



HR Wallingford
Working with water

Supporting the nuclear power industry

Specialist services for nuclear new build and decommissioning



Specialist services for the nuclear industry

There are significant engineering challenges associated with any large thermal power plant. With nuclear power stations, however, developers and designers face additional challenges related to the industry's exceptionally high standards of safety and risk management. HR Wallingford has been helping clients address these challenges for over 50 years, ever since the beginning of the nuclear power era. In addition to a range of international nuclear power projects, our expert staff have worked on projects at all British nuclear power plant sites.



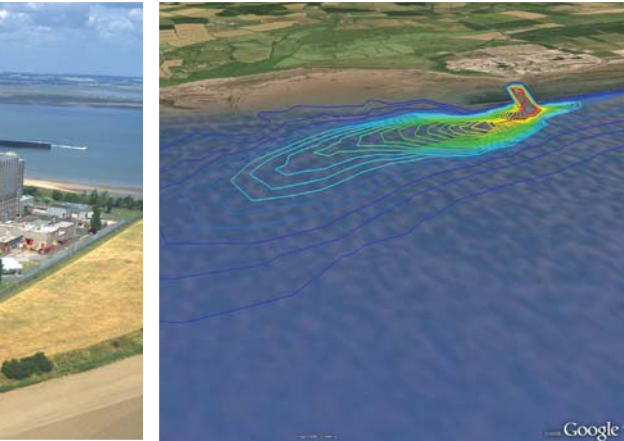
Challenges

- > Reliability and fail-safe behaviour of critical systems (including cooling water systems)
- > Site integrity
- > Design for extremely unlikely or long return-period events
- > Response to long-term climate and sea level change
- > Decommissioning issues

Specialist services

- > Field investigation and site assessment
- > Marine offloading facilities for delivery of large plant
- > Cooling water supply and discharge
- > Extreme design conditions
- > Tsunami and earthquake
- > Flood risk and coastal protection
- > Sediment transport and morphological development
- > Emergency response
- > Management of active effluent
- > Environmental impact assessment, consents and planning





Site investigations and environmental design criteria

- > Topographic, bathymetric and hydrographic surveys
- > Frequent and extreme conditions (e.g. wind speed, wave height, currents, fluvial flow, rainfall) including climate change impacts
- > Environmental hazard, such as tsunamis and earthquakes

Sediment movement and morphological analysis

- > Analysis of the geology and geomorphology of the site
- > Sediment transport
- > Dredging and disposal
- > Long-term and short-term beach response
- > Impact of climate change or new development/structures site morphology

Coastal and flood protection

- > Coastal and flood defence assessment, design and safety management
- > Flood risk assessment of extent of flooding upon the site, sources and probability of different forms of flooding, flood propagation across the site
- > Drainage networks and storm discharge outfalls
- > Analysis of breach or overtopping of all types of defence
- > Beach monitoring and management

Cooling water system hydraulic design

- > Layout and configuration
- > Intake and outfall design
- > Pipes, tunnels and channels
- > Pumping stations
- > Dispersion and recirculation

Marine terminal design

- > Assessment and design of marine terminals
- > Computer and physical modelling, full-bridge navigation simulation and vessel mooring

Construction risks in coastal and marine engineering

- > Assessment, management and mitigation of construction risks
- > Forecasts of weather and sea conditions to support real-time risk management decisions



HR Wallingford
Working with water

HR Wallingford
Howbery Park
Wallingford
Oxfordshire OX10 8BA
United Kingdom

tel +44 (0)1491 835381
fax +44 (0)1491 832233
email info@hrwallingford.com

www.hrwallingford.com



Images on this page courtesy Mapbox Ltd

HR Wallingford is an independent engineering and environmental hydraulics organisation. We deliver practical solutions to the complex water-related challenges faced by our international clients. A dynamic research programme underpins all that we do and keeps us at the leading edge. Our unique mix of know-how, assets and facilities includes state of the art physical modelling laboratories, a full range of numerical modelling tools and, above all, enthusiastic people with world-renowned skills and expertise.