

*Coastal &
offshore
development*



Capability statement

Entec

Entec is one of the UK's largest environmental and engineering consultancies. Our technical and business skills are dedicated to delivering strategic, technical and engineering solutions which bring commercial benefit to customers at home and overseas. This know-how is based on over 60 years' consulting experience in the public and private sectors.



Entec operates a Quality Management System in accordance with the latest requirements of the international standard BS EN ISO 9001 and an Environmental Management System compliant with BS EN ISO 14001. Both are audited by BSI Management Systems.



Coastal & offshore development & operations



Obtaining permission for coastal or offshore development, whether it be pipeline construction, aggregates dredging or installation of a ship jetty, marina coastal defences or a wind farm, increasingly requires environmental investigation, and often formal environmental impact assessment (EIA), to satisfy the complex regulatory regimes applying in maritime areas. Many projects involve associated onshore works and thus also extend into areas covered by local authority planning control.

Similarly, applications for permission to abstract water or to discharge treated effluent often require detailed environmental studies and modelling, to allow effects to be quantified. Results obtained guide the development of measures to ensure compliance with discharge limits or improvement conditions.

Certain operations that may cause marine pollution or hazards to people require formal risk assessment.

Matters are complicated further by the protection of many estuarine and maritime areas for their wildlife conservation interest, for example under the EC Habitats Directive. Other international designations impose water quality standards to prevent eutrophication (over-enrichment) or to protect shell-fisheries or bathing waters. Similarly, many onshore parts of the coastal zone are the subject of special measures to protect their landscape or heritage value. Many governments are looking to introduce new legislation to increase protection of the marine environment.

Other users of the sea may object to development proposals on the grounds of interference with their rights to navigate or to fish, while coastal communities may be concerned about noise, visual impact, bathing water quality or impacts on coastal defences, and extensive consultations are often necessary to resolve these issues.

Many companies find use of a single consultant to manage the whole process in an integrated way results in efficient achievement of necessary permits, a well-designed development and a maximum degree of public support. With Entec's capability in both environmental and engineering services, we can support developers in obtaining the necessary permissions for their projects, in a changing regulatory environment, as well as assisting with design and operational improvements to achieve compliance and improve efficiency.



Coastal & offshore development



Entec's approach

Drawing on extensive estuarine, coastal and marine experience, Entec staff can help you through project complexities to reach a successful conclusion. Our approach is rooted in the following principles:

- providing a one-stop-shop for undertaking various forms of impact and risk assessment, required to address environmental regulatory issues in the coastal and marine environment, for example EIA, 'appropriate assessment', abstraction and discharge impact studies, PPC permit applications, as well as flood risk and COMAH assessments;
- minimising project delays arising from permitting procedures and Public Inquiries;
- assisting throughout the project life-cycle, from project conception, baseline environmental studies and modelling of potential impacts to project completion, monitoring and establishment of environmental management systems;
- applying our practical experience of managing the consultation and communication process to engage all types of stakeholders at appropriate levels, both onshore and offshore;
- adopting an integrated, efficient approach to projects with multiple permitting requirements, minimising the number of separate environmental reports and avoiding repeated approaches to consultees;
- providing early feedback to the project design team, to facilitate incorporation of cost-effective mitigation of adverse environmental impacts as a fundamental part of the design, avoiding more costly design modifications at a later stage;
- providing a comprehensive construction project management service from development of objectives, through programming, costing, team building, design and procurement to construction, staff training and commissioning.

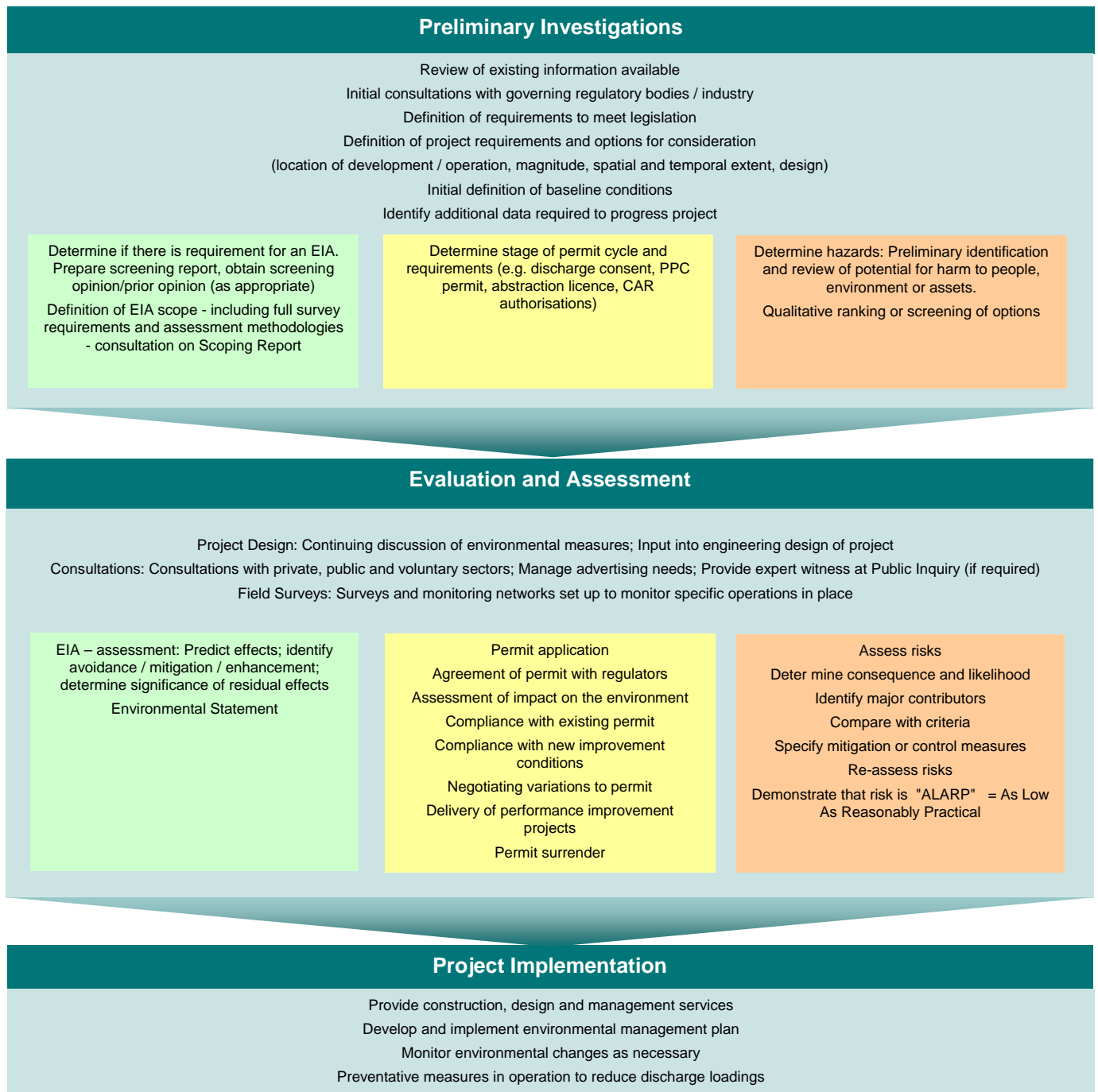


How we can help

Entec's typical approach to assisting customers in progressing their coastal and offshore development proposals is demonstrated in the diagram below.

Key:

- Environmental Impact Assessment
- Permitting Discharge & Abstractions
- Risk Assessment



Environmental investigations

Often initial investigations and surveys are required to establish baseline conditions and sensitivities of potential development areas. The results may, for example, inform decisions on the location of the development, installation methods to be adopted or on the water quality standards to be achieved in an effluent discharge.

- Our marine team includes highly experienced specialists able to design and undertake ecological surveys for marine habitats found in North West Europe, including estuarine, intertidal and subtidal environments, as well as surveys relating to marine and estuarine microbiology, fisheries, birds and marine mammals.
- We also have a great deal of experience in oceanography and surveying of the physical condition of the sea bed (e.g. bathymetric survey, hydromorphology, sediment transport and geophysical surveys) as well as the ambient water conditions (e.g. water chemistry and quality assessment) through up to date techniques such as remote sensing and GIS.
- We have an in depth knowledge of marine pollution, eco-toxicology and the potential impacts of sediment contamination and its effects and are able to design and undertake biological effects monitoring using techniques such as biomarkers and bio-indicators.
- Entec is recognised in the field of underwater noise assessment and we also facilitate underwater and coastal archaeological assessments, as well as carry out landscape and seascape visualisation studies.

With such a depth of experience and expertise in the marine sciences Entec is well placed to undertake a wide variety of data gathering assessments, from complex offshore habitat mapping surveys, to designing specific monitoring regimes using innovative techniques, thus providing solutions to provide our clients with the most appropriate information they require to inform their marine management decisions.



Modelling

Increasingly, gaining permission for a development requires the ability to predict any potential environmental impacts of the proposed scheme. Through integration of a team of specialists in hydrodynamics, water chemistry, ecology, sediment processes and ecotoxicology, we are able to address a wide range of problems and to simulate source-pathway-receptor models in the marine environment.

Modelling can assist in obtaining licences for discharge (e.g. by modelling thermal plumes or discharges) or dredging (predicting fate of sediment plumes and nutrients or metals mobilised into the water column). Modelling may also be used in

the marine renewables sector (for assessing local resource potential in tidal power or providing hydrodynamics for impact assessment of structures) or in water quality studies.

Entec's modelling expertise covers hydrodynamic, water quality and sediment modelling, with a capability covering coastal, estuarine and offshore waters. Our models are currently developed using both two and three dimensional hydrodynamic MIKE 21 and MIKE 3 models (DHI-WE). Entec also has specialists on climate change and modelling the potential risks to the coastal environment.



Coastal & offshore development

Supporting coastal and offshore development with a comprehensive service

Entec's success is based on fitting our services to your requirements, therefore the following list of services and skills is indicative only. Please contact us to see how we can help.

Environmental Assessment

- Rocky-shore ecology
- Soft sediment ecology
- Sub-tidal benthic ecology
- Biotope mapping
- Cetaceans
- Microbiology
- Sediment chemistry
- Ecotoxicology
- Marine biomarkers / biomonitoring
- Dredging/aggregates
- Fisheries
- Macroalgae
- Plankton
- Ornithology
- Underwater noise
- Air quality
- Climate change
- SEA/marine spatial planning
- Ecological surveys
- Sustainability
- Computer visualisation
- Landscape and visual

Risk Management

- Technical risk assessment
- Flood risk management
- Hazardous substances
- Shipping
- Accident Investigations / Inquiries
- Safety audits
- COMAH / OSC safety reports / safety cases
- HAZOP studies
- Reliability
- Quantitative Risk Assessment
- Environmental risk assessment
- Corporate risk
- Corporate governance
- Human factors
- Safe manning levels

Engineering

- Coastal engineering
- Flood / coastal defence
- Hydraulic modelling and sewerage systems
- Outfalls/discharges
- BAT justification
- Site condition report
- Coastal outfall design
- Sludge disposal
- Water treatment
- Cooling systems
- Liquid recycling
- Site decommissioning and demolition
- Instruments and process control systems (MEICA)
- Asset management planning
- Site infrastructure
- Building and civil works
- Power systems
- Pilot plant work
- CDM, planning supervisor

Waste Management

- Waste handling
- Waste strategy
- Improvement programmes
- Recycling projects
- Leachate treatment
- Environmental technology
- Environmental economics
- Pollution abatement
- Leachate abatement
- Leachate treatment
- Landfill gas
- Landfill design
- Landfill liner testing
- Odour control

Physical Processes and Water Quality

- Water circulation, waves and tides
- Marine and estuarine water quality
- Sediment transport
- Modelling of hydrodynamics, water quality and sediments
- Coastal geomorphology
- Flood risk assessment
- Geophysical data interpretation
- Marine pollution
- Oceanographic surveys
- Offshore wind and tidal resources
- Discharge plume modelling and assessment

Environmental Management

- Environmental management systems
- Environmental audit
- Due diligence
- Environmental reporting
- Training
- Waste minimisation
- ISO 14001
- Integrated management systems
- Sustainable development

Planning & Permitting

- Planning applications, appeals and expert witness
- PPC support
- Discharge consents and abstraction licenses
- Controlled activities regulations authorised
- Environmental Impact Assessment
- Master planning
- Development briefs and area strategies
- Regeneration
- Planning research
- Transportation

Contaminated Land

- Site investigation
- Risk assessment
- Geophysics
- Geotechnics
- Site remediation
- Groundwater remediation
- Site development

Industry

- Market advice
- Renewable energy technology
- Electricity grid connections
- Offshore cables
- Coastal outfalls
- Sewerage and sewage treatment
- Dredging plans
- Offshore aggregates
- Regeneration and redevelopment
- Port development

Case studies

The following pages demonstrate Entec's capabilities in the area of services for coastal and offshore development and operations, using case study examples. ►



Teesside Offshore Wind Farm EDF Energy - Northern Offshore Wind

EDF Energy is a major generator of electricity in the UK. In response to international and national concerns about climate change, the UK government is seeking to generate 20% of its electricity supply from renewable sources by 2020. EDF Energy - Northern Offshore Wind Limited (NOWL) are proposing to build an offshore wind farm up to 100 MWe (sufficient to generate power for 70,000 homes), consisting of 30 turbines occupying approximately 10km², about 1.5km offshore of Redcar.

Entec was engaged to carry out an environmental impact assessment (EIA) for this project, involving studies to assess the potential impacts that the construction and operation of the wind farm may have on the following areas:

- commercial fisheries
- marine ecology
- coastal ecology and nature conservation sites
- marine hydrography
- landscape, seascape and visual impact
- shipping and navigation
- noise

- archaeology and cultural heritage
- socio-economics and social aspects.

Entec's environmental specialists assisted NOWL in applying for the appropriate marine consents to construct and operate an offshore wind farm via the appropriate regulatory channels. Onshore works above mean high water include a proposed electrical substation and cable route which were considered as part of a planning application to the local planning authority. Entec managed the application process to meet these planning requirements.

Our environmental specialists prepared cost-effective data collection strategies and interpreted data to develop appropriate and innovative mitigation; ensuring that the environmental information was effectively communicated to those involved in the decision making processes. Full consultations with marine and coastal user

groups and statutory organisations were carried out to answer questions and concerns and to engage a positive stakeholder interest. Entec has considerable experience of working with commercial fisheries and carried out a full consultation with the fisheries community to collect information on fishing effort and to deal with concerns.

The skills used by the environmental appraisal team were complemented by other areas of expertise such as contaminated land, regeneration, and development planning, building on our strong track record of working with a broad range of public and private sector clients

Assessing the environmental impacts of an offshore windfarm in the North Sea at a site off Coatham Sands, between Redcar and the mouth of the River Tees



A computer generated photomontage of the view of the windfarm from Seaton Carew near Redcar



Comprehensive Planning Services for Portland Port Portland Harbour Authority



*Planning advice for
major accident hazard
establishment*

Hydrocarbon fuels have been stored at Mere Tank Farm, Portland for over a hundred years. Previously a Royal Navy facility, the docks and associated tank farm were sold to a private company, Portland Port, in the 1990s. Land adjacent to the tank farm came under the ownership of the South West Region Development Agency (SWRDA).

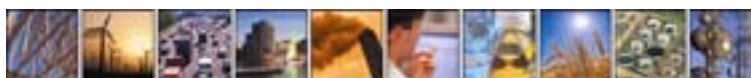
Unfortunately the boundaries of the new land ownership had been drawn up without taking into account the codes and standards relating to the storage of flammable liquids at the tank farm so that the surrounding land was developed up to its bund walls, including the Weymouth & Portland Sailing Academy. When Portland Port wished to increase the storage of kerosene by using their existing gas oil and diesel storage tanks they were refused on the basis that the proximity of the Sailing Academy may have put it at risk in the event of a major accident at the tank farm.

Entec was commissioned to present expert evidence on safety and risk assessment at a Public Inquiry into the Port's Appeal against the refusal to grant Hazardous Substance Consent for the tank farm.

The Port's position was that if a risk-based approach was used then the risk to the adjacent land users was tolerable so that the uses were compatible, but the HSE's 'precautionary principle' prevailed at the Public Inquiry. However, around the time of the Appeal the tank farm automatically became a top tier COMAH site because of a change in threshold quantities and definitions of hazardous materials. This meant that SWRDA could not further develop the surrounding area due to the pre-existing hazards from the Tank Farm. So the Port and SWRDA entered further discussions so that measures could be taken to make the two adjacent sites compatible.

Entec provided advice to the Port during this period such that the final solution allowed them to increase their kerosene storage but at the same time allowed the adjacent land, including the Sailing Academy, to be developed by SWRDA.

The Weymouth & Portland Sailing Academy is the venue for the Olympic Sailing Regatta in the 2012 Olympic Games.



New Oil Tanker Facility at Milford Haven Texaco



Texaco was looking to improve the competitiveness of their export operations by providing new loading facilities for tankers at their Pembroke Refinery. The project involved refurbishing a partially redundant jetty and linking this to their existing jetty by a pipe bridge on piles in the seabed. This would reduce the need for vessels to anchor while awaiting a berth, thus also securing an improved safety regime for shipping operations. They commissioned Entec to undertake an environmental impact assessment (EIA) in support of applications for permission for the works.



The development site is adjacent to a national park and within a special area of conservation (SAC), and the EIA was completed taking these into account. Entec worked closely with Texaco and their local contacts, to ensure that the interests of all stakeholders were considered in full. The environmental statement covered impacts on the marine environment, as well as impacts on the surrounding wildlife, including birds, bats and badgers. Other issues assessed included noise, traffic, cultural heritage and landscape. Appropriate mitigation was recommended for adverse impacts. The results of the study were presented at a public meeting, where participants were able to raise concerns and, in fact, also to express support.

Entec managed the applications for the necessary permissions from the Department for The Environment, Transport and the Regions (DETR),

the Ministry of Agriculture, Fisheries and Food (MAFF) and the port authority. The EIA also supported an IPC variation application to the Environment Agency Wales and lease negotiations with Crown Estate. Close consultation with two local planning authorities was important, in relation both to their roles as statutory consultees for the marine works and their planning authority functions regarding permitted development rights for temporary construction work sites.

Entec secured the necessary permissions in time to meet Texaco's critical deadlines. Establishment of early dialogue with local interests and the wide range of technical capability available within Entec were crucial factors in producing an environmental statement that generated no further objections during the formal public consultation. This ensured a smooth passage of the applications, with no unexpected delays.

Environmental impact assessment and marine permits for Texaco



Environmental Impact Assessment of Kings Waterfront, Liverpool Liverpool Vision

*Successfully assisting
the high-profile
redevelopment of
a sensitive
waterfront site*



Visual impression courtesy of Wilkinson Eyre Architects

Entec was commissioned by Liverpool Vision in October 2003 to undertake an Environmental Impact Assessment (EIA) and produce an Environmental Statement (ES) for the Kings Waterfront development. The proposals were to develop a major arena and conference facility on this prime waterfront site in time for the 2008 European Capital of Culture celebrations. In addition, the scheme includes two hotels, offices, retail outlets and 1,800 residential units.

The commission presented challenges due to both the timescale and, more importantly, the sensitivity of the location, which is directly south of the Grade I listed Albert Dock complex (now also part of Liverpool's recently awarded World Heritage Site) and adjacent to the River Mersey.

The scope and contents of the EIA and ES were agreed with Liverpool City Council and a series of meetings were held to refine and agree the assessment methodologies, particularly for the townscape and heritage assessment, which was the key issue. During the preparation of the ES there was extensive dialogue with statutory consultees and other key stakeholders. This included master planning workshops and exhibitions.

The ES was completed for the application deadline in June 2004. Following submission of the ES, Entec provided additional information as requested during the statutory consultation process and also addressed the effects of changes to the proposed scheme during the determination of the application. The scheme received planning consent in December 2004. Entec is currently working with Liverpool Vision to assist with the discharge of a number of key conditions attached to the consent.



Ouseburn Barrage Scheme The Ouseburn Partnership / Newcastle City Council

*Working with the local
community towards
urban village
regeneration*

Through the work of the Ouseburn Partnership and the City Council, the Lower Ouseburn Valley in Newcastle upon Tyne is currently enjoying a period of investment and regeneration. The vision behind this effort is the achievement of a vibrant urban village, incorporating mixed use residential, craft and other commercial enterprises, maintaining a strong sense of community.

The Ouseburn is the thread around which industry developed in the valley.

From its emergence at a culvert to the Tyne, the tidal river is 1 km in length and the steep valley and historic context create a place with a distinct character and unique opportunities. However, the gloomy appearance of the river at low tide, with high vertical river walls, exposed outfalls and an unattractive bed, was seen as a deterrent to attracting redevelopment.

Entec undertook studies to identify a preferred option for improving the waterway environment and encouraging economic development, while maintaining the significant industrial cultural heritage aspects and maximising recreational and other environmental benefits. This involved a three stage process to determine the preferred design water level, the location of any control structures and the design of such structures. The preferred option involved a tidal weir incorporating a navigation lock.

The preferred option was subjected to an economic appraisal, following which Entec prepared a scoping report to advise on the content of a full EIA.



Entec continued to work with Newcastle City Council in developing the project. Their contribution included preparation of a Design Review, which identified constraints on the proposed structure, defined key features of the design required, described the appropriate consenting process and considered potential liabilities for the Council.

A review was undertaken of experience at other barrages in the UK and of existing examples of the type of navigation lock proposed for the barrage. This review confirmed the benefits of impounding at high tide level and the selection of guillotine lock gates.

The Design Review was followed up by preliminary engineering design work and technical studies on drainage, river walls and contaminated land issues.

Potential impacts on flooding were examined in detail using a HEC-RAS model and topographical data derived from LiDAR surveys. Results were reported in a Flood Modelling Report and a report on a Flood Warning Strategy.

Sediment management at the mouth of the river is a locally contentious issue and Entec undertook a study of alternative

management measures, including conventional dredging and various hydrodynamic dredging methods.

Entec then prepared an environmental statement in support of applications for an Order under the Transport & Works Act 1992, for deemed planning permission and for a FEPA licence. Active public participation was an essential part of the EIA process.

Topics addressed included socio-economics, townscape and visual issues, recreation and amenity, traffic and transport, noise and air quality, hydrology and flood risk, surface water quality and sediments, land quality and groundwater, ecology and cultural heritage.

Entec assisted with drafting the Order, submitting applications, negotiating and drafting agreements with objectors and gave evidence at a public inquiry in support of the Council's proposals. The Order has now been made and planning permission granted allowing the scheme to proceed.

Entec has now been appointed to carry out the engineering design for the barrage, as part of a design and construct contract awarded to Byzak.



Coastal Waste Water Treatment works in the Irish Republic Environmental Impact Assessment Various County Councils

Protecting Ireland's Coastal waters through Environmental Assessment

The Republic of Ireland is currently undergoing a period of population growth, during a time when a drive towards more balanced regional development is being progressed (e.g. as per the National Spatial Strategy). Additionally, there is the need to comply with legislation such as the Urban Waste Water Treatment Directive (91/271/EEC). The result of the need to comply with legislative drivers coupled with population growth is that new waste water treatment facilities or, capacity/treatment upgrades of existing facilities, are required in some of Ireland's most sensitive coastal locations.

Since 2001, Entec has been undertaking Environmental Impact Assessments (EIAs) for a number of coastal Waste Water Treatment Works (WWTWs) in Ireland, working as part of a team delivering environmental and engineering consultancy services to various County Councils. Under national and European legislation EIA is required for all new WWTWs with a p.e. of >10,000 and for sub-threshold developments where a significant effect may occur e.g. at sensitive coastal locations.

Working closely with Consulting Engineers (and other design and engineering consultancies) we have undertaken multi-disciplinary EIAs at the following locations:

- Gweedore, Co. Donegal;
- Buncrana, Co. Donegal;
- Rathmullan, Co. Donegal;
- Dungloe, Co. Donegal;



Ensuring bathing water quality is not compromised from point source discharges is a major element of our assessments

- Quilty, Co. Clare (targeted marine assessment only); and
- Mutton Island, Galway City.
- Shannon Town, Co. Clare
- Arklow, Co. Wicklow
- Water quality assessment and interpretation of mathematical modelling against national and EU standards (e.g. in relation to bathing water quality);
- Inter- and Sub-tidal ecology;
- Underwater noise effects from outfall construction (e.g. rock blasting);
- Fisheries assessment; and
- Ornithological assessment.

This Mutton Island scheme is of particular note given its large size (c. 150,000 p.e.), the sensitive receiving waters of Galway Bay and proximity of a local Blue Flag bathing water.

Entec's role includes advice on the overall EIA process, the undertaking of a full range of technical assessments (to satisfy the EIA Regulations) and compilation of Screening Reports, Scoping Reports and Environmental Impact Statements.

As well as undertaking assessment on the terrestrial element of each proposed development we have progressed a number of studies in relation to effects on the marine environment including:

A number of the sites we have dealt with are located in, or close to, Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas, and we are experienced in liaising with regulatory bodies, such as the National Parks and Wildlife service, to discuss issues and identify acceptable mitigation measures.



Integrity Analysis of Submarine and Land-based Crude Oil and Natural Gas Liquids Pipeline DONG Olierør A/S

DONG Olierør operate a crude oil pipeline and have increased the flow capacity by over six times from the original flow rate. This pipeline is of great strategic importance not only for the company but also for the Danish economy. Continuous uninterrupted operation of the line is required but the company wanted to be certain that the flow increases had not compromised the integrity of the pipeline. They therefore commissioned Entec to undertake an integrity analysis of the pipeline to cover compliance of the design with the latest pipeline codes and the operational aspects of the line. The scope covered the export facilities from the offshore platform, the export riser, the submarine and land pipelines, the booster pumping station and the terminal.

The analysis reviewed the implications of increasing flow to 370,000bbl/d in light of the most recent applicable codes for such pipelines which are the Submarine Pipeline Code DNV 2000 (OSF 101), and ASME B31.4 for land pipelines carrying liquid hydrocarbons. An important aspect was the compliance with design pressures and temperatures and the impact of increased surge as a result of the flow increase.

In providing additional expertise, Entec procured the services of Andrew Palmer, professor of petroleum engineering at Cambridge University to assist in the study. He has extensive pipeline experience and gave evidence on pipelines at the Piper Alpha Inquiry.

Entec reviewed riser re-analysis and surge analysis reports as part of the scope of the study. It also included a review of best practice for the leak detection and pipeline inspection regimes which were found to be comprehensive.

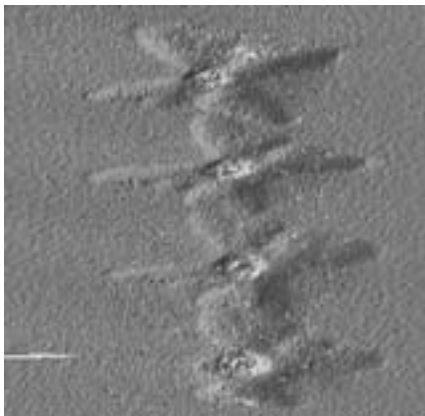
This study enabled the company to use the report to demonstrate to the Authorities the effective management of the integrity of the pipeline.

*Integrity analysis of
the main crude oil
supply pipeline from
the Danish sector of
the North Sea to the
Danish mainland*



Long Sea Outfall Inspections United Utilities

*Surveying vital
infrastructure
and identifying
remedial works*



Facts and Figures

Project

UU Long Sea Outfall Inspections

Client

United Utilities

Location

North West Coastline, UK

Capital Project Value

£1.9M

Entec Services

- Survey determination
- Data collation
- Supervision of bathymetric, magnetometer, pinger, CP, diver and land surveys
- Manage internal and external structural surveys
- Manage internal ROV surveys
- Result analysis, Interpretation and reporting
- Provision of costings for remedial / replacement work
- Estimation of remaining design life of outfalls
- Evaluation of hydraulic performance
- Evaluation of environmental performance to consent criteria
- Project management and programming

United Utilities has 29 Long Sea Outfalls and over 200 minor outfalls discharging into coastal waters in the North Western Region. These outfalls serve a variety of treatment works and pumping stations and discharge storm and treated flows. The correct operation and maintenance of these marine outfalls form a crucial function for United Utilities in achieving EU Bathing Water Compliance.

Historically, many of these marine outfalls were constructed during the 1990s as part of the AMP2 capital works programme, with only a small number being older. At the time of construction completion a maintenance programme was determined for these outfalls, which included scheduled monitoring by marine and diver surveys. As part of the AMP4 capital works programme, these long sea outfalls were grouped and prioritised for a programme of data gathering and survey work.

Entec have been employed to review the historical information and survey information that was available for the marine outfalls, and then to determine a scope of work for marine, diver and land

surveys of the outfalls. This work included the contract document preparation and tender reviewing.

The contract for the survey of 29 of the marine outfalls was awarded to Anglian Marine Services Ltd with marine survey work subcontracted to Clydeside Surveys Ltd and commenced during late summer 2006 and is due for completion by the end of 2007. Entec are supervising the survey and diver work offshore, as well as undertaking asset condition surveys of the land lines, header works and remaining minor outfalls. Where possible, minor repairs such as desilting diffuser sections, repairing leaking hatchboxes etc. have been undertaken during the surveys.

The results from the maintenance surveys have been reviewed by Entec and the condition of the outfalls, seabed and land works reported on. This reporting has determined any further survey work required or remedial works to specific outfalls. The reports also set out both a short term and long term strategy for the inspection, maintenance and replacement of the outfalls.



Coastal & offshore development

Sample client list

Acordis	Northumbrian Water
ADGAS (Abu Dhabi)	North West Development Agency
ADMA-OPCO (Abu Dhabi)	Offshore Wind Power
ADNOC (Abu Dhabi)	One North East
AMEC Offshore Wind	PD Teesport
British Gas	Petrobrás, Brazil
Countryside Agency	Portland Harbour Authority
Countryside Council for Wales	Rashid Petroleum
Defence Estates	Renewable Energy Systems
Department for Environment Food and Rural Affairs	Scottish Coal
Department for International Development	Scottish Environment Protection Agency
Department of Trade and Industry	Scottish Executive
Donegal County Council	Scottish Natural Heritage
Dong Olierør	Scottish Water
English Partnerships	Shotton Paper
Environment Agency	Soluziona Ingenieria
European Commission	Southern Water Services
European Confederation of Nautical Industries	Statoil, Norway
Exchem	Sustainable Development Commission
Galway County Council	Tees Valley Regeneration
Gastream Mexico	Technip Geoproduction
Government of Gibraltar	Texaco
Hanson Aggregates Marine	The Engineering Business
Joint Nature Conservation Committee	The Carbon Trust
Met Office	Total Oil Marine
MoD	United Marine Dredging
Newcastle City Council	United Utilities
Northern Offshore Wind	Victrex
Northumberland County Council	Volker Dredging
	Wessex Water



Entec

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Entec's full range of environmental and engineering services:*

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