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Appendices

INTRODUCTION

1.1 This document comprises an Environmental Statement (ES) that has been prepared by SLR Consulting Limited (SLR) on behalf of Dart Energy (East England) Limited (the Applicant), a subsidiary of IGas Energy plc. The ES forms part of a package of documents being submitted to Nottinghamshire County Council, in its capacity as Mineral Planning Authority (MPA), in support of a planning application in respect of a single exploration well and three sets (with each set containing up to 3 boreholes) of monitoring boreholes on agricultural land adjacent to the A634 between Blyth and Barnby Moor, Nottinghamshire.

Statutory Background

1.2 The Environmental Impact Assessment (EIA) process is an important procedure for ensuring that the likely environmental effects of a new development are fully understood and considered before the development is allowed to proceed. The term EIA describes a procedure that must be followed for certain types of development before they are given 'development consent' which, in a UK context, includes the granting of planning permission. The ES is a means of drawing together, in a systematic and objective way, an assessment of the development's likely significant environmental effects. The Applicant, having regard to Schedule 3 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (the 'EIA Regulations'), considers that no EIA is required, however given that this is one of the first shale exploration well proposals in the area, a voluntary EIA has been prepared. It is intended to provide Nottinghamshire County Council with sufficient information to determine the planning application having due regard to the protection of local amenity and the environment as a whole.

1.3 This ES has been prepared in accordance with the EIA Regulations.

Application Submission Package

1.4 The ES comprises Volume 2 of the larger multi-volume submission to accompany the planning application. In addition to the formal planning application forms and certificates, the full submission comprises:

- Volume 1: Planning Statement and Statement of Community Involvement;
- **Volume 2: Environmental Statement**; and
- Volume 3: A Non-Technical Summary (NTS) of the ES.

1.5 The Planning Statement supports the planning application and considers the proposed development in the context of relevant planning policies and other material considerations. The Statement of Community Involvement reports on the consultations that have been carried out in respect of the planning application.

1.6 A Non-Technical Summary (NTS) has been produced as a standalone document to accompany the submission. It is a mandatory part of the ES and provides, in non-technical terms, a brief overview of the likely significant effects that the proposed development would have on the environment.

THE SITE

1.7 The application site is located in the Bassetlaw District area of Nottinghamshire on the Retford Road between Blyth and Barnby Moor. The site is located on agricultural land with direct access onto the public highway. The application site is 2.2ha in size. The exploratory wellsite would occupy approximately half of the application site with the remainder being used for access roads, parking, staff welfare facilities and soil storage.

1.8 For identification purposes, the application site is centred on National Grid Reference (NGR) 465032 (easting) 385344 (northing) and is shown on drawings TL/1 and TL/2.

1.9 The application site is currently in agricultural use and is surrounded by farmland to the north, west and south, with the A634 forming the eastern boundary.

1.10 The application site is located approximately 2.6km to the south-east of the outskirts of Blyth and 1.5km to the north-west of the outskirts of Barnby Moor. The edge of the village of Torworth is located approximately 1.4km to the north-east of the application site.

1.11 Chapter 2 within this Volume sets out further information on the application site and its surrounding environs.

THE PROPOSED DEVELOPMENT

1.12 The proposed development consists of drilling a single exploration well and three sets (with each set containing up to 3 boreholes) of monitoring boreholes. The exploratory well, known as Tinker Lane 1, would be a vertical multi-core well which would be drilled to recover samples from, and to measure the properties of, the Bowland Shale and Millstone Grit group geological formations that underlie the site.

1.13 The exploratory well would be drilled through all of the coal and shale formations with core samples taken at multiple intervals whilst drilling. A Pressure Determination Test (PDT) would also be carried out at the end of the drilling period in order to test the strength of the rock formation and determine the in-situ pressure. Hydraulic fracturing **will not** be performed in the well on either the coal or shale targets as part of this development.

1.14 Depending on the core analyses, electronic logging results and geological characterisation, the well would either be plugged (to surface) and abandoned (in accordance with current UK guidelines) with the site restored back to its current agricultural use or, if positive results from core analysis

and geophysical logging are received, then a new planning application (accompanied by a new and comprehensive ES) would be submitted for either:

a) a new horizontal well (a new well on the same site, keeping the original vertical well for monitoring purposes) to target the most prospective geological horizons and extended well testing (which may include hydraulic fracturing); or
b) a well completion and well testing operation (which may include hydraulic fracturing) on the existing vertical well by means of well re-entry.

1.15 Following the exploration and testing phases (including either a or b) and dependent on the results, the site would be restored back to its current agricultural uses or a separate planning permission would be sought for hydrocarbon production.

1.16 Any such future planning application would be subject to a full public information and consultation exercise and the application would be subject to the EIA Regulations.

ENVIRONMENTAL IMPACT ASSESSMENT

1.17 EIA is an important procedure for ensuring that the likely effects of a new development on the environment are fully understood and taken into consideration before the development is allowed to proceed. The term EIA describes the procedure that must be followed for certain types of development before they are given *'development consent'* which, in the UK includes the granting of planning permission.

European Context

1.18 The Environmental Impact Assessment Directive (the EIA Directive) requires that, prior to granting 'development consent' for projects, including development proposals, authorities should carry out an EIA of any project which is likely to have significant effects on the environment. The aim of the EIA Directive is to ensure that the authority giving consent for a project makes its decision in the knowledge of any likely significant effects on the environment. The first EIA Directive (85/337/EEC) came into force in 1988 and has been amended subsequently to extend the range of development to which the Directive applied and to make some small changes to EIA procedures.

1.19 The Directive 85/337/EEC alongside its three amendments has been codified by Directive 2011/92/EU as of 13th December 2011. As a result of a review process, on 26th October 2012, the Commission adopted a proposal for a revised Directive (2014/52/EU), to simplify the rules for assessing the potential effects of projects on the environment, which came into force on 15th May 2014.

National Context

1.20 The EIA Directive has been transposed into regulations for development proposals under the Town and Country Planning Act 1995 (England and Wales) with the current regulations being the Town and Country Planning (Environmental Impact Assessment) (2011).

1.21 The EIA Regulations specify certain types of development for which EIA is mandatory (Schedule 1 projects) and categories of development where an EIA may be required (Schedule 2 projects) dependent upon the likely significance of the impacts. With regard to the proposed development at Tinker Lane, the project is a Schedule 2 project and given that this is one of the first shale exploration well proposals in the area, the Applicant has volunteered to prepare an ES to support the planning application.

THE ENVIRONMENTAL STATEMENT

1.22 An ES is a report of an EIA that is required to be submitted with a planning application for major and other developments that are likely to have significant impacts on the environment. It evaluates the likely environmental impacts of the development, together with an assessment of the ways in which the severity of any impacts could be mitigated.

1.23 The EIA Regulations define an ES as a statement:

"*that includes such of the information referred to in Part 1 of Schedule 4 as is reasonably required to assess the environmental effects of the development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but that includes at least the information referred to in Part 11 of Schedule 4".*

Assessment Procedures

1.24 For an EIA it is normal to identify a range of potential environmental issues, many of which will vary in terms of when they occur within the life cycle of the development and the length of time that they are significant. The life cycle of the proposed development can be divided into four distinct phases;

Construction	Typically being three months for the construction of a well site which would include the installation of monitoring boreholes.
Operational	This would include the delivery and setting up of the drill rig, drilling of the vertical well and the removal of the drill rig which would take place over a four month period.

Evaluation	This would be a longer (up to two years) period when the results of the logging and coring are assessed. The wellsite would remain in place for this period but with only the wellhead, site offices and fencing and gates remaining on site.
Restoration/Decommissioning	If the results of the exploration works do not support further investigation then the well would be plugged and the site would be returned to its original condition within a two-three month period, followed by a five year aftercare programme.

1.25 It is usual to classify the duration of identified potential impacts into three timeframes, typically short term, medium term and long term. However, the nature of the development means that all impacts would be short term.

Temporary/Permanent Effects

1.26 In relation to the different timeframes identified above, the effects of the development would be temporary.

Direct/Indirect Effects

1.27 The proposed development could potentially have direct (but not necessarily significant) effects upon nearby properties and settlements, together with the environment as a whole. These could be in relation to the emissions of noise and dust as well as the changing appearance of the site. Indirect impacts could also occur; these could be associated with the transportation of materials to the site and the exportation of waste materials from the site.

Positive/Negative Effects

1.28 The proposed development could generate both positive and negative effects, either by virtue of the proposals themselves or as a result of the mitigation measures proposed. Benefits may include the identification of a potential energy source which could contribute to national energy supply and security of that supply as well as the potential socio-economic benefits (such as employment and input into the local economy) of the development. Negative effects could include traffic, noise or other environmental effects.

Cumulative Impacts

1.29 Cumulative impacts can be described as impacts that are caused by the sum of a project's impact on the environmental component and/or the project's impact when added to those of other past, present or future projects. Cumulative impacts can be;

- additive, aggregative or 'nibbling'; namely the simple sum of all the impacts;
- synergistic, where impacts interact to produce an impact greater than the sum of the individual impact; and
- neutralising or antagonistic impact, where the impacts counteract each other, reducing the overall impact.

1.30 Such cumulative impacts have been addressed in each of the respective sections within this ES. However, there is also the potential for unrelated impacts, which in themselves are not significant, to collectively generate an overall impact. For example, the sum of minor impacts on noise, odour and traffic could collectively produce a significant overall impact upon the environment.

Depth of Assessment

1.31 The scoping exercise performed in conjunction with Nottinghamshire County Council has helped to define the extent to which the various assessments have been conducted.

1.32 The purpose of the scoping exercise was, at a site specific level:

- to focus the EIA on the important environmental issues and potential impacts which need the most thorough attention; and
- to identify topics which are unlikely to need detailed study.

1.33 It is important to clearly identify the significant environmental issues, thus allowing a more detailed and targeted assessment to be undertaken.

1.34 A formal Scoping Opinion request was submitted to Nottinghamshire County Council in October 2015. The scoping report set out the proposed scope of the EIA to include:

- Traffic;
- Noise and Vibration;
- Air Quality;
- Geology and Hydrogeology;
- Ecology;
- Landscape and Visual;
- Cultural Heritage; and
- Population and Land Use

1.35 A Scoping Opinion was issued by Nottinghamshire County Council on 22 December 2015 (ref SC/3388). This confirmed that the proposed topic headings appeared to be generally appropriate to the scale and character of the proposed development and the full response is attached as Appendix 1.1.

The Submission and its Structure

1.36 The first section of this ES provides an overview of the submission and the regulatory framework that underpins EIA. Subsequent sections of the ES provides a description of the application site and its surroundings; describing the development proposal; setting out the relevant planning policy considerations and alternatives considered; and then provides an analysis and evaluation of the likely significant effects of the development on the human and natural environments on a topic by topic basis. Where potential environmental impacts are identified, mitigation strategies are put forward and residual impacts are assessed. As such the ES is intended to provide Nottinghamshire County Council with sufficient information to determine the planning application as having due regard to the protection of local amenity and the environment as a whole.

1.37 This document is presented as follows:

Background Information (Sections 1-5). This part of the ES is largely descriptive in nature and presents an overview of the application site and the surrounding area. It describes the proposed development for which planning permission is being sought. Finally, it sets out the relevant planning policies at a local and national level and the alternatives that the Applicant has considered.

Environmental Assessments (6-13). For each topic area, the relevant data and background information is provided and the potential impacts are considered. Where appropriate, mitigation measures are proposed and any residual impacts are considered. The topics (as identified in the scoping report) are;

Section 6 Highways and Transport
Section 7 Air Quality
Section 8 Noise and Vibration
Section 9 Geology and Hydrogeology
Section 10 Landscape and Visual
Section 11 Ecology
Section 12 Cultural Heritage
Section 13 Population and Land Use

Conclusions (14).

Project Team

1.38 This ES has been prepared by SLR Consulting Limited (SLR) with input from Xodus on noise and vibration issues, Land Research Associates on

soil and Ramboll on lighting. SLR is a multi-disciplinary environmental consultant to *inter alia* minerals and waste industries, and also provides advice to local authorities and the Environment Agency on strategic issues. SLR is a registered Environmental Impact Assessor Member of the Institute of Environmental Management and assessment (IEMA) and has secured the EIA Quality Mark awarded by IEMA.

1.39 In preparing this submission package, SLR has drawn upon the expertise of an in-house team of specialists comprising planners, transport planners, landscape architects, archaeologists, hydrologists and ecologists. SLR has worked closely with Xodus, Land Research Associates and Ramboll and the management teams at IGas, as part of a detailed and iterative process, to ensure that the proposed development is feasible whilst affording optimum environmental protection.

Publication

1.40 Paper copies of the ES can be obtained from the Applicant at the following address:

7 Down Street
London
W1J 7AJ

1.41 The ES, along with the other Volumes, are available in both paper and CD formats, for which a charge of £100 and £10 are applicable respectively. A copy of the NTS is available free of charge on request. The application documents will also be available to download from the Nottinghamshire County Council's website.