ACCOMPANYING INFORMATION

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Plans

Description	Scale	Reference
Borehole Location Site Plan	1/10000	PEDL217/SS87/LLANDOW/DRAWING/LOC210111
Site Plan	1/1250	PEDL217/SS87/LLANDOW/PLANNING/SITEAREA210111
Site Layout Plan	1/250	PEDL217/SS87/LLANDOW/PLANNING/SITELAYOUT210111
East – West Cross Section	1/250	PEDL217/SS87/LLANDOW/PLANNING/E-WSEC210111
North - South Cross Section	1/250	PEDL217/SS87/LLANDOW/PLANNING/N-SSEC210111

Appendices

Description	Scale	Reference
Details of Site Office	1/50	APPENDIX I
Details of Site Cabins	1/50	APPENDIX II
Details of Temporary Fencing		APPENDIX III

1. Introduction

This application is submitted by Coastal Oil and Gas Limited.

The applicant seeks consent for one test borehole at Llandow Industrial Estate. The scheme will be managed so as to facilitate *minimisation of risk*, both physical and financial, *and minimisation of disturbance.*

The application is made by Coastal Oil and Gas Limited for the purpose of drilling to take core samples of Limestone shales with a view to future possible capture and supply of shale gas (unconventional gas) as a clean energy supply and also to penetrate the Upper Devonian measures to test for the presence of conventional gas. This is part of a continuing program of sampling across South Wales, permissions have previously been granted in Bridgend County Borough Council and Neath Port Talbot County Borough Council. Further applications are pending in both these areas and one is due to be submitted to Rhondda Cynon Taf Council.

The application seeks permission to drill an exploratory borehole for the purpose of taking core samples for analysis on land at Llandow Industrial Estate as indicated on the accompanying plan marked "Borehole Location Plan". The borehole is aimed primarily at the Lower Limestone Shales below the Limestone measures. If the borehole proved productive, a further planning application may be submitted to utilise insitu gas as a clean energy source for the local area and/or for electrical generation. If the hole is unsuccessful, it will be formerly abandoned and filled with concrete and the site reinstated in accordance with an agreed scheme.

It must be stressed that if this borehole was determining the shale in-situ i.e. a mineral exploration hole, it could be carried out under the terms of a General Development Order: petroleum exploration (Shale Gas is classed as petroleum) requires a planning permission to be granted before work commences. In practice there is no difference in the drilling techniques apart from the fact that drilling for Shales will employ more and better safety precautions. The technical aspects of the drilling will have to be assessed and approved in writing by the Health and Safety Executive Oil and Gas Division and the DECC before work starts.

2. Supporting Information

The information contained within this supporting documentation to the formal Planning Application is given to help promote the understanding of the operations involved and thereby to assist in the planning process. The supporting documentation has been expanded to include additional information, which will only be relevant to certain individual consultees. Others, who may be interested in the development scheme, will be able to better understand the concept of the overall project by reference to this document.

This supporting documentation and site design has been prepared giving consideration to the purposes of the current legislation governing planning and environmental matters. The aim being, to ensure as far as is practicably possible, that the development will not knowingly permit the introduction into the environment of any substances or energy liable to cause hazards to human health, harm to living resources and ecological systems, loss of any amenity, or interference with the legitimate use of the environment by the general public and especially those that are neighbours to the development.

3. The Applicant

Coastal Oil and Gas Limited is based at the Bridgend Business Centre. It is principally involved in the exploration of UK onshore gas reserves. It has a 50% interest in approximately 99.7sq. km. of Petroleum Exploration and Development Licence (PEDL) 217 and is approved as an operator for this licence by the Crown. The remaining 50% is held by Coastal's Australian partner Eden Energy UK Limited whose registered offices is the same as that of Coastal Oil and Gas Limited at Bridgend.

4. Shale Gas

Shale gas is natural gas produced from shale. Shale gas has become an increasingly important source of natural gas in the United States over the past decade, and interest has spread to potential gas shales in Canada, Europe, Asia, and Australia. One analyst expects shale gas to supply as much as half the natural gas production in North America by 2020.

A study by the Baker Institute of Public Policy at Rice University concluded that increased shale gas production in the US, Canada and Europe could help prevent Russia and Persian Gulf countries from dictating higher prices for the gas it exports to European countries.

Shale has low matrix permeability, so gas production in commercial quantities requires fractures to provide permeability. Shale gas has been produced for years from shales with natural fractures; the shale gas boom in recent years has been due to modern technology in stimulation techniques to create extensive artificial fractures around well bores.

The shales need to have sufficient Total Organic Carbon before it can produce gas, hence the need for coring and testing as per this planning application.

4.1 Gas Quality

International drilling and testing of shales has proved a resultant high quality, clean gas.

5. Regulation of Onshore Oil and Gas

The following paragraphs are extracts from the Department of the Environment Circular 2/85 entitled "Planning Control over Oil and Gas Operations". The circular, albeit somewhat outdated and currently under review since 1996, helps to explain the framework within which onshore operations for oil and gas are controlled.

"The Petroleum (Production) Act 1934, as amended by Section 18 of the Oil and Gas (Enterprise) Act 1982, provided for exploration of and production of onshore hydrocarbon resources. The Act vests ownership of petroleum underground in the Crown and empowers the Secretary of State for Energy to grant to such persons as he thinks fit, Licences to search, bore for and get petroleum.

The main objectives of the Licensing regime are to further the general Government policy of establishing the extent of the Country's indigenous hydrocarbon resources. The regime is also intended to provide a framework within which the search for and production of oil and gas onshore can be undertaken in a safe and orderly manner, and to provide a satisfactory balance of safeguards and rights between the Government and Licensees. This regime also maintained unproved acreage on short licence and provided a satisfactory longer-term licence for production.

The licence system brought into effect in January 1985 reflected the main stages of onshore hydrocarbon development, with three licences required for the full exploitation of a hydrocarbon field. Following advertisement of a new round of licence awards, the applicant applied for an Exploration Licence which, if granted, was valid for six years and covered a 10 x 10 square kilometre block or blocks. The Licence conferred rights to carry out seismic investigations and drill deep exploratory boreholes (subject to the permission of the landowner or occupier, and to obtaining planning permission), but not to produce (beyond an initial test) hydrocarbons.

Following a successful exploration period, an Appraisal Licence could be applied for. This was for a five-year term (extended at the Secretary of State's discretion) and was to be awarded for the specific area of a discovery to enable testing and appraisal of a field. It allowed the preparation of a satisfactory development programme to be undertaken and enabled the applicant to apply for planning permission to exploit a commercial field.

The third licence was the Development Licence for which the Exploration and Appraisal Licences were pre-requisites. The Development Licence had a twenty-year life, renewable at the discretion of the Secretary of State. It was normally awarded for the specific area of discovery, and only after planning permission has been obtained by the operator and a satisfactory development programme submitted to the Secretary of State.

These changes in the licensing system had no direct influence on the planning regime, though they emphasised the requirement of planning permission before the development of a hydrocarbon field could take place.

The requirements to apply for the licences outlined above at the various progressive stages in the development of an onshore field have been superseded by the provisions contained within the Petroleum (Production) (Landward Areas) Regulations 1995, introduced on 30 June 1995. These new regulations change the licensing regime and simplify the arrangements for both operators and the DECC.

The new framework comprises a single exclusive and unitary licence now known as a "PEDL", Petroleum Exploration and Development Licence. Licences are still awarded for an initial period of six years although some flexibility is allowed and then, if required, for a further term of twenty years.

Planning permission will continue to be required before the deep drilling of exploratory wells can be undertaken, and the DECC will continue to require proof that the necessary planning permission has been obtained for deep drilling and production, and that all necessary consultations have been completed before authorising commencement of these activities.

There had been considerable debate between the industry and the former British Coal, as to the ownership of the gas, in this case Coal Bed Methane and Coal Mine Methane. For the avoidance of any doubt Coal derived Methane was confirmed as a Crown Mineral (hydrocarbon) by virtue of Section 9 of the Coal Industry Act 1994.

Forecast future energy shortages are putting pressure on unconventional gas producers to develop suitable fields.

Excerpt from DECC Annual Energy Statement July 2010

ACTION 11: In the forthcoming Energy Security and Green Economy Bill, we will seek to ensure that access to UK oil and gas infrastructure is available to all companies. This will help the exploitation of smaller and more difficult oil and gas fields, allowing us to make the most of our natural resources.

ACTION 12: We will introduce further measures on gas security as promised in the Coalition Programme for Government. In the future, we need more gas storage capacity, more gas import capacity, and greater assurance that our market will deliver gas when it is needed. This means that our gas market arrangements must have a sharper focus on increased flexibility and resilience.

6. The Site

6.1 Location

The site is located at Llandow Industrial Estate. The national grid co-ordinates for the site are Eastings 295851 Northings 172167. Shown on the Borehole Location Plan – PEDL217/SS87/LLANDOW/DRAWINGS/LOC210111

6.2 Current Use

The land is disused apart from the illegal parking of lorry trailers and other vehicles. Rubbish is also being illegally dumped on the area. The site will be cleaned up as part of this scheme.

6.3 Ownership

The landowner is Elete Design Limited; R/O 10-12 Dunraven Place, Bridgend CF31 1JD.

6.4 Site Infrastructure

The site requires minimal moving of material apart from that required to tidy the area. There is an existing, level concrete base and no further ground preparation will be required for drilling or siting cabins/offices.

6.5 Ground Conditions

Initial investigation shows that the land is comprised of a small thickness of glacial material overlying the Porthkerry Formation (Lower Lias) of Jurassic age. A detailed survey will be conducted during the development process.

6.6 Access

The proposed access from the main highway network will be the same as the Llandow Industrial Estate off the Llantwit Major Road, the B4270. To minimise risk the proposal for site access is to travel in very early in the morning when traffic is minimal. The drill rig is a standard six-wheeler lorry size or track mounted and carried on a trailer. Albeit heavy traffic, such as the rig, drill pipe and cabins, will only travel to the site once and from the site once; site entry will be from the south via the A4226 and B4265 to avoid Llysworney Village. Once on site, traffic will consist of minimal numbers of cars at the beginning and end of shift and occasional van visits. The rig is not overweight. The vehicles create no more noise than other heavy goods vehicles. No additional highway amendments are required.

A summary of proposed traffic flows into the site is as follows: -

Drill rig	***1***
Casings	***4***
Tanks and other equipment	***3***
Survey equipment	***1***
Cabins	***3***
Tankers used water	***2***
Steel linings	***2***
Foul sewerage tanker	***1 per week***
Skips	***2 per week***
Drilling supplies (transit)	***1 per week***
Personnel (cars/vans)	***2/3 per 12 hr shift***

6.7 Environment Agency - Development and Flood Risk

Referring to the Environment Agency Website flood maps, they considered the site to be of little or no risk from flooding. The site is not on a recognised flood plain.

6.8 Area

The enclosed area of the application site is 0.2 hectares.

The areas are made up as follows:

ITEM	AREA (HA)
Drilling Compounds Zone 1	0.070
Portable Apparatus and Parking	0.129
Total Area per Borehole Site	0.199

7. Details of Proposal

7.1 The Construction of the Exploration Borehole

The borehole will be constructed to comply with current legislation and applicable codes and rules. The hole will be constructed under the governance of the Health and Safety Executive Oil and Gas Division. A final Department of Environment and Climate Change permission in the form of a Well Operation Notice is required before work can commence.

The works for the boreholes will include: -

- Drilling a surface completion hole at approximately 30cm Diameter up to 10% well depth into rockhead.
- Cementing the surface completion in place.
- Pressure testing the surface completion.
- Drilling at approximately 16cm diameter into the strata, utilising suitable Well Head Protection and Diversion System to a suitable vent system.
- Utilising suitable monitoring systems.

7.2 Site Location

The location of the proposed borehole site is included in this application and indicated on the attached plan reference: -

PEDL217/SS87/LLANDOW/DRAWINGS/LOC210111

A site layout plan reference:-

PEDL217/SS87/LLANDOW/PLANNING/SITEAREA210111

is also attached.

7.3 Site Construction

The site is located on a level area of concrete in an industrial surrounding. The offices and cabins will be located on the concreted area. The drilling rig will also be located on the concreted area. Drip trays will be placed where required. Drilling water will be recycled. Please see detailed site layout drawing –

PEDL217/SS87/LLANDOW/PLANNING/SITELAYOUT210111

7.4 Summary of Geology

The borehole area is situated on the Porthkerry Formation (Lower Lias) of Jurassic age. This shallow dipping strata is up to 50m thick overlying Cornelley Oolite (Viséan) Lower Carboniferous age. From the geological model constructed by Coastal Oil and Gas Limited there is a high in the Devonian Strata below Llandow.

7.5 Gas Control

Gas control during drilling will be effected by a number of valve arrangements. The arrangement is housed on a well head assembly that effects well control. Entries are available for water infeed while drilling and to divert gas. A suitable BOP (Blow Out Preventor) will be utilised.

7.6 Monitoring Operations

Gas flows, purities, pressures including Hydrogen Sulphide values will be monitored during the drilling period. Drilling will be 24 hours per day. Twenty-Four hour security will be present with the site manned at all times.

7.7 Noise

The site is shielded by industrial units and hedges that will act as baffles. The nearest residential properties are:-

- Sheeplys Farm 513m North North West
- Two Semis on Sutton Road 588m North West
- Detached House on The Grove 538m West
- Springfield Nursery 750m West

7.8 Visual Amenity

The site is not prominent in the landscape and is shielded by industrial units and hedges. Any views of the drilling rig will be fleeting and the structure will not be dissimilar to other temporary structures/masts that are located in such areas. The rig and equipment will only be in place for a short period of time.

7.9 Restoration

On completion of testing, unless it is considered that a further planning application is to be submitted for utilisation, the hole will be plugged with concrete and the surface area restored to a condition similar to or better than prior to commencement of work and to the satisfaction of the planning officer and landowner.

7.10 Permissions to Drill

All permissions to drill will be in place before work commences.

Permissions required are: -

Petroleum Licence from the DECC – In place PEDL217
Planning Permission from Vale of Glamorgan Council
Approval for Drilling from the Health and Safety Executive
Well Operations Notice from the DECC

7.11 Construction Period

Summary of Time Scale

	Weeks
Drilling and associated operations	7
Establishment and Site Clearance	2
Testing	5

7.14 Hours of Work

Hours of work during the site establishment and site clearance period will be 10 hours per day 08.00 hrs until 18.00 hrs and drilling period will be 24 hour, seven days per week.

8. Conclusions

If successful: -

- The scheme could offer direct benefits in the form of low cost heat, gas and electricity to existing local industries i.e. industrial units, offices, warehouses and nearby greenhouses.
- The scheme could prove a long-term, clean, local energy supply for the area.
- The scheme could help protect local long-term jobs by effectively creating an energy park at Llandow.
- The scheme will provide short term contracting jobs.
- The scheme could provide new long-term jobs in a new local clean energy sector.
- The scheme could assist the security of energy supply nationally.

End