collaboration, professionalism and engineering excellence, the team safely planned and executed works to build nuclear class one tunnels for a project of national importance. The tunnels and shafts have a critical role in delivering the essential cooling water required to run the power station, which will provide low carbon electricity for around six million homes. Over its 60-year lifespan, the electricity generated by its two reactors will offset 9 million tonnes of carbon dioxide emissions a year, or 600 million tonnes.



Fascinating facts

- ❑ The two Intake Tunnels will have the capacity to bring 120,000 litres of water from the Bristol Channel every second, equivalent to filling an Olympic size swimming pool in under 60 seconds.
- ❑ The Tunnel Boring Machines were able to reach a maximum speed of 120mm per minute and in that time excavate 11.4 tonnes of rock.
- ❑ The Tunnel Boring Machines were named Beatrice, Emmeline and Mary by local school children.

People who made it happen:

- Client: Nuclear New Build - EDF
- Contractor: Balfour Beatty
- Designer: Jacobs

More about this project: www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/about/tunnel-boring