North Sea Transition Authority

Optimum Use of Subsurface Data

Stewardship Expectation 3

July 2019

1. Expectation

The OGA expects licensees will ensure that business decisions throughout the licence lifecycle are informed by the optimum use of appropriate subsurface datasets and workflows.

1.1 This Expectation focuses on the following areas:

- the optimum use of geophysical data; and
- the use of Technical Data Quality Reviews.

1.2 In this Expectation:

a) 'subsurface data' may include:
- geophysical data (gravity and magnetics, seismic, other potential fields techniques)
- well based data (original and value added)
- third-party studies
- Multi-azimuth seismic data (Coil, Star, OBC/OBN, etc.) if appropriate

b) the 'optimum' use of subsurface data relates to the utility and value of information of the available datasets in addressing subsurface risk and uncertainty during the relevant stage of the licence lifecycle.

2. Reason for the Expectation

2.1 The OGA has observed that licensees (and applicants for production licences) have historically not always used the most appropriate subsurface data throughout the lifecycle of a production licence.

2.2 The use of modern sub-surface data and techniques is a key component to de-risk wells, improve success rates and maximise ultimate hydrocarbon recovery.

2.3 Seismic data quality and usage is considered to have the largest impact on driving valid subsurface assessments, if interpreted correctly in the context of other subsurface data.

2.4 This Expectation supports the MER UK Strategy[1], in particular the Central Obligation (paragraphs 7, 10 and 11) and paragraphs 12, 27, 28 and 29.

3. Delivering the Expectation

A: Joint Venture shared access to data

A.1 It is expected that licensees will be proactive regarding the acquisition and integration of new, high-quality data.

A.2 It is expected that a Joint Venture (JV) will normally agree a common subsurface dataset as quickly as possible after award of a licence to support the decision-making process and smooth work programme execution – or inform the OGA (on request) which datasets are being used by each licence participant and the reason for any differences within the JV.

B: Technical Data Quality Review

B.1 A Technical Data Quality Review should document the licensee's review of:

- historical legacy data;
- newly shot or reprocessed data that has come available;
- data that has been acquired or is being planned (commercial/multi-client or group-shoot surveys); and,
- any proposed acquisition of new data that, if shot, would assist in the evaluation and development of the licence area.

B.2 The OGA expects that a Technical Data Quality Review will be undertaken and submitted as part of a production licence application. Following licence award, the licensee will be asked to provide details of its datasets as part of the OGA's annual UKCS Stewardship Survey.

B.3 Licensees are expected to use Technical Data Quality Reviews to support business decisions. The licensee's Technical Data Quality Review of the licence area should demonstrate awareness of relevant data acquisition and processing activity by third parties in addition to their own activities.

C: Use of appropriate seismic data

C.1 Licensees are expected to consider which datasets are most pertinent for characterising, evaluating and exploiting the subsurface in the relevant licence term; and to use recently acquired or reprocessed seismic data (as appropriate) to support decision making and good stewardship of their assets.

C.2 Table 1 sets out what may be generally considered the maximum ages of various subsurface datasets to be used during different stages of the E&P lifecycle. Where an alternative view is taken by a licensee, it should document how it ensures decision making is informed by the most appropriate seismic datasets including on the basis of:

- age of dataset,
- changes/developments in technology,
- suitability of dataset to the specific reservoir characterisation and subsurface modelling uncertainties,
- value of information, and
- other relevant factors.

Lifecycle phase	Age of dataset
In the exploration/appraisal phase	Acquire/shoot new seismic data every 8 to 10 years; the acquisition of other types of data should also be considered (Multi-azimuth, Gravity, Magnetics, and CSEM etc.)
In the exploration/appraisal/ production phase	Consider reprocessing seismic data every 4 to 5 years
Prior to commencing the production phase (if 4D applicable)	Acquire/shoot a baseline streamer or Ocean Bottom 4D seismic survey
In the producing phase (if 4D applicable)	Acquire/shoot a new 4D (time-lapse) monitor seismic survey every 3 to 4 years or as necessary
In the producing phase (general)	Consider acquisition of new seismic every 8 to 10 years. This should also be considered to cover near-field exploration opportunities. An example would be acquisition of Multi-azimuth, Broadband or Ocean Bottom data to increase resolution at the reservoir level or in other zones of interest

Table 1: Age of Dataset per phase of E&P lifecycle

C.3 In the development phase, the licensee is expected to carry out an assessment of whether the proposed field development warrants a 4D monitor survey, and if so, will prepare a 4D life of field strategy.

C.4 It is expected that a 4D strategy will be presented as a component of Field Development Plan (FDP) submission, therefore 4D feasibility studies as part of the assessment should be commenced as early as possible (i.e. during the 'appraise' phase) to ensure any preferred 4D concept is developed in conjunction with, and not compromised by, the selected field development concept.

C.5 A 4D strategy should include a clear business case, including a cost/benefit analysis of the technological options and strategies considered.

C.6 If the assessment concludes that a 4D strategy is not appropriate, this should be documented in the FDP, with reasons.

C.7 Further, where a licensee decides that a 4D survey would not be justified, it is nonetheless expected that the licensee will evaluate:

- the acquisition of a new seismic survey every 8 to 10 years (subject to business case), in order to capture improvements in new acquisition techniques; and
- when acquiring any 3D dataset whether it might have future value as a 4D baseline survey, in particular, pre-production.

C.8 A summary of the matters set out in paragraphs 7 to 18 can be found in the checklist in Appendix 1.

4. Demonstrating delivery

4.1 The OGA currently engages with licensees and operators on a number of levels and in a number of ways, and information obtained from those engagements will help inform the OGA of the extent to which a licensee or operator may be delivering this Expectation. These include, for example:

Annual Stewardship Survey

4.1.1 The OGA's Annual UKCS Stewardship Survey collects a range of data from licensees and operators for each production licence in the UKCS. The OGA may request additional information or reports. The OGA generally uses its powers under section 34 of the Energy Act 2016 to obtain such survey data and additional information.

Performance Benchmarking

4.1.2 The OGA may produce benchmarking data on a variety of metrics derived from the Stewardship Survey data and other information provided to it. These data will generally be presented to industry in aggregated form and used in Tier Reviews with companies to improve performance.

Tier Reviews

4.1.3 The OGA will request an operator's participation in Tier Reviews in accordance with the OGA's Stewardship Review Guidance[2]. That guidance provides further detail on the Tier Review structure, prioritisation, planning, execution and follow-up. The OGA will set the agenda for the Tier Review to focus on issues it considers present the greatest stewardship impact, and based on data received in the Annual UKCS Stewardship Survey, benchmarking and delivery against this Expectation.

4.2 The OGA will also assess delivery of this Expectation by asking the key questions in Appendix 1 at the appropriate time.

4.3 If a licensee chooses to take a different approach to that set out in Table 1, the licensee shall, on request from the OGA, share how it ensures business decisions throughout the E&P lifecycle are informed by the most appropriate subsurface datasets so that decision making is as robust as reasonably possible.

5. References

1 The Maximising Economic Recovery Strategy for the UK

2 OGA Stewardship Review Guidance

Appendix 1 – Checklist for optimum use of subsurface data

Phase	Information reviewed by OGA	Key questions to verify optimum use of subsurface data
Licence application	1. Submitted Work Plan 2. Technical Data Quality Review (Appendix B)	• Do the licensees of a JV group possess a common dataset? If not, what are the reasons for this? • Which datasets have been used in developing the licence application? • Which datasets are planned for purchase, reprocessing or shooting by the licensee in the initial term? • Which third-party datasets are available? If newer/more advanced data is available and you choose not to use this data, provide justification for your decision.
Initial term of production licence	1. Approved Work Plan 2. Annual update to the Approved Work Plan 3. Technical Data Quality Review (UKCS Stewardship Survey)	• Do the licensees of a JV group possess a common dataset? If not, what are the reasons for this? • Which new third-party datasets have become available? If you choose not to use this data what are the reasons for your decision? • Which datasets have been purchased or shot by the licensee in the last year? • Which datasets are planned for purchase or shooting by the licensee in the remainder of the production licence term? • Has a refresh of the seismic dataset through reprocessing been undertaken or considered by the licensee in the past year? If not, what are the reasons for this? • If a licensee chooses not to follow the OGA Guidelines on subsurface data age what are the reasons for this?
Second/ third term of production licence	1. Approved Work Plan 2. Annual update to the Approved Work Plan 3. Technical Data Quality Review (UKCS Stewardship Survey)	• Do the licensees of a JV group possess a common dataset? If not, what are the reasons for this? • Which new third-party datasets have become available or been proposed either by JV partners or through commercial multi-client geophysical companies? If you choose not to use this data what are the reasons for your decision? • Which datasets have been purchased or shot by the licensee in the last year? • Which datasets are planned for purchase or shooting by the licensee in the remainder of the production licence term? • Has a refresh of the seismic dataset through reprocessing been undertaken or considered by the licensee in the past year? If not, what are the reasons for this? • If a licensee chooses not to follow the OGA direction on subsurface data age what are the reasons for this?
Continuously		• Consider the impact of the optimum subsurface dataset on your licence on MER UK. • Strive for a continuous improvement of the quality of the subsurface dataset and consider if other/new technologies can provide a better understanding of the Earth Model.

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