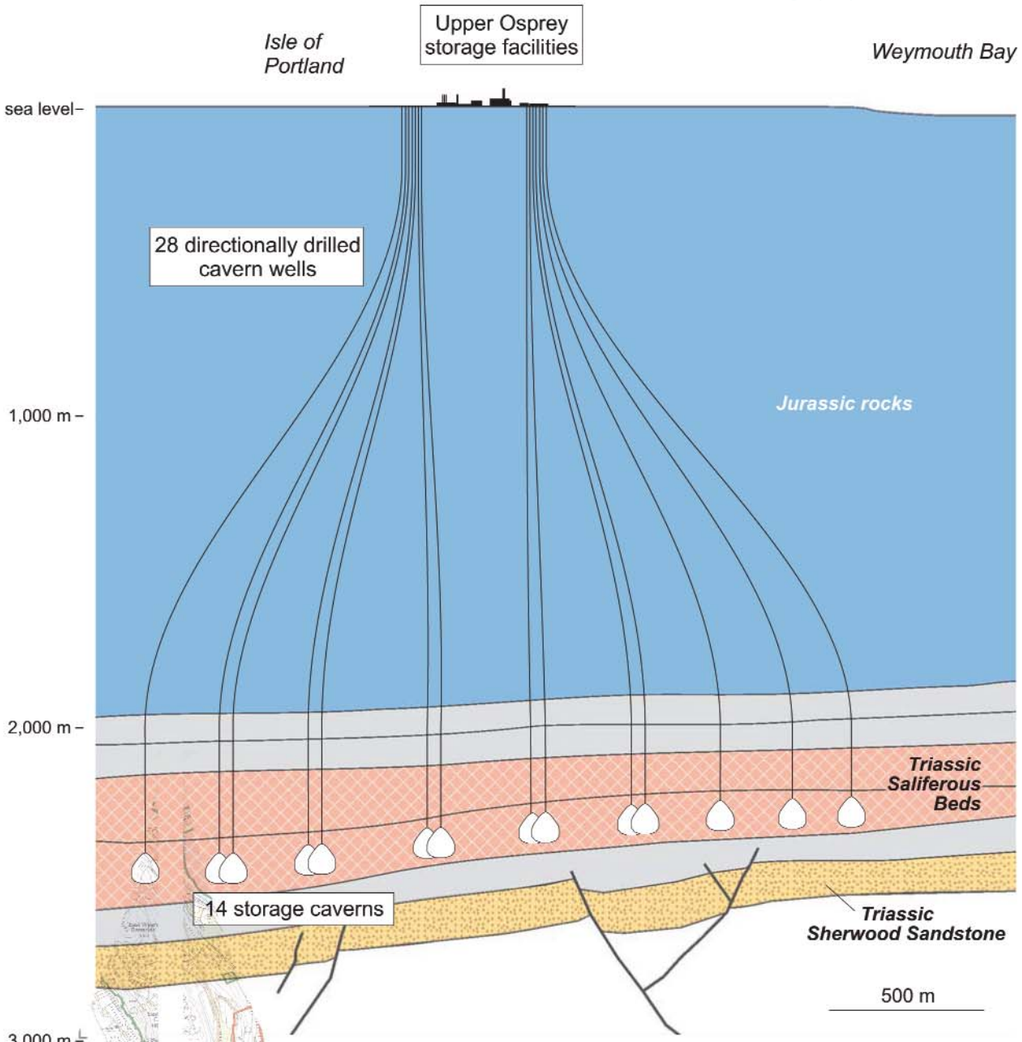
Portland Gas

THE PROPOSED ISLE OF PORTLAND NATURAL GAS STORAGE FACILITY AND THE MAPPOWDER TO PORTLAND GAS PIPELINE PROJECT

ENVIRONMENTAL STATEMENT

NON-TECHNICAL SUMMARY

Figure 2.4.4.2: Cross-section through proposed cavern field



Seismic data acquired by Portland Gas in 2005

Sample of core at the wellsite

Drilling of well Portland - 1/1A in 2006

Introduction

Portland Gas Storage Limited (Portland Gas) is seeking permission to build a natural gas storage facility on the Isle of Portland and for the other infrastructure necessary to take and return gas to the National Grid's gas network.

To obtain permission for the project Portland Gas must submit a total of seven applications, one to the Department of Trade and Industry for the pipeline and a further six to Dorset County Council for the permanent facilities and the temporary storage areas for the pipeline during construction.

At a depth of 2,400 metres under Portland there is a very thick layer of Triassic rock salt (halite), 220 million years old. This salt can be dissolved safely and quickly using seawater to create secure, impermeable caverns to store natural gas. The thickness, extent and suitability of the salt were proven by Portland Gas following the acquisition of seismic data in 2005 and the drilling of a borehole in 2006.

Portland Gas hopes to create 14 of these caverns, which will provide safe storage for 1,000 million cubic metres of gas - equivalent to 1% of the UK's total annual demand - a big contribution to Britain's energy security.

Assuming construction were to commence in the fourth quarter of 2007, the pipeline would be laid in 2009, and first gas could be stored for the winter of 2010 on completion of the surface facilities. All the storage space would be available for the winter of 2013.

This project is driven by the need to achieve security and maintain flexibility in the nation's energy supply. Natural gas is an extremely important source of energy currently contributing 37% of the UK's energy needs. The nation has come to rely on gas for domestic and industrial use and for electricity generation.

Over the last 40 years the UK has relied heavily on its North Sea resource of natural gas. That resource of a secure and sustainable gas flow has limited the need to provide significant storage volumes, since daily and seasonal demands for gas have been accommodated by the flexibility of supplies close to shore. This relative luxury is becoming less and less sustainable as the nation becomes increasingly reliant on less flexible imported gas, the outcome of which is that in order to maintain control of its own supply and demand requirements, the need for a substantial portfolio of natural gas storage facilities is now a national issue.

Opportunities for a safe and environmentally friendly method of storing gas are relatively few. Gas storage is not an uncommon requirement since, from Victorian times, gas derived from coal/coke has been stored in our towns and cities in the form of gas holders. The UK would need tens of thousands of new gas holders around the country for the level of storage we will require by the middle of the next decade. This is not a realistic solution today in environmental or commercial terms.

One of the safest and most environmentally friendly method of storing large quantities of gas is deep underground. A detailed understanding of the deep-lying geological formations resulting from deep drilling over 70 years or more has enabled us to target these formations.

One such geological opportunity for storing gas is offered by deep-lying salt formations within which caverns can be created by dissolving ("leaching") the salt under controlled conditions to create voids into which gas can be stored. Some of the earliest caverns were developed in Yorkshire in the 1970s and this method of storage is widely used in other parts of Europe. Other opportunities arise in porous rocks such as depleted oil and gas fields.

Suitable salt formations are not widely available in the UK being restricted mainly to the Cheshire/Lancashire area and East Yorkshire. South Dorset, centred on Weymouth and Portland, is the only location in the South of England where the geology is suitable and such a concept for gas storage could be contemplated.

The South Dorset salt sequence, although conveniently located in relation to the sea (for access to seawater for leaching the caverns and discharging the resultant brine), coincides with a major coastal tourist resort area with unique environmental qualities. Construction of the facility, together with its essential component parts, underground pipelines and associated surface facilities, and the subsequent operation and maintenance of the plant, will have potential environmental impacts that must be addressed.

This document is a summary of the Environmental Statement, which assesses the likely significant effects that the proposal may have on the environment. The document also describes the project elements and discusses the Safety Report which accompanies the planning applications.

Contents

The Project Description

Concept to Design

The key siting elements of the gas storage concept are:

- A location for the underground storage caverns and the surface infrastructure required to operate gas storage and retrieval; and

- A connecting point into National Grid's Gas Transmission System from and into which the gas will be transmitted together with an underground pipeline linking the connection point on the National Grid with the gas storage facility

The National Grid connection point is fixed at Mappowder, some 18km north east of Dorchester, this being the nearest technically available point of entry. The site for the caverns and surface facilities, although not fixed, has nevertheless been determined by the geology (the presence of suitable underground salt beds, and proximity to the sea in order to construct the caverns with injected seawater and to facilitate discharge of the resulting dissolved salt as brine). The site also needs to be sufficiently large to accommodate the necessary industrial infrastructure without compromising the sensitive residential, tourist and environmental qualities of the South Dorset coast and the Weymouth/Portland resorts.

A site selection process decisively identified the former developed area known as Upper Osprey, within the former Royal Navy base of HMS Osprey, as the only location capable of accessing the salt beds while at the same time offering a site area sufficiently large to accommodate surface facilities. The site, now part of Portland Port, is the subject of a planning permission dated 28 March 2002 (Code No 99/00074/000) for uses within Class B1, B2 and B8 of the Town & Country Planning (Use Classes) Order 1987 (light industry, general industry and storage purposes).

Having identified the start and finishing points of the gas pipeline, a well-defined process of pipeline route selection between the two end points commensurate with technical feasibility evaluated three possible alternative landward routes with alternative landing points at the Weymouth Bay/Dorset coastline.

The alternative landward routes were defined as the Western Route (running to the west of Dorchester in the vicinity of Maiden Castle), the Central Route (passing to the east of Dorchester in the vicinity of West Stafford) and the Eastern Route (lying further to the east in the vicinity of Morton).

Alternative routes across Weymouth Bay starting from the two alternative landward departing points of Bowleaze Cove and Redcliff Point and terminating on Portland were also environmentally assessed. The usual objective in routing a pipeline, cross-country and offshore, is to provide the most economic alignment between the two terminal points along with the least overall environmental impact. This usually equates to the shortest practical route which, providing archaeological, ecological and pipeline construction issues are taken into account, minimises associated environmental impact.

An essential component with gas storage is to maintain a minimum pressure in the caverns during fluctuations in the amount of gas being stored. This can be done by maintaining a fixed volume of "cushion" gas that never leaves the caverns to maintain the minimum pressure. An alternative is to use brine to create a constant pressure operation. In this case gas withdrawn is replaced by an equivalent volume of brine and if gas is injected, an equivalent volume of brine is withdrawn. Finding a suitable place to store the brine while gas occupies the caverns is the challenge.

The unique Dorset geology has a suitable brine aquifer within the Triassic, known as the Sherwood Sandstone. Oil exploration drilling in the 1990s identified an area where it has the right properties beneath one of the possible routes for the gas pipeline. This fact contributed towards the decision to utilise brine instead of the less economically sustainable use of "cushion" gas. To withdraw and inject brine into the aquifer requires a wellsite with boreholes drilled into this geological formation at a depth of 1,400 metres and linked to Portland by a separate brine pipeline. The opportunity for both the gas and brine pipelines to share a common trench has clear environmental advantages. As a result, the brine wellsite and brine pipeline became a factor in the choice of Central Route for the gas pipeline.

The underground gas pipeline requires a surface infrastructure at each of its connection points. These are referred to as above ground installations (AGIs). These are also part of the concept and are included in the project design (at Mappowder and within the site at Upper Osprey).

A further safety requirement is for a block valve station (BVS) at or close to the land/sea pipeline interface on the landward site. This facility, near Osmington, is also part of the overall project.

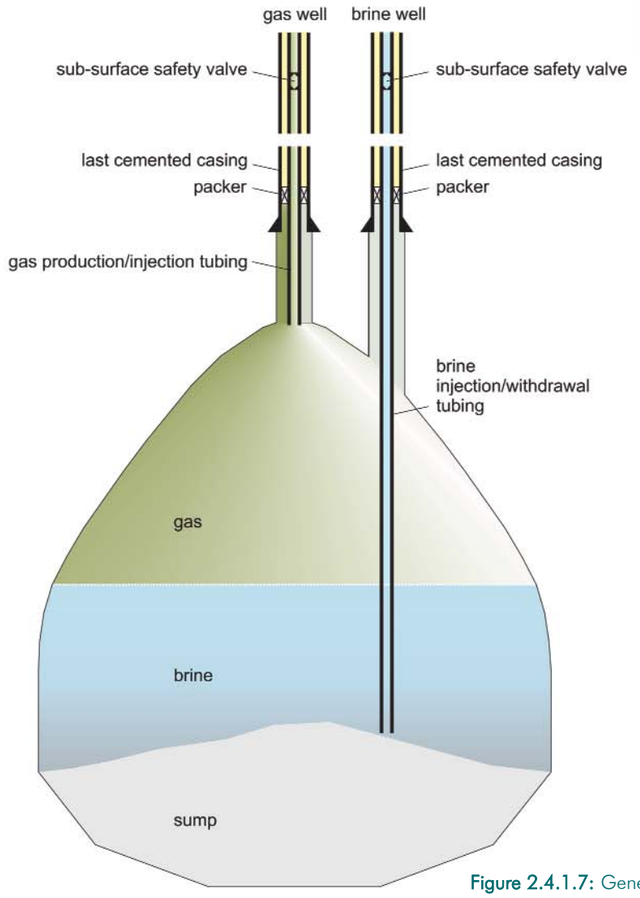


Figure 2.4.1.7: Generic gas storage operations completion

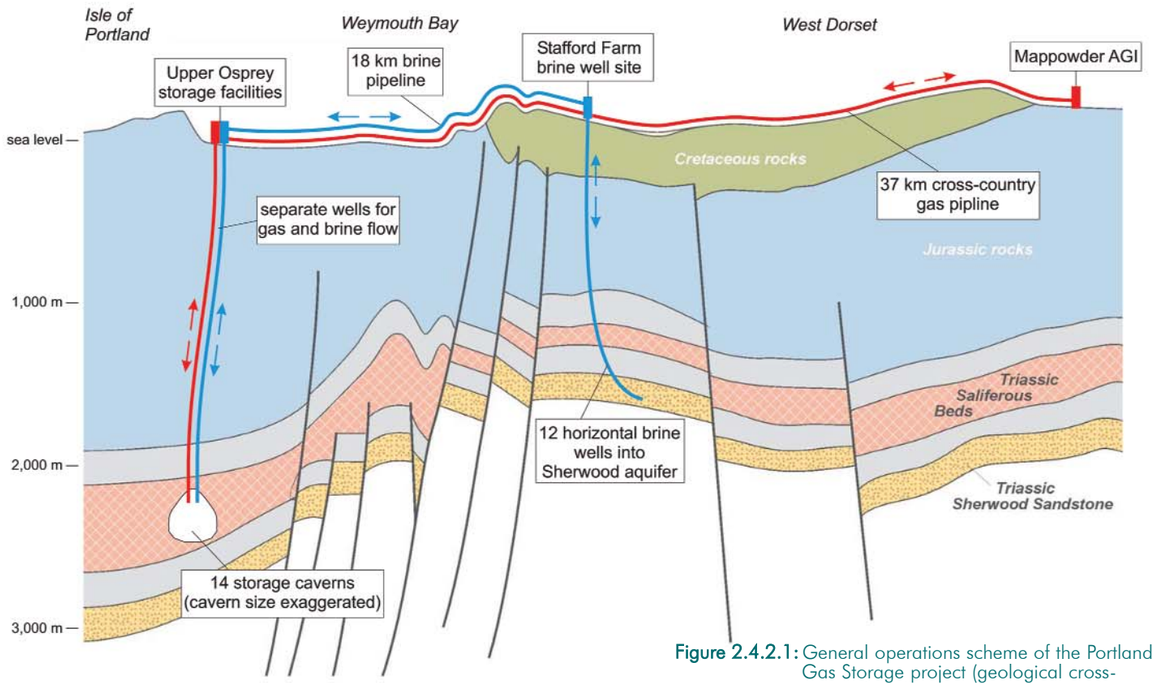


Figure 2.4.2.1: General operations scheme of the Portland Gas Storage project (geological cross-section has 6 x vertical exaggeration)

Project Description

Summary of Project Components

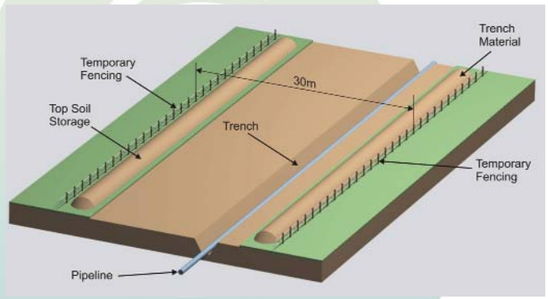
The component parts of the project, all of which are the subject of individual planning applications but which fall within the one composite Environmental Statement are:

- The gas storage facility (GSF) at Upper Osprey incorporating:

  i) Two wellsite platforms accommodating twin wellheads/boreholes to seven underground gas storage caverns at each platform (28 boreholes in total)
  ii) A seawater intake pipeline and brine discharge pipeline and a leaching building to enable cavern construction
  iii) A gas pipeline terminal AGI
  iv) A gas compressor building
  v) An electricity generator building for on-site power generation
  vi) A brine station building and associated
  vii) brine tanks
  viii) A boiler house and regeneration plant
  ix) A maintenance building
  x) An office building, incorporating a control room, and guard house
  Associated trenched pipe runs

- A brine wellsite at Stafford Farm, near West Stafford, with connecting brine pipeline to Upper Osprey

- An underground 36-inch steel gas pipeline between Mappowder and Upper Osprey. The pipeline route consists of a 30m wide corridor, within which all pipeline laying activities will take place including the pipeline itself, roadway and soil stores. This corridor is reduced to 15m at the crossings of hedgerows and other sensitive areas. The pipeline is buried to a depth of between 1.1m and 1.5m, to enable farming activities to continue over the top following reinstatement. Offshore the pipeline will also be trenched across the majority of Weymouth Bay at a target depth of 1m



Pipeline working width layout

- An underground 30-inch glass-reinforced-plastic pipeline between Stafford Farm and Upper Osprey. This will be laid in the same trench as the gas pipeline for the onshore section. Where both pipes are present the working width will be increased to 40m

- A gas pipeline terminal (AGI) at Mappowder

- A block valve station (BVS) near Osmington

- Associated temporary pipe storage areas and contractors' temporary facilities at the Mappowder AGI, Bourne Park and near Broadmayne

Pipeline Route Selection

The detailed pipeline route selection was preceded by defining a broad area of search between the two fixed points of Mappowder and Portland. The search area was then narrowed down through due consideration of technical and environmental issues. An outline of the adopted procedure follows:

* Preliminary studies were undertaken to collect published data. Consultations with statutory organisations were also held to supplement information obtained. An area of search was defined within which feasible route corridors were identified

- The route corridors were further investigated by a route corridor information study which identified physical, technical and environmental constraints. The preferred route corridor was identified by a comparative study of all feasible corridors

- Further information was obtained and consultations held to identify constraints within the route corridor to permit the selection of linear pipeline routes within the selected route corridor

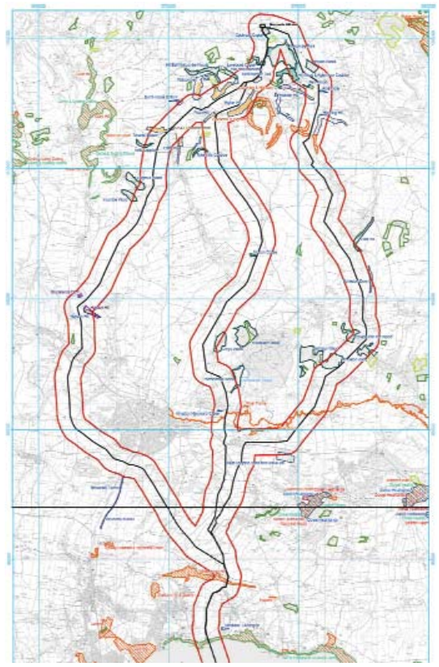
- The alternative pipeline routes were investigated in greater detail and a comparative study was completed to determine the preferred pipeline route

- The route alignment was refined and optimised.During route refinement landowners and other interested parties along the preferred route were visited and consulted. Permission to survey the preliminary pipeline route was sought and obtained.

The Environmental Statement

- Information obtained from surveys was utilised to determine the detailed alignment of the proposed pipeline route

- Detailed proposals for crossing major physical and natural linear obstacles (railway, trunk road, rivers) and highly sensitive areas (SSSIs) were incorporated into the pipeline construction programme.



Route Selection Process

The Environmental Statement

The topics and issues assessed in the Environmental Statement are listed below:

- Archaeology
- Ecology (Terrestrial and Marine)
- Landscape and Visual Impact
- Soils and Agriculture
- Hydrology
- Hydrogeology
- Traffic
- Noise
- Air Quality
- Upper Osprey Site Stability
- Upper Osprey Site Contamination
- Lighting
- Tourism and Leisure
- Socio-Economic

Archaeology

Dorset is a county with a rich and varied cultural heritage. The potential impacts on the land and marine cultural aspects along the proposed route were assessed. Extensive research, field walkover of the route and associated facilities, and surveys have resulted in the avoidance of all known cultural sites. A programme of further survey and site investigation is in hand to assess and mitigate unknown cultural deposits that may be present prior to construction. A programme of further work will be implemented to enable the full recording of cultural deposits that may be encountered during construction.

Pipeline routed to avoid archaeology

Ecology - *Terrestrial Ecology*

Potential adverse impacts of the project on terrestrial ecology have been identified following normal environmental procedures, including a desk-based assessment, consultation, habitat surveys of the pipeline route corridor (extending 100m either side of the proposed route) and the sites of the various associated facilities, and species surveys.

Construction of the 27km onshore section of pipeline has potentially significant impacts on ecology interests. Adverse impacts on particularly sensitive habitats and statutory conservation sites will, however, be minimised by directionally drilling (tunnelling) below the River Frome, White Horse Hill and the cliffs north of Weymouth Bay. Site specific mitigation methods will be undertaken where valuable habitats cannot be avoided. Impacts on the 78 hedgerows crossed by the pipeline route will be minimised by reducing the working width at the crossing points and appropriate mitigation measures, including coppicing or translocation of the most valuable hedgerows. Impacts on chalk streams crossed by the pipeline will be reduced by tunnelling underneath (in the case of the River Frome and South Winterbourne) or suitable mitigation to maintain water flow, reduce sediment release and restore bankside habitats. Measures have been taken to minimize the effects of pipeline construction on species of conservation importance. For example, the pipeline has been routed to avoid badger setts and trees which may support roosting bats wherever possible. No long-term significant impacts are predicted from pipeline construction on any species of conservation importance while any short-term impacts will be minimised by adopting recognised methods of mitigation.

Ecology - *Terrestrial Ecology*

None of the project's permanent facilities has been located within a statutory or non-statutory conservation site, and they have been placed so as to avoid the most valuable habitats wherever possible. No long-term significant impacts are predicted from their construction or ongoing operations, including those arising from the potential effects of emissions from the Upper Osprey GSF.

Lyscombe Hill today

Lyscombe Hill in construction

Lyscombe Hill restored

Ecology - *Marine Ecology*

Potential adverse impacts of the subsea pipeline element of the project on marine ecology have been assessed following normal environmental procedures involving identification of ecological features, modelling and the identification of physical and chemical constraints. Data has been collated through desktop review, site-specific surveys and consultations. This exercise has informed the selection of the route of the gas and brine pipelines across Weymouth Bay.

Significant impacts on areas of sensitive marine and coastal environments or their habitats have been avoided by directional drilling the pipeline below the cliffs on the northern shore of Weymouth Bay, leaving the UNESCO World Heritage coastline untouched, and exiting beyond a seagrass habitat in shallow water. Where seabed surface works are unavoidable, there will be minor adverse impacts to subtidal benthic (seabed) species and habitats, though none are considered to be significant given the very localized and short-term nature of the works, coupled with the identified high recoverability of species and habitats so affected.

The direction and extent of the proposed water intake and brine extraction pipelines have been designed to take advantage of natural dilution and dispersion off the east coast of the Isle of Portland, to the south of Portland Harbour. Water quality sampling, together with dispersion modelling have shown that there will be no long-term impact on water quality anticipated from the operational phase of the development, and thus no adverse impact on fish species or crustaceans, or indeed upon the commercial fisheries they support. Minor negative impacts may arise from the construction phase, but again such effects will be localized, short-term and reversible and are thus considered unlikely to be significant.

There may be a short-term localised impact to the crab and lobster fishery as a result of pipeline construction activities, however impacts will be avoided where possible through agreement on construction timing and consultation with fisheries groups. Potential indirect adverse impacts to marine mammals arising from underwater noise or release of contaminants to the water column during construction will be minimised by adoption of appropriate construction methodologies to reduce the potential for impacts and no significant effect on these species is therefore predicted.

Landscape & Visual Impact

Pipeline Route

There would be no significant long-term effects on the character of the landscape crossed by the pipelines, nor on the scenic qualities and value of the nationally designated Dorset Area of Outstanding Natural Beauty (AONB) and Dorset Heritage Coast (non-statutory). Potential impacts on the landscape have been avoided wherever possible through the design of the pipeline route and in the construction methodology to be adopted. Although there would be losses of sections of 78 hedgerows and four tree-lines crossed by the pipelines, effects would be short to medium-term and reversible as the hedges and tree lines would be fully restored on completion of pipeline construction works. The construction of the pipelines would also lead to changes in some existing views towards the pipeline corridor. These would be temporary only and fully reversible on completion of pipeline construction works.

Facilities along the Pipeline Route

Proposals for the three small development sites associated with the pipelines (Mappowder, Osmington and Stafford Farm) involve their construction in open countryside. The Osmington Block Valve Station is located within the Dorset AONB. Each development would result in new features in the landscape for the life of the development. The sites involved have been carefully selected and designed to minimise potential impacts. No significant long-term effects on the character of the landscape or on visual amenity would occur as a result of these developments.

There would be no significant long-term effects on the scenic qualities and value of the nationally designated Dorset AONB, Dorset Heritage Coast (non-statutory), or on the Area of Local Landscape Importance locally designated near West Stafford. Following drilling of the boreholes at the brine wellsite all the facilities, including pumps, will be below ground except a building to house electrical equipment. This building has been designed to look like an agricultural barn.

Upper Osprey GSF

Upper Osprey is close to the coast, within the undercliffs of East Weare and comprises two stepped linear platforms set within scrub and grassland. Due to the scale of the development, there would be significant long-term impacts on local landscape character, compared to its current cleared brownfield nature. However prior to clearance of the site over the past few years, there were a large number of buildings on the site, including a seven-storey building on the southern part of the site.

Significant long-term impacts would occur in some views. The proposed facility will be visible from a limited section of the South West Coast Path, from parts of CRoW access land near the GSF site, and from parts of a public right of way that runs along the edge of the Portland cliffs past the Nicodemus Knob landmark that overlooks the site. As the site is exposed to the north and east it will be visible from the sea and in views from Weymouth Bay, depending on distance and visibility conditions.

However no settlements or residential properties on Portland would have views of the facility, even those located at close range, and there would be no impacts on their visual amenity. Neither would there be any significant impacts arising from the GSF on any settlements, residential properties, public rights-of-way or CRoW access land located more distantly on the Dorset mainland.

The proposals will not lead to significant impacts on those parts of Dorset that have the highest status of protection in relation to landscape and scenic beauty, including the nationally designated Dorset AONB and the Dorset Heritage Coast. Neither would it affect the special interest of the coastal geology and geomorphology designated within the Dorset and East Devon Coast World Heritage Site (WHS).

Please see page 10 for Upper Osprey images

Soils and Agriculture

Field investigations were undertaken. The impact assessment concluded that there would be no significant long-term loss of the best and most versatile land. The small amount initially taken out of agriculture at Stafford Farm will be restored on decommissioning by means of the stored soil resource. The proposed project will have no significant or material impact on agricultural land quality and soils arising from the proposals, with no specific mitigation required and no agricultural land quality or soil resource constraints on the proposed development.

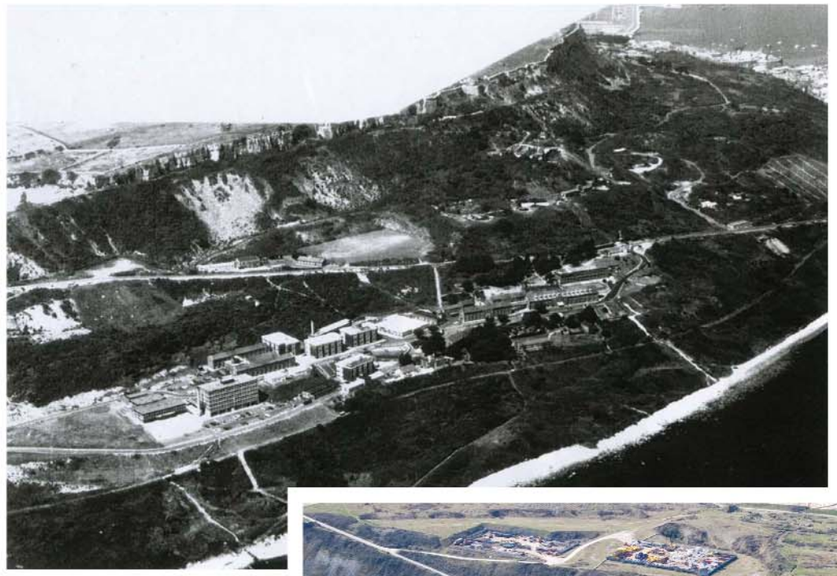


Figure 2.4.3.2: The former Royal Navy buildings on the Upper Osprey site

Figure 2.4.3.3: The Upper Osprey site in 2006 (rig drilling Portland - 1/1A well can be seen

Upper Osprey site completed

Hydrology

The main hydrological impacts of the proposed development relate to stream and river crossings made by the pipelines and, in particular, crossing of the River Frome floodplain. Watercourses to be crossed are predominantly of very high quality in terms of water chemistry, water biology, amenity and local interest. Considerable effort has been made to minimise the potential impacts on these environments in the routeing of the pipeline and minimising the number of crossings required. These crossings comprise the only significant hydrological impact of the development, and precise details of crossing methodologies and mitigation will be discussed as part of the Land Drainage Consent process with the Environment Agency during detailed design.

The potential for increase in flood risk to others, and potential for the proposed infrastructure sites to be at risk of flooding have been considered and consultations with the Environment Agency have taken place. The Mappowder AGI, brine wellsite, block valve site and Upper Osprey GSF are located within Flood Zone 1 where there is little or no flood risk.

Both the Upper Osprey main facility site and the Stafford Farm brine wellsite will require an increase in their present impermeable surface areas, of which Upper Osprey already contains a large area. Surface water management at Upper Osprey will comprise a surface water drainage system which will convey all collected drainage waters to an ocean outfall after passing through appropriate interceptors. The Stafford Farm wellsite, and the wellsites at Upper Osprey will be provided with a closed drainage system during the drilling phase which will collect all drainage waters in a sump to be emptied by tanker off-site.

Hydrogeology

The main potential hydrogeological impacts are in relation to groundwater source protection zones along the pipeline route, particularly during its construction.

Considerable effort has been made to minimise the potential impacts on private licensed/unlicensed abstractions and spring sources in the routeing of the pipeline, and the adoption of recognised pollution prevention methods during construction. Water required for hydrostatic testing of the pipeline can be sourced from existing groundwater abstraction licences and there are adequate permissions in place to ensure these waters can be discharged to the catchment after use. Overall, potential negative impacts on the hydrogeological environment can be successfully mitigated.

Traffic

An analysis was made of the traffic generation arising from pipeline construction. It took account of the delivery of the pipes, their transportation between the proposed three temporary pipe storage areas at Mappowder, Bourne Park and near Broadmayne, together with the movement of construction plant, materials and site operatives along with the various access points to the pipeline working strip from the local highway network.

It is proposed to operate a convoy system through specific identified areas where local conditions warrant such a procedure. No public highways will be obstructed during the construction of the pipeline as it is intended to thrust bore under any that are crossed along the route. The use of public highways for the transportation of pipes, plants and materials will be minimised by securing access along the working strip of the pipeline. To further reduce traffic on the local highway network it is proposed to create a park and ride facility at the Bourne Enterprise Park for construction workers. This will enable site operatives to be transported by minibus either by road or along the working strip, thereby minimising additional traffic being created on the local highway network.

The timetable for working has identified that the delivery of the pipes to the three temporary pipe storage areas will take place in late winter/early spring, outside the main tourist season. Traffic generated during the construction of the Mappowder above ground facility, the brine wellsite at Stafford Farm, and the Osmington Block Valve Station at White Horse Farm will be kept to a minimum during the short time required for their construction. Following completion, there would then only be a need for the occasional visit for maintenance.

For the work proposed at Upper Osprey, pipes and materials will be brought in by sea to Portland Port at every opportunity. Seaborne traffic would reduce the number of vehicles negotiating Weymouth, Wyke Regis and Castletown. A proposed on-site concrete batching plant and sand/cement again being brought in by sea will further reduce the need for road-based deliveries.

Portland Harbour

Noise

During the construction of the pipeline noise will be generated as construction progresses past nearby houses and for longer periods at crossings. However, since the pipeline crosses open agricultural land, there are no more than six houses close to the pipeline route and they will mostly be exposed to noise for a short while only. There are a number of additional construction sites along the route, many of them making noise similar to typical building sites. The main exceptions are the Stafford Farm Brine Wellsite and the Upper Osprey gas storage facility where drilling is a 24 hour a day operation. In both cases the nearest houses are some distance away so that drilling operations will not create a disturbance. Noise generated during construction works at Upper Osprey would be daytime only and not adversely affect anybody at Fortuneswell, Easton or the two prison establishments to the west of the site.

During operation there will be no noise from the pipeline. At Upper Osprey equipment will be housed in suitable designed buildings to minimise noise. The remote location of the site and the protection afforded by the cliffs above the site mean that noise levels at the nearest dwellings are very unlikely to cause a disturbance.

Air Quality

Air quality effects associated with the proposals are limited to the construction phase of all components with the exception of the main facility at Upper Osprey. This is the only component with significant emissions to air during the operational phase.

During the construction phase the implementation of appropriate mitigation measures will ensure that significant air quality effects are avoided. The effects of vehicle emissions associated with the construction phase of the gas storage project are considered to be negligible.

The most significant pollutants emitted from the operational phase at Upper Osprey, in the context of a comparison with relevant air quality criteria, are oxides of nitrogen (NOx) including nitrogen dioxide (NO2). Predicted contributions of NOx and NO2 for these pollutants are not significant relative to relevant air quality criteria in national guidelines. When the maximum predicted contributions are added to the worst-case background concentrations, the resultant predicted environmental concentrations of all released substances are well within all relevant air quality criteria for the protection of human health and vegetation.

Contour plots demonstrate that contributions of NO2 at sensitive locations are negligible. Contributions of NO2, nutrient deposition and acid deposition concentrations from Upper Osprey to sensitive ecological sites have been calculated based on dispersion modelling results and compared against relevant critical levels and critical loads. Effects on the vegetation and ecosystems are of negligible significance. The effects of vehicle emissions associated with the operational phase of the Upper Osprey GSF are considered to be negligible. The development proposals do not, therefore, conflict with any national, regional or local policies in respect of air quality.

Upper Osprey Site Stability

Although the Upper Osprey area has been subject to historical ground movements, the conclusion is that the proposed development of the area as a gas storage facility is considered feasible with appropriate design and construction of foundations.

Near surface ground conditions at the site comprise a layer of superficial colluvial deposits which overlie the Late Jurassic Kimmeridge Clay Formation which is more than 250 metres thick below the site. The colluvium is creeping upon a layer of weak shear strength material at the top of the Kimmeridge Clay. Various options exist for the construction of foundations to overcome this element of minor creep. Adoption of appropriate solutions in each case will depend on the tolerance of individual structures and plant to both overall and differential movement.

A rock fill buttress placed on the shoreline at the toe of the slope in 1979 has increased the slope stability and reduced the rate of movement of the superficial deposits. It offers a defence against coastal erosion that would otherwise lead to ongoing removal of material supporting the toe of the slope and in a storm potentially increasing the slope movement if the beach were not protected. The effects of climate change on sea levels will be tak en into account to ensure that these coastal defences are maintained.

Long-term geotechnical monitoring of the site will ensure the safety of the plant and surrounding areas.

Osprey Site

Upper Osprey Site Contamination

The site of the proposed Upper Osprey main facility was initially an open area of rough vegetation and scrub woodland, becoming increasingly developed by the MoD, culminating in its most intensive level of development in the 1970s, all of which has subsequently been demolished.

There are no significant surface water features within the site boundary or within close proximity to the site. Contaminants observed during a site walkover have been classified as minor and are unlikely to pose a risk to controlled waters due to the extensive covering of hard standing across the site which would be integrated into the proposed development.

Upper Osprey Site Stability

Apart from drilling activity at Stafford Farm and Upper Osprey and the construction and operation of the Upper Osprey GSF, all other construction and operation activities would normally be carried out during daylight hours and are temporary. Where it would be necessary to carry out work during the night-time, temporary portable lighting units would be used.

The lighting design for the Upper Osprey GSF, which will be the only permanently manned site, will seek to remove outspill light at source whenever possible.

Tourism and Leisure

The potential impacts on tourism and leisure activities have been identified during consultation with the relevant stakeholders, through a questionnaire and presentations to the Dorset Coast Forum, Portland Harbour Consultative Committee, as well as meetings with the statutory and non-statutory authorities. This identified a number of key issues, which have been addressed within the Environment Statement, notably:

- The effect on public footpaths, bridleways and rural roads during the construction of the pipeline both within rural Dorset and the coastal zone
- Beach and coastal recreation activities
- Watersports in Weymouth Bay

The Environmental Statement addresses these issues resulting in mitigating proposals to minimise the impact of construction and maximise the benefits to the tourism and leisure activities in the area:

* Close consultation with local people and businesses during the development of the project
* Minimise the impact on traffic during construction (e.g. delivery of pipes to temporary pipe storage areas close to the pipeline route outside the tourist season, use the port to bring in plant for the construction of the gas storage facility)
- Avoid the need to close any roads and footpaths with appropriate construction techniques
- Avoid impacts on the most sensitive sites on the pipeline route by drilling below them (e.g. Heritage Coastline, Frome River, White Horse Hill)
- Close consultation with the watersports and other recreational users of Weymouth Bay to avoid any disruption to these activities
- Participate actively within the community to promote tourism activities (e.g. promotion of the unique geology of the area since it has resulted in the possibility of the proposed development; consultation with the diving community to develop opportunities to create an artificial reef in Balaclava Bay for the short section the pipeline will be rock covered on the seabed; support activities within the Dorset AONB)

Socio-Economic

Overall, the socio-economic effect of the gas storage facility would be positive, with significant benefits in strategic terms and moderate employment and economic benefits in the local context for the lifetime of the facility.

The construction and operation of the storage facilities has been optimised to reduce impact on the environment to acceptable levels, thus providing effective protection of the environment. In protecting the environment and programming operations, the local tourist industry, which is a major source of employment, will likewise be protected.

In addition to the national benefits of the project with regard to meeting demand swings in the market for gas and security of supply, the key aspects of the proposed gas storage facility with respect to local socio-economic effects include:

- Construction of the pipelines and facilities would generate employment for up to 250 workers
- There would be considerable benefit to local industry and services during the period of construction
- Operation of the facility would generate employment for up to 25 workers
- Transport and the maintenance of plant and equipment, roads, fences and landscaped areas would also generate employment on a regular basis throughout the lifetime of the gas storage facility

Portland Gas is committed to using local labour where possible.

Safety & Summary

Safety

The subject of safety is the subject of a separate report to accompany the Environmental Statement.

Salt caverns have been used for storage of natural gas in Europe and the rest of the world for over 40 years and have proved to be a safe and efficient way of storing gas. The storage of natural gas in salt caverns formed part of the UK Government's Energy Review published in 2006, which included an expert report by the UK Health and Safety Executive (HSE) addressing the potential health and safety risks. This concluded that the hazards and risks associated with the storage of natural gas in salt caverns are well understood, that effective safety standards have been developed to ensure that the risks from future developments can be managed sensibly, and that the existing regulatory strategy for ensuring that the risks are properly controlled is robust.

The major accident risks associated with accidental releases of gas (i.e. fires or explosions) will be controlled by the adoption of established industry standards and relevant good practice, developed over many years and incorporating input from industry and regulatory authorities. A gas explosion within a cavern is highly improbable, since the great depth of the caverns and their pressure will prevent the ingress of air required to form an explosive mixture. Recognised safety engineering techniques will be adopted at key stages of the project and isolation, protection and shutdown systems will be implemented as appropriate. In an emergency at the surface, the facilities will be designed so that the gas in the caverns can be isolated immediately with sub-surface safety values and the site made safe. Before construction is allowed to proceed, and again before operations are allowed to commence, the regulatory authorities must be satisfied that safety aspects have been properly addressed.

The Safety Report provides information on safety aspects of the proposed development including a preliminary analysis of the hazards and risks to people living in the vicinity. The Upper Osprey site will have a secure guarded perimeter and benefits from being within the security ring of Portland Port. The site is remote from residential locations and the report concludes that the highest levels of risk to individuals at the nearest such locations lie well within the accepted HSE defined limits for broadly acceptable risk, even for people present for 100% of the time. As the design develops, a full Quantified Risk Assessment (QRA) will be carried out in order to account for both the on-site and the off-site risks.

Summary

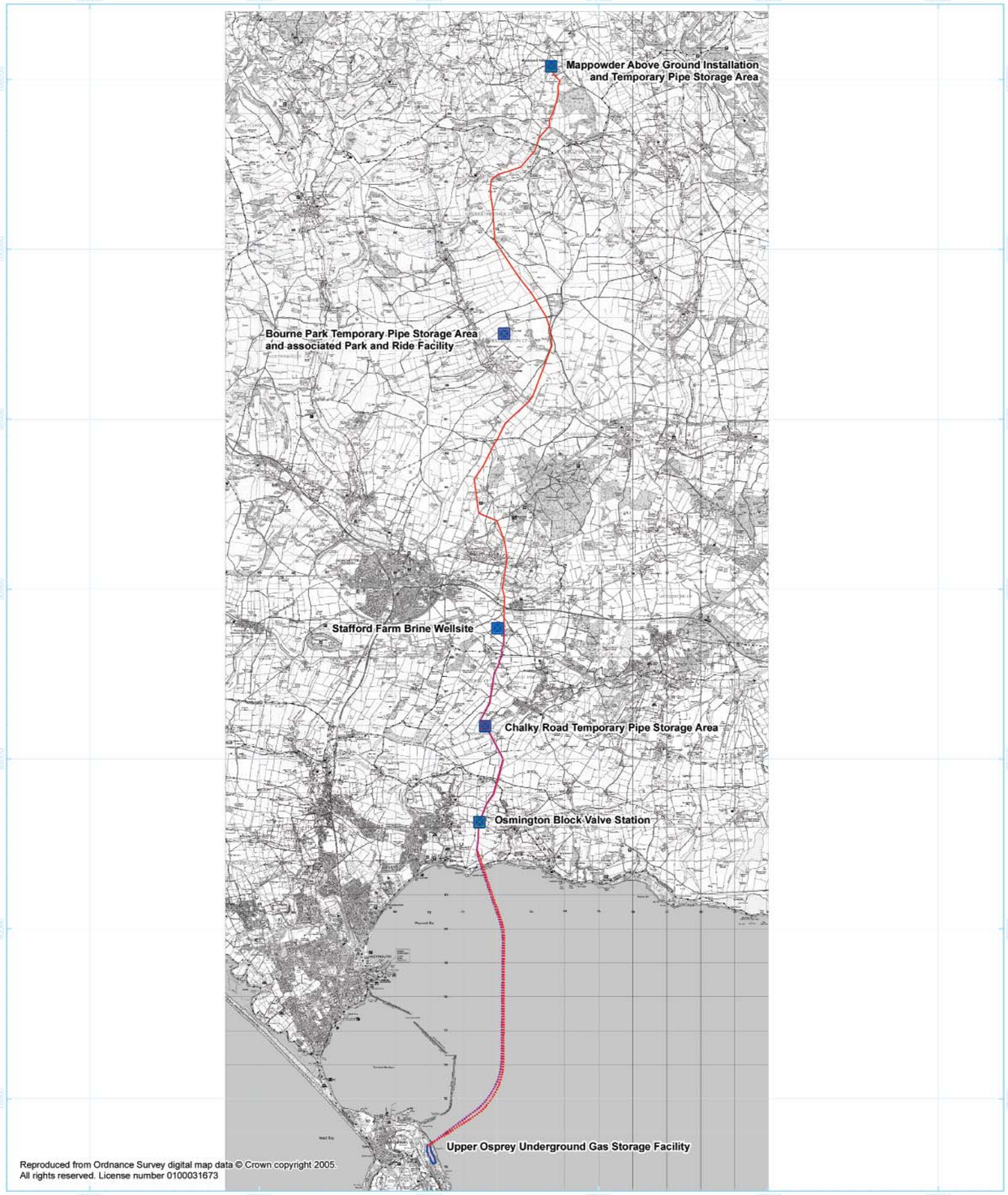
The Environmental Statement provides a comprehensive assessment of the potential impacts for all the component parts of the project. It sets out proposed mitigation measures to neutralise or reduce their potential adverse impact to an acceptable level.

The statement has been produced by a team of specialists in each of their subjects, welded together into a comprehensive assessment as a result of a programme of close interaction within the team and between the team and the client over two years, an example of which was the walking of the full length of the proposed pipeline by the team in January 2006.

Walk-over of the pipeline route by a team of engineers and consultants

The approach has resulted in a thorough understanding of the combined effects of the different impacts. A good example was the mitigation measures developed for construction of the pipelines through some of the most sensitive hedgerows which involved close interaction between the ecology, landscape, archaeology and engineering teams in consultation with the agencies and planning authorities.

Regular and invaluable informal meetings have been held with the planning authorities and key Government agencies, which has enabled the project design to be steered towards the most environmentally acceptable solution.



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