

CGG/kab/EL-19-204400/0964

25th March, 2019

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Dear Max,

Independent Report on Future Wells for Chiswick Field, UK North Sea

1 Introduction

Spirit Energy is currently making submissions in respect of a planning application (a Development Consent Order) by Ørsted for a windfarm proposed to be in close proximity to the Chiswick Field. Spirit Energy has advised the Applicant and the Examining Authority that they have plans to drill wells from subsea locations within the proposed windfarm array.

GCA has been Centrica's and now Spirit Energy's Reserves auditor for the past three years, from 2016 to 2018. GCA has recently completed an End of Year 2018 Reserves audit, which included the Chiswick Field, for Spirit Energy under the Society of Petroleum Engineer's Petroleum Resource Management System (PRMS). Spirit Energy has requested GCA to prepare an independent report to confirm various aspects of the submissions that Spirit Energy are making.

This report relates specifically and solely to the subject matter as defined in the scope of work (SOW), as set out herein, and is conditional upon the specified assumptions. The report must be considered in its entirety and must only be used for the purpose for which it is intended.

2 Gaffney, Cline & Associates

GCA is an international petroleum consultancy, which has been operating worldwide for over 56 years. GCA focuses solely on the petroleum and energy industry, and specializes in the provision of policy, strategy, technical and commercial assistance to governments, financial institutions, and national and international oil, gas and energy companies worldwide. Gas and power market studies are a core component of GCA's international business.

GCA employs a combination of commercial and technical professionals in main offices in the United Kingdom, United States and Singapore. These staff members encompass all upstream technical disciplines (geology, geophysics, petro-physics, reservoir engineering, drilling and completion and development planning / facilities engineering), with midstream and downstream engineering and economics, commercial, legal and business strategy professionals to complement its technical staff.

GCA has been performing reserves reports and resource assessment to all of the major Western reserves assessment frameworks for more than 50 years.

3 Document Sources

In preparing this report GCA has reviewed the following documents provided by Spirit Energy:

- Centrica 2015 EOY Reserves Statement
- Centrica 2016 EOY Reserves Statement
- Spirit Energy 2017 EOY Reserves Statement
- Spirit Energy 2018 EOY Reserves Statement
- Centrica Subsurface Sanction Document (SSD) Chiswick CGD Opportunity
- DECC Annual Subsurface Update Centrica Netherlands Operation 1st December 2014
- Centrica Netherlands Chiswick Infill Well and Production Consent Renewal 19th October 2015
- Centrica Greater Markham Area (presentation to OGA) 17th August 2016

4 Chiswick Field Development History

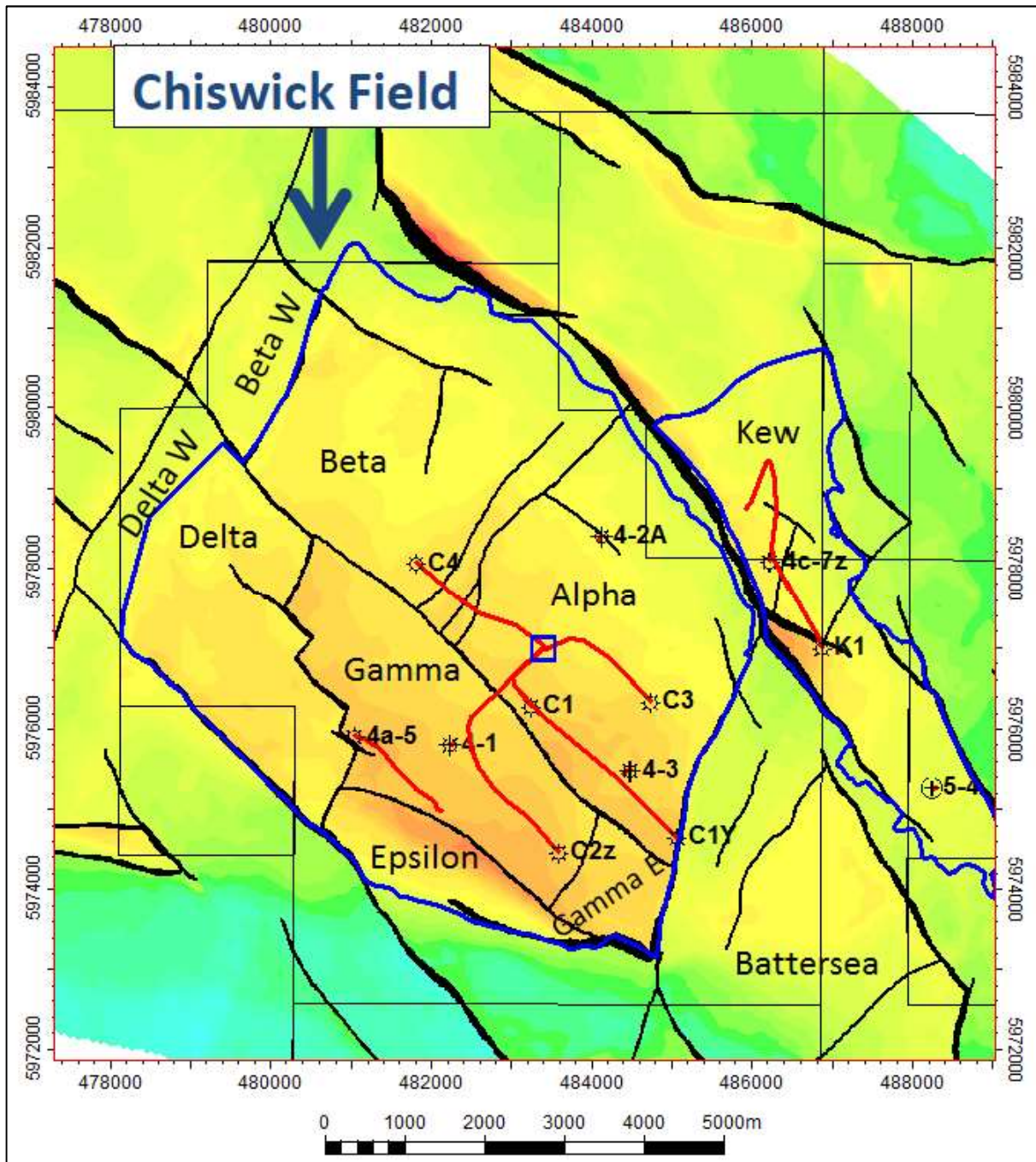
The Chiswick Field comprises a number of “fault blocks”, that is, areas of reservoir which are linked in geological time, but are now largely isolated from each other for the purposes of production, by intersecting “faults”, or dislocations of the structure. The layout of the fault blocks is shown in Figure 1 below.

Chiswick Field was discovered in 1984 by the 49/4-1 well drilled by BP that tested gas at economic rates from the Carboniferous interval in the Gamma fault block. The Alpha fault block was appraised in 1986 by the BP operated 49/4-2a well which encountered a water wet Carboniferous interval. A further Alpha fault block appraisal well 49/4-3 was drilled in 1989. The well tested at economic rates after fracture stimulation. The Gamma fault block was further appraised by a sub-horizontal appraisal well 49/4a-5 drilled by Lasmo in 1999. The well was suspended after testing at economic rates.

The first phase of the Chiswick field development involved the drilling of two hydraulically fractured and propped stimulated horizontal wells, one into the Alpha fault block (49/4a-C1Y in 2007) and one into the Gamma fault block (49/4a-C2Z in 2007/08). First gas was achieved in September, 2007.

Chiswick Phase 2 drilling consisted of a further two hydraulically fractured and propped stimulated horizontal wells, one in to the Alpha fault block (49/4a-C3) and one in to the Beta fault block (49/4a-C4) drilled from the Chiswick NUI. Commercial production from Chiswick Phase 2 began in February, 2010.

Figure 1: Chiswick Field Layout



Source: Spirit Energy

The current wells were drilled to access the fault blocks with the most economically attractive resources, but there remain substantial volumes in fault blocks that will not be tapped by the existing wells. Spirit have been planning to tap these resources by three further wells, which are to be termed the C5, C6 and C7 wells.

The gas from Chiswick is used to raise the Wobbe Index (an index of gas quality) of the other producing fields in the area in order to meet the gas sales specification.

5 Reserves and Contingent Resources

The SPE PRMS defines three categories of petroleum resource: Reserves, Contingent Resources and Prospective Resources. Of the three, it is only Contingent Resources that are of interest in this case.

Contingent Resources are defined as:

Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable owing to one or more contingencies.

And the clarification guidelines state:

The project is seen to have reasonable potential for eventual commercial development, to the extent that further data acquisition (e.g., drilling, seismic data) and/or evaluations are currently ongoing with a view to confirming that the project is commercially viable and providing the basis for selection of an appropriate development plan. The critical contingencies have been identified and are reasonably expected to be resolved within a reasonable time-frame. Note that disappointing appraisal/evaluation results could lead to a reclassification of the project to On Hold or Not Viable status.

The project decision gate is the decision to undertake further data acquisition and/or studies designed to move the project to a level of technical and commercial maturity at which a decision can be made to proceed with development and production.

The critical aspect of Contingent Resources is that they are known to exist, by virtue of having been discovered by one or more wells drilled into the formation. The primary means of converting Contingent Resources to Reserves is by way of defining a project that will recover those resources economically. If a project exists and a decision has been taken to implement that project, and there is a reasonable expectation that the project will be commercial and implemented in a reasonable time, then the resources qualify as Reserves.

6 Maturity of Plans for the Future Wells

Spirit, and before it Centrica, have planned to drill future wells in order to produce the remaining resources since at least 2014.

In December, 2014, Spirit made a presentation to the Department of Energy and Climate Control (DECC), the regulator of oil and gas developments at the time. This presentation included the identification and characteristics of three possible well targets. The wells were planned to target the Beta fault block with one well, the Gamma block with one well, and a possible further well into both the Delta and Gamma blocks.

In October, 2015 Spirit made a further presentation to the Oil and Gas Authority (OGA), the new regulator. In this presentation Spirit identified four opportunities: Gamma, Delta, Gamma-Delta and Beta 2. The well targeting the Gamma and Delta blocks was identified to OGA as being the most attractive, and a detailed presentation was given on the plan for the well, as well as the incremental recoveries that might be expected. This well was to be termed the C5 well, and had received all internal company approvals in July, 2015.

In a further presentation to the OGA in August, 2016 the same four opportunities were identified along with the resources attributable to them with C5, the Gamma-Delta well, having

been further developed. The schedule for start of drilling of the C5 well in 2Q2018 was presented.

The Spirit end-of-year 2018 internal Reserves Report, which was audited by GCA, documents that the drilling of the C5 well started in October, 2018. The report also includes the Delta and Beta2 wells and the associated resources as Contingent Resources. GCA has audited these contingent resources as part of the audit process and can confirm the volumes are classified as Contingent Resources.

GCA has not seen detailed plans for the Delta and Beta2, or C6 and C7, wells. However, GCA is satisfied that the volumes exist (within reason) and there is no doubt that the plans to develop them have been in consideration for some time. The actual development plan could take the form of extended reach wells drilled from, or of subsea wells tied back to, the current Chiswick facilities. In GCA opinion it is likely that the subsea option will prove to be more economically attractive, and that suitable allowances for rig access for drilling, supply and standby boat operations as well as rights of way for flowlines and control umbilicals will need to be reserved.

7 Conclusions

GCA has concluded the following:

- Export of Chiswick gas is essential to maintaining the Wobbe Index for Markham and other third party producers in the area.
- The C5, C6 and C7 wells have been under discussion with the regulators, and therefore the subject of internal planning within Spirit, since at least 2014.
- While the C6 and C7 wells are not yet planned in detail and no development plans have been finalised, the resources that they represent exist and are adequately defined within the limits of the data available.
- Development of these resources is contingent on the definition and approval of economic development plans, which may include subsea wells for which adequate rights of way will need to be allowed.

8 Basis of Opinion

This document reflects GCA's informed professional judgment based on accepted standards of professional investigation and, as applicable, the data and information provided by the Client, the limited scope of engagement, and the time permitted to conduct the evaluation.

In line with those accepted standards, this document does not in any way constitute or make a guarantee or prediction of results, and no warranty is implied or expressed that actual outcome will conform to the outcomes presented herein. GCA has not independently verified any information provided by, or at the direction of, the Client, and has accepted the accuracy and completeness of this data. GCA has no reason to believe that any material facts have been withheld, but does not warrant that its inquiries have revealed all of the matters that a more extensive examination might otherwise disclose.

The opinions expressed herein are subject to and fully qualified by the generally accepted uncertainties associated with the interpretation of geoscience and engineering data and do not reflect the totality of circumstances, scenarios and information that could potentially affect decisions made by the report's recipients and/or actual results. The opinions and statements

contained in this report are made in good faith and in the belief that such opinions and statements are representative of prevailing physical and economic circumstances.

In the preparation of this report, GCA has used definitions contained within the Petroleum Resources Management System (PRMS), which was approved by the Society of Petroleum Engineers, the World Petroleum Council, the American Association of Petroleum Geologists and the Society of Petroleum Evaluation Engineers in March 2007.

There are numerous uncertainties inherent in estimating reserves and resources, and in projecting future production, development expenditures, operating expenses and cash flows. Oil and gas resources assessments must be recognized as a subjective process of estimating subsurface accumulations of oil and gas that cannot be measured in an exact way. Estimates of oil and gas resources prepared by other parties may differ, perhaps materially, from those contained within this report.

The accuracy of any resource estimate is a function of the quality of the available data and of engineering and geological interpretation. Results of drilling, testing and production that post-date the preparation of the estimates may justify revisions, some or all of which may be material. Accordingly, resource estimates are often different from the quantities of oil and gas that are ultimately recovered, and the timing and cost of those volumes that are recovered may vary from that assumed.

GCA's review and audit involved reviewing pertinent facts, interpretations and assumptions made by Spirit Energy or others in preparing estimates of reserves and resources. GCA performed procedures necessary to enable it to render an opinion on the appropriateness of the methodologies employed, adequacy and quality of the data relied on, depth and thoroughness of the reserves and resources estimation process, classification and categorization of reserves and resources appropriate to the relevant definitions used, and reasonableness of the estimates.

GCA has not undertaken a site visit and inspection. As such, GCA is not in a position to comment on the operations or facilities in place, their appropriateness and condition, or whether they are in compliance with the regulations pertaining to such operations. Further, GCA is not in a position to comment on any aspect of health, safety, or environment of such operation.

This report has been prepared based on GCA's understanding of the effects of petroleum legislation and other regulations that currently apply to these properties. However, GCA is not in a position to attest to property title or rights, conditions of these rights (including environmental and abandonment obligations), or any necessary licenses and consents (including planning permission, financial interest relationships, or encumbrances thereon for any part of the appraised properties).

Qualifications

In performing this study, GCA is not aware that any conflict of interest has existed. As an independent consultancy, GCA is providing impartial technical, commercial, and strategic advice within the energy sector. GCA's remuneration was not in any way contingent on the contents of this report.

In the preparation of this document, GCA has maintained, and continues to maintain, a strict independent consultant-client relationship with Spirit Energy. Furthermore, the management and employees of GCA have no interest in any of the assets evaluated or related with the analysis performed, as part of this report.

Staff members who prepared this report hold appropriate professional and educational qualifications and have the necessary levels of experience and expertise to perform the work.

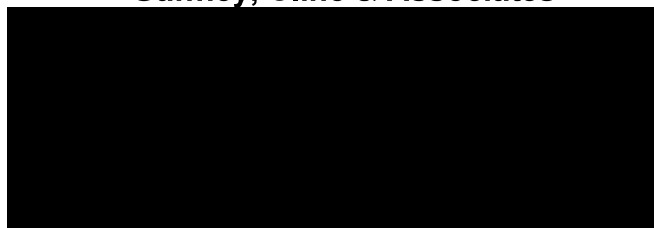
9 Notice

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It has been a pleasure preparing this Report for Spirit Energy. Please contact the undersigned if you have any questions.

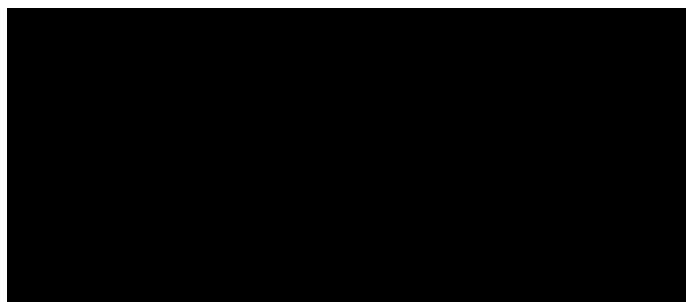
Yours sincerely,

Gaffney, Cline & Associates



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