Importance of the Iolar 52/4-A well from a technical viewpoint

The drilling of the 'Iolar' exploration well 52/4-A by CNOOC (and partners ExxonMobil 50%) is important technically to the Department, the petroleum industry and the research/academic community as:

- It is located in a frontier unexplored part of the Irish offshore. The well is located in the southwest part of the Porcupine Basin in FEL 3/18, 232km SW of Co. Kerry in 2162m water depth. It is essentially a wildcat well, with nearest well control some 30km away to the SE.

- Drilling Iolar will increase our understanding of the subsurface geology in the area, specifically the stratigraphy, reservoir presence, thickness and quality and hydrocarbon type (oil, gas, condensate or indeed water filled). The well has three reservoir targets at [redacted]; Top Oxfordian [redacted] and [redacted] within the Cretaceous section. The well will provide information on prospect seal lithology and effectiveness and trap potential.

- There are undrilled analogues in the Porcupine Basin if the Iolar well results in a discovery. The Porcupine Basin is a conjugate margin to the offshore Eastern Canadian basins where drilling has resulted in several discoveries.

- Information gained from drilling Iolar will underpin our geological understanding of the basin subsurface. The findings from the drilling of the Iolar well will help de-risk the Irish Atlantic Margin Middle Jurassic play. The data provided from the Iolar well will act as a key control point in assessing the prospectivity in an underexplored basin and will enable assessment of the potential fairways and petroleum systems within the Porcupine Basin.

- The Iolar well is to acquire a Vertical Seismic Profile (VSP). The well is to be drilled on new modern processed 3D seismic data, acquired in 2014 and the velocity information from the VSP will provide a valuable integrated stratigraphic/seismic control reference point that can be extrapolated beyond the well location on legacy seismic surveys in order to aid regional seismic interpretation. The velocity data will also benefit depth conversion accuracy in the region.

- The Iolar well is to penetrate a substantial section of rock below the seabed (total depth is approximately 6174m). The Iolar well application includes a good logging programme with a substantial suite of well logs to be acquired during drilling. Side wall cores, cuttings and samples are included in the drilling programme that will provide ground-truthing geological data for analysis. These data will assist in palaeofacies, burial history and provenance studies and in assessing reservoir properties (e.g. porosity, permeability). The range of data acquired from the drilling of well 52/4-A will be useful to a range of disciplines – geologists, geophysicists, petrophysicists, engineers etc.

- Data from the Iolar well will be extremely valuable and provide insights to the petroleum research community at a national and international level (PIP, iCRAG, NAPSA). The data will be made available in our PAD Dataroom to researchers, industry and contractors (subject to

terms and conditions), when the confidentially period has passed i.e. 4 years after the well is drilled. Technical data acquired from the drilling of the Iolar prospect has longevity.

- To recollect, few wells have been drilled in the Irish offshore, particularly in recent years (6 explorations wells drilled in the entire offshore Ireland in the last 10 years; only 2 wells drilled in the Porcupine Basin in the past 17 years). It is only by drilling that hydrocarbons can be discovered.

The Department wants effective exploration in our offshore basins. Specialists in the PAD Technical team have reviewed the Iolar well in terms of its location, logging programme, geological and geophysical prognoses, total depth to be penetrated etc and are satisfied that the Iolar well is optimally placed on the Iolar prospect and designed to maximise data collection.

As with any well drilled in the Irish offshore, the Department will receive daily drilling progress reports and all data. Even if the Iolar well results in a dry hole devoid of hydrocarbons, the data obtained and knowledge gained from drilling this well is invaluable to the State. The data will augment our petroleum National Archive database.

There are of course non-technical reasons to recommend the drilling of the Iolar well, in terms of Ireland's energy security, potential significant financial gain and import substitution but this memo focusses on the technical benefits of having the Iolar well drilled.

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