

7. Oil and Gas

7.1 Introduction

- 7.1.1 Oil and gas are found as naturally occurring hydrocarbons, usually held in sedimentary structures at great depth. They derive from the decay of organic material over geological time and migrate into porous limestone and sandstone structures until they become trapped by overlying impervious rock strata. Deposits can be of commercial importance where this caprock holds oil and gas beneath it in domes or other geological features sufficiently large to be regarded as reservoirs.
- 7.1.2 Chapter 7 seeks to control further development of oil and gas and safeguard local environmental quality and natural resources, by limiting the location of such development, encouraging the use of non-road transport for oil and gas resources and protecting important coastal features from landfill sites for pipelines.

Planning and Licensing

- 7.1.3 Unlike normal mineral rights the ownership of oil and gas is vested in the Crown. Activity is regulated by the Department of Trade and Industry through a licensing system under which private companies, having registered an interest, may be awarded an Exploration Licence with a life of 6 years during which they have an obligation to assess the prospects for oil and gas in a prescribed geographical area. This involves geological operations carried out from the surface (usually vibrioses) but may also require a borehole to be drilled to prove whether a prospective geological structure actually contains hydrocarbons. The majority of boreholes turn out to be 'dry'. If exploration work gives positive results, operators may obtain a 5 year Appraisal Licence to enable them to carry out further work and, eventually, a 20 year Development Licence to exploit the resource. The licensing system is based on the principle that operators have the right to benefit from development, having been prepared to take the initial risk of undertaking exploration at their own expense. In this way the Government is able to compile data on the extent of the national onshore resource while offering some incentive to the private sector to undertake the necessary work. The onshore licensing system is being revised and updated. The existing system of separate licences at the exploration, appraisal and development stages is being replaced by a single, unitary licence, termed a Petroleum Exploration and Development Licence (PEDL).
- 7.1.4 The onshore licensing system does not override land use planning control or confer any statutory rights to enter upon land or carry out works. While some operations may constitute permitted development, an applicant cannot implement a DTI licence without first obtaining the necessary planning permission.

Development in North Yorkshire

- 7.1.5 Gas was first discovered in North Yorkshire in the 1940's. There have been several finds since then but, as yet, no significant oilfields have been located. In 1966 the Lockton gas field in the North York Moors National Park was announced as

the biggest onshore gas find in Britain. Production started in 1971 but soon ran into difficulties because of the ingress of water. Operations were subsequently abandoned. It is only in the last 20 years that there has been significant further activity with continuing exploration work taking place in many parts of the County. Most of the County outside the Dales area has been the subject of exploration licence awards and over a dozen boreholes have been drilled. Most have failed to prove the existence of oil or gas in significant quantity to justify further investigation and have been capped and restored. The main target structures have been the Permian limestone and the deeper Carboniferous sandstones. After a period of high interest in onshore exploration work in the late 1980's there has been a recent reduction in the level of exploration activity. The principal scheme has been the discovery and development of the Vale of Pickering gas field. This project involves piping gas from five well-sites, previously used for exploratory drilling, to an electricity generating station near Malton which will feed the transmission network.

- 7.1.6 Offshore exploration continues. Licence awards in the Department of Trade and Industry 14th and 16th "Rounds" have involved areas of the North Sea near the North Yorkshire coast. Figure 2 identifies those areas of the County which have been the subject of licence awards since 1975.

7.2 Policy Context

- 7.2.1 Government guidance is contained in DoE Circular 2/85 "Planning Control over Oil and Gas Operations" and in MPG1. Government policy encourages the exploration for and production of onshore oil and gas reserves, seeking maximum economic exploitation consistent with good oilfield practice and protection of the environment. In National Parks, Areas of Outstanding Natural Beauty and other environmentally sensitive areas, a potential operator is required to demonstrate that the need for development outweighs any environmental objections.
- 7.2.2 The County Structure Plan contains strategic policies controlling exploration for and the appraisal, development and transport of oil and gas. These reflect the advice of Circular 2/85.
- 7.2.3 While planning powers relate to onshore activity they do not extend offshore. Nevertheless some of the same issues arise and the County Council attempts to deal with these through the East Coast Offshore Minerals Forum (see paras 7.8.1 to 7.8.4)

Planning Policy

- 7.2.4 Oil and gas operations are significantly different from other types of mineral development. Ownership, statutory controls, the release of land, method of working, surface installations and environmental impact all differ from mining and quarrying. In general the pursuit of such a high value product should make it easier to attain good standards of environmental protection, landscaping and other restoration. Because of the types of operations involved the land take is normally less than with mining and quarrying. There can be some locational flexibility within local search areas which, together with the ability to

achieve directional, deviated drilling, can accommodate local circumstances. If commercial resources are not found the impact may be short term. Thus in comparison with other types of mineral working, oil and gas operations normally have less impact on local amenity and the environment.

7.2.5 In an effort to summarise the complexity of issues involved in handling proposals for oil and gas development, the former Nature Conservancy Council published advice which notes as useful guidance the activities likely to be involved :-

| | |
|----------------------|-----------------------|
| Site Construction | Waste Disposal |
| Ancillary Services | Water Extraction |
| Storage of chemicals | Storage of Products |
| Drilling and Testing | Export of Products |
| Pipelaying | Decommissioning |
| Transport and Access | Reinstatement of Site |
| Processing | |

Each of these may require analysis of:-

| | |
|---------------------------------|------------|
| Movement of people and vehicles | Land Take |
| Visual Intrusion | Noise |
| Discharges | Emissions |
| Waste generation | Spill Risk |
| Hazard Risk | |

in order to address such features as Residential Amenity, Agriculture, Landscape, Habitats, Flora and Fauna, Air, Soil and Water Quality, Tourism and Recreation.

Such analysis may require attention to be given to impacts including:-

| | |
|---------------------------------|-----------------------------------|
| Timing and duration of activity | Ownership, control and management |
| Techniques Used | Operating Standards |
| Site and Route Selection | Staff capabilities |
| Choice of Materials | Waste Disposal practice |
| Design and Construction | Emergency arrangements |
| Landscaping and maintenance | Monitoring |
| Noise | Restoration and Aftercare |
| Emissions and Discharges | |

7.2.6 It is not appropriate for this Plan to require applicants to consider the need for oil and gas products by justifying proposals in market terms in the same way as is required for aggregate minerals. Circular 2/85 makes it clear that the development of home produced hydrocarbon reserves is in the national interest.

7.2.7 It is convenient to consider policy under the three main headings adopted in Circular 2/85 - Exploration, Appraisal and Production.

7.3 Exploration

7.3.1 Government policy is to encourage private companies to compile data on hydrocarbon deposits and to develop proven

resources.

- 7.3.2 Operators are expected to liaise closely with mineral planning authorities, to protect interests of acknowledged importance before establishing the routes for seismic testing and to select drilling sites with particular reference to designated areas, local amenity and the environment. In most cases seismic survey work does not need planning permission, but there may be exceptions where sensitive areas or buildings are involved, the operation is of relatively long duration or if particularly large explosive charges are used. In all cases operators should consult with the County Council, provide information and notify local residents.
- 7.3.3 A typical exploratory borehole site would be about 1 hectare in extent. It would take about two months to develop and require an intensive period of activity in site preparation, including provision of access, services, pollution controls and drainage, delivery of aggregate for hardstandings and importing and setting up the drilling rig and other equipment. A further two months could be spent on drilling the borehole, typically to a depth of 1000 m to 1600 m. Drilling needs to be a continuous 24 hour activity. This level of activity has the potential to have a substantial impact on local amenity unless it is carefully controlled. Attention needs to be given to noise, traffic generation, visual intrusion (including night time illumination), safety, waste disposal and possible odours. Planning conditions can be used to minimise these and to secure restoration but it is required that all applications shall include appropriate proposals for mitigation.
- 7.3.4 Drilling technology has improved in recent years. A typical drilling rig would now be about 30 m - 40 m high, significantly smaller than early rigs although larger rigs may be required in certain circumstances.. Deviated (directional) drilling can be used, at extra cost, to overcome environmental constraints. Noise control can be assisted by the use of disc rather than drum brakes to reduce squeal. Small "microdrills" can now be used for exploration in some circumstances. They are only about 12 m high, reduce borehole diameter to perhaps 75 mm, and require smaller quantities of drilling "mud". However they have limitations on depth, speed of drilling and geological results and are unsuitable for subsequent phases.

*Policy 7/1
Noise*

Noise limits will be imposed on planning permissions for the drilling of exploration and appraisal boreholes and production wells. The free field measurement of noise at the nearest noise sensitive property should not exceed the following levels:-

0700-1900 : Background levels plus 10dB(A) up to a maximum of 50dB LAeq, 1 hour.

1900-0700 : Background levels plus 10dB(A) up to a maximum of 42dB LAeq, 1 hour.

In certain specific cases lower levels may be set relative to quiet rural areas or to dawn, summer evening or weekend periods.

- 7.3.5 The potential for environmental intrusion and impact on local amenity means that the choice of site for exploration purposes is particularly important. While Government guidance stresses that such sites are for temporary exploration purposes only, the County Council's practical experience has been that exploration sites giving positive results tend to be retained for appraisal and development and are not, therefore, temporary features. Consequently, the County Council will expect any exploration site to be selected as if it were to be retained as more than a short term, temporary, feature.

*Policy 7/2
Exploration Boreholes*

In considering a proposal for an exploration borehole the Mineral Planning Authority will require to be satisfied that:-

- (i) the site is located in the least environmentally sensitive area relative to the geological prospect;
- (ii) the site has been selected as if it were to be retained for longer term appraisal and development;
- (iii) provision is made for short term mitigation of the effects on amenity and the environment; and
- (iv) adequate allowance is made for longer term additions to and/or enhancement of such mitigation measures.

The grant of planning permission for exploration drilling will not commit the Mineral Planning Authority to any subsequent grant of planning permission for appraisal or development.

7.4 Appraisal

- 7.4.1 The terms of DTI Exploration Licences allow a limited amount of testing of flows, pressures and composition to be undertaken. Beyond that operators must obtain a separate licence for full appraisal. Where an exploration borehole site is to be retained for the purpose, further planning approvals are also likely to be needed to cover the extended operations. In the case of a suspected large geological structure, appraisal could involve the drilling of additional boreholes in order to test the boundaries of a structure and its reservoir characteristics/operability. Appraisal may involve prolonged periods of gas flaring.

*Policy 7/3
Identification of
Geological Structure*

Before considering any planning application for appraisal work the Mineral Planning Authority will require operators to identify the probable extent of the geological structure involved and will expect planning applications for the additional boreholes to be demonstrably related to this area.

- 7.4.2 Sometimes there can be a substantial time lag between the exploration and appraisal stages and the County Council is concerned to ensure that retained sites do not begin to deteriorate environmentally. Similarly, if development proposals are likely to follow, the County Council would wish to minimise

the period during which a site is disused and encourage operators to arrive at an early decision on whether a scheme of working is to be submitted or the site can be restored as commercially non-viable. The County Council will, therefore, expect appraisal work, including additional borehole drilling, to be undertaken within two years of the completion of exploration drilling and testing.

*Policy 7/4
Appraisal Boreholes*

Proposals for the drilling and testing of appraisal boreholes will only be permitted where the applicant can demonstrate that the proposal:-

- i) is necessary to determine the quality, nature and extent of the deposit; and
- ii) forms part of an overall scheme for the appraisal and delineation of the field as a whole.

Planning permission for appraisal drilling will not commit the Mineral Planning Authority to any subsequent grant of permission for development.

7.5 Development and Production

7.5.1 Production sites could have a long life and proposals could take several forms. Examples would include:-

- i) a pipeline link direct to an existing consumer;
- ii) a pipeline feeding into the gas trunk network following treatment to achieve specification;
- iii) pipelines to a central "gathering station" located in association with an industrial area and/or rail, waterway and principal road connections;
- iv) development of a local gas fired generating station or other major consumer;
- v) export by road or rail tanker direct from a well site.

7.5.2 So far, in North Yorkshire sites initially used for exploration and appraisal drilling have subsequently been developed for production purposes. However it is recognised that if new gasfields or oilfields are discovered, the production phase could involve the drilling of additional wells.

7.5.3 If, following initial exploration and appraisal work of a site, the same site is the subject of proposals for longer term production, there will be an opportunity to review environmental measures. In dealing with applications to convert a site previously used for exploration or appraisal into production, the County Council will seek to reduce the overall area involved and to incorporate further landscaping and other mitigating measures appropriate to a long life operation.

Proposals for the conversion of previously "short term" exploration and appraisal borehole sites into production wells will be approved only when they make full provision for an improved standard of landscaping, protection of local amenity and site restoration.

- 7.5.4 Because of the depth and geological composition of oil and gas bearing strata and the small geographical extent of productive onshore fields so far discovered, surface subsidence is not considered to be a major constraint. However, in the public interest, County Structure Plan Policy M14 requires this factor to be investigated at the development stage, with information on both the consequences of surface subsidence and on a programme of subsidence monitoring being provided to accompany relevant planning applications.
- 7.5.5 The County Council will resist the possibility of every individual hydrocarbon discovery being regarded as a separate oil or gasfield in its own right. Sustainable development principles require maximum integration and elimination of duplication. Therefore, for development purposes, definition of a "gasfield" or "oilfield" should, where relevant, be regarded as consisting of several relatively small deposits in a single area brought together into one set of proposals. It is recognised that this does not fit neatly with the licensing system under which several companies may be active in an area. However it is considered to be in the best interests of the North Yorkshire environment to minimise duplication of surface infrastructure and to encourage companies to work together on development schemes.

*Policy 7/6
Development Scheme*

The Mineral Planning Authority defines a gasfield or oilfield as including a number of separate hydrocarbon reservoirs within a single area, irrespective of licence rights and obligations. Planning permission for commercial production will be granted only within the framework of an overall development scheme relating to all proven deposits within the gasfield or oilfield. Where appropriate, applications should be accompanied by an Environmental Statement and schemes should provide for the full development of the proven field.

*Policy 7/7
Development of New
Reserves*

Unless such development would be technically impracticable or environmentally unacceptable, planning permission for the development of oil or gas reserves as yet undiscovered will only be granted where the development utilises existing available surface infrastructure or pipelines.

- 7.5.6 So far the nature of hydrocarbon development in North Yorkshire has not led to a need to consider gathering stations and major treatment plants. However, the County Council would wish to steer such development towards industrial areas and/or railheads and waterways. Such development in the open countryside or served by road only would require particular justification to demonstrate why an environmentally

better alternative site was not available.

*Policy 7/8
Gathering Stations*

Unless such development would be technically impracticable or environmentally unacceptable, planning permission for the development of gathering stations forming part of an oil or gas development scheme will only be granted where the development is located on land allocated for industrial use and/or where it is associated with rail or waterway transport.

7.6 Transport of Oil and Gas

- 7.6.1 Geology dictates that oil and gas may have to be produced from less accessible areas, perhaps served only by minor roads. Bearing in mind the impact of increased road traffic on towns and villages and the need for access by outsize loads and the emergency services it is important to consider transport implications at all stages of exploration, appraisal and development. At the development stage the County Council will seek, wherever practicable, the movement of oil, gas or derived products by underground pipeline, rail or commercial waterway.

*Policy 7/9
Transport*

Proposals for the development of oil or gas resources which are likely to involve the bulk transport of material by road will only be permitted where developers can demonstrate that non-road transport is not feasible and that the traffic generated will not have an unacceptable impact on local communities.

7.7 Site Restoration

- 7.7.1 Despite the limited land area involved, compared with other forms of mineral working, decommissioning and restoration of sites to a beneficial after-use is no less important. The opportunity to restore may arise at the end of any of the exploration, appraisal or development phases. Therefore it is important for all such planning applications to contain restoration proposals and, in the interests of the environment, for these to be implemented without delay.
- 7.7.2 While there would normally be a planning requirement to reinstate land used for accesses, haul roads and hardstandings and to remove fences and temporary screening, it is recognised that, exceptionally, there may be a long term agricultural or other benefit in retaining some of these features and consequent requests to vary restoration conditions previously imposed.

Planning permission for the exploration, appraisal or development of oil or gas resources will only be permitted when provision is made for the full restoration of the site and its related means of access to a beneficial after use. In particular, the Mineral Planning Authority will impose:-

- i) a 1 year time limit for the restoration of exploration sites or the submission of proposals for continued appraisal work;
- ii) a 2 year time limit for the restoration of appraisal sites or the submission of proposals for development as a production site; and
- iii) a 2 year time limit for the restoration of a production site, to run from the cessation of significant oil or gas production from the site.

*Policy 7/11
Retention of Features*

Proposals to retain sections of access road, hardstandings, fencing and screening as an exception to the full restoration of exploration, appraisal or production sites will be approved only where a clear agricultural or other benefit can be demonstrated.

7.8 Offshore Development

- 7.8.1 The geology which is of commercial interest for oil and gas under the North Sea includes some of the same strata as are found in the eastern part of the County. The jurisdiction of the County Council does not extend below the low water mark. However, the County Council will continue to use its membership of the East Coast Offshore Minerals Forum to protect interests and promote good practice. The Forum is a non-executive body, accepted by the DTI as a consultee on licensing and related matters.
- 7.8.2 Exploration Licences have already been awarded in respect of several "blocks" abutting and close to the North Yorkshire coast. It is known that there has been a gas find in one of these but, overall, most exploration is yet to be undertaken.
- 7.8.3 Along the North Yorkshire coastline there are some popular holiday resorts and beaches. There are also substantial lengths of Heritage Coast, nature conservation sites recognised as being of international or national importance and places of importance for marine wildlife where work is in progress to define Sensitive Marine Areas. Offshore oil and gas activity close to the coastline could potentially affect all these interests. The County Council will work through the Forum to protect coastal interests and promote the achievement of high standards.
- 7.8.4 It is possible that discoveries in commercial quantities will be made during offshore exploration activity yet to be undertaken and this could require the product to be piped to land.

However, environmental designations along most of the North Yorkshire coastline severely constrain the ability to locate satisfactory landfall sites in the County.

*Policy 7/12
Pipelines*

Planning permission for coastal landfall sites for pipelines will be permitted only where it can be demonstrated that they will not have a detrimental impact on Heritage Coast, coastal features, tourism, wildlife or the marine environment.

7.9 Coal Bed Methane

- 7.9.1 A number of the recent onshore Exploration Licences awarded by the DTI relate specifically to coal bed methane. The extraction of coal bed methane involves less preparation time and a shorter drilling period than conventional oil and gas wells. A larger number of smaller production sites are required to feed methane gas at relatively low pressure into an underground pipeline with minimum need for on site treatment or surface installations. The principal waste product is the saline water typical of coal seams. Production life will depend on the geological age of the coal but each well could produce for up to 30 years. The operation is seen as a means of extracting gas prior to coal extraction or from seams which it may never be economic to work for coal. Extraction of coal bed methane is a relatively new activity in the United Kingdom but there is substantial experience elsewhere, notably in the USA. So far there has been no such drilling in North Yorkshire but a prospective operator is known to be active elsewhere. Any proposals received will be subject to the policies of this Plan, particularly those relating to oil and gas.