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Equinor Uk Ltd – Rosebank Field Development – Environmental Impact Assessment Scoping Report

Overall, this scoping report reflects the majority of topics that Marine Scotland Science (MSS) would expect to be assessed as part of an Environmental Impact Assessment (EIA) and resultant Environmental Statement (ES) for a development of this nature. This is a high level document outlining the proposed project and EIA approach and therefore a detailed assessment of environmental impacts associated with the project is not provided in this response. Additional concerns or recommendations may be made by MSS in response to subsequent stages of the development. This response is split into two sections. Section 1, outlines MSS's main observations / areas of concern from the information provided and Section 2 which contains general observations, guidance and suggested information sources for the EIA.

Project summary

The Rosebank Field development project is located west of Shetland. The proposed Floating Production Offload and Storage (FPSO) vessel is located in oil and gas quadrant / block 213/27. The project comprises:

- A two phase development with this ES considering Phase 1 only;
- The redeployment of an existing FPSO;
- The drilling and completion of up to seven new wells from three subsea drilling templates (Phase 1) (four production wells and three water injection wells). An additional five wells are proposed as part of Phase 2;
- The installation of a new gas export pipeline which will tie into the West of Shetland Pipeline System (WOSPS) adjacent to the Clair development (84 km distant) or the proposed Cambo development (34 km distant). The chosen option is yet to be decided upon;
- The production of hydrocarbons (oil and gas) with an anticipated field life of 25 years;
- The reinjection of produced water.

Section 1: Key observations and areas of concern

Gas export route transiting through the Faroe – Shetland Sponge Belt Nature Conservation Marine Protected area (NCMPA):

Impacts on designated conservation areas and habitats of conservation concern will be assessed by the Joint Nature Conservation Committee (JNCC) who are statutory consultees for such a development. Avoiding a gas export route which transects the above designated conservation area would be the preferred MSS option, as this is the best way of ensuring no impacts on protected areas. In the event that no alternatives to this are identified, MSS advise robust justification is provided in the ES which considers all alternative options. MSS advise a calculation of the size of the impact area in relation to the protected area, and an assessment of the overlap between the activities and the known location of features within the MPA using this link (https://marine.gov.scot/information/deep-sea-sponge-aggregations). Potential impacts must be clearly stated and the significance of those impacts fully assessed.

It appears that some elements associated with the proposed gas export pipeline, such as the future tie in point at KP7 and the Pipeline End Manifold (PLEM) at KP84 may be located outwith any 500 m safety zone. Are the Gas Riser Base (GRB) and Umbilical Riser Base (URB) structures located within the 500 m safety zone of the

FPSO (or the swing circle)? MSS advise that such elements should be carefully designed, with input from fishing representative organisations such as the Scottish Fishermen's Federation (SFF) to ensure these do not pose a hazard to other sea users.

MSS welcome the operator is engaging with other operators in the West of Shetland on electrification options for this development and that the FPSO is designed to facilitate future electrification.

Development design and hydrocarbon export routes:

The proposal includes a number of satellite wells for water injection. Organising the wells in this manner inevitably requires more pipelines on the seabed. MSS would like to understand if extended reach drilling techniques have been considered to allow the satellite wells to be drilled from the existing drill centres, with a view to minimising the number of pipelines required, potential protective materials required and the number of safety zones. MSS advise that the location of any newly established safety zones are clearly shown in a figure. There is no mention of how the pipeline and fibre optic cable are to be installed or what protective materials may be required for the development. MSS advise that protective materials are minimised as far as possible and that impacts associated with all protective materials should be fully assessed taking account of the ability to decommission these in the future. MSS advise that accurate worst case assessments of protective material requirements are used.

Export of gas to the WOSPS was considered previously in the development of the Rosebank field (ES ref D/4218/201), but it is understood that WOSPS operates as a sour gas export route with high levels of CO_2. In the previous ES, sweet gas was to be exported to the SIRGE pipeline system. Is it now expected that the gas will be sour as a result of water injection and is this known in advance? What happens if it the gas fails to meet the WOSPS specification? Will the risk of a gas leak from the proposed gas export pipeline also be considered in the accidental events section?

The proposed export route is to tanker oil from the development, which is likely to carry an inherently higher risk of an accidental event, particularly given the environmental conditions experienced at this exposed location. In the event that offloading is disrupted by weather, will production be curtailed / shut in? Will this risk be accounted for in the accidental events section?

Does the technology used in the drilling of the wells represent the Best Available Technology (BAT)? Does the sediment type at the site lend itself to alternative technologies for the conductor sections that would reduce the amount of cuttings and discharge of cement to the seabed?

It is noted that cement discharges are not listed in the activities that may result in potential environmental impacts and MSS advise that any impacts from cement discharges are assessed.

Environmental baseline**:**

MSS welcome that new environmental survey data will be collected in support of the development and advise that any environmental sampling is representative of the likely impact area.

MSS advise that the physical aspects of the environment at this location are fully described and that the ES considers the different water masses present in the Faroe-Shetland channel and describes the water temperatures likely to be experienced at these depths.

Impacts on benthos, fish and shellfish spawning and nursery areas:

As the field is located in deeper waters, the scoping report correctly identifies the limited number of demersal spawning species in the area. MSS advise that the ES discusses the presence of elasmobranchs and deep water species in this area, in addition to commercial species. MSS acknowledge that information on deep water species is limited and advise reference to the Strategic Environmental Assessment OESEA3 and Appendix 1a.4 (https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-3-oesea3).

MSS advise reference to the following paper (José M. González-Irusta, Peter J. Wright; Spawning grounds of Atlantic cod (*Gadus morhua*) in the North Sea, ICES Journal of Marine Science, Volume 73, Issue 2, 1 February 2016, Pages 304–315, https://doi.org/10.1093/icesjms/fsv180) which provides an update to the cod spawning areas and describes parts of the proposed gas export route (to Clair) as an 'occasional' cod spawning area. Cod are a species known to aggregate over specific grounds to spawn and aggregate on a spawning arena where males hold small territories in a lek-like mating system. This aggregative behaviour

together with seasonal site fidelity makes cod, especially vulnerable to anthropogenic impacts. Potential impacts on cod spawning should be specifically addressed.

Commercial fisheries interactions:

Pipeline installation methods are not discussed in the scoping report and MSS advise that the ES considers the potential for upheaval buckling and free spans forming as a result of the mobility of sediments in this area. Likewise, if pipelines are to be trenched or protected with rock, the ES should consider what impact clay or rock berms may have on other sea users.

MSS have a general preference for fully trenched and buried pipelines and cables where technically feasible. The assessment of potential impacts on fisheries should acknowledge that fishing patterns may also change within the 25 year life of the development, particularly as species move into deeper, colder waters in response to climate changes predicted.

MSS advise that the ES takes account of foreign fishing activity in this area, particularly of long-liners which it is understood operate in these deeper waters. Landings and effort by non-UK vessels is not represented in the Scottish Government ICES data sets. MSS advise that fishing representative organisations such as the SFF should be consulted on the importance of the area to foreign fleets and to advise on appropriate notification channels to ensure such vessels are made aware of any potential hazards associated with the development.

The moorings associated with an FPSO in this depth of water are likely to be of significant length. It is not clear if moorings will be constructed from chain or fibre rope at this stage. MSS advise that fibre ropes may not be detected by sonar on-board fishing vessels and may therefore pose a particular hazard to fishing activity in the area. MSS advise that this aspect is discussed in the ES to ensure the FPSO moorings do not pose a hazard to other sea users. Further discussion with fishing representative bodies such as the SFF is advised on this aspect.

Cumulative impacts:

There is no mention of cumulative impacts in the scoping report and MSS advise that potential cumulative impacts are fully assessed.

Decommissioning:

Decommissioning should be fully considered in the ES. MSS advise that the ES should demonstrate the ability to remove infrastructure and any protective material should this be the policy in place at the time, or the preferred outcome of a comparative assessment process. MSS advise that the ES also considers the impact this project may have on decommissioning timescales and requirements of other developments connected or impacted by this development.

Section 2: General observations and guidance

The following points highlight general observations, guidance and suggested information sources, according to the various sections of the scoping report:

Project description:

- MSS advise that the chosen options for the various elements of the project are fully justified and it is demonstrated that these represent Best Available Technology (BAT) and Best Environmental Practice (BEP) and take account of decommissioning.
- Details of how other adjacent pipelines and cables are laid is advised in support of the chosen installation methods.
- MSS understand that production pipelines will be ‘piggable’ but would like to understand whether there are any specific constraints with the produced hydrocarbons that require specific management. Depending on the gas export route option, MSS also advise that consideration is given to the expected field life of the third party infrastructure that this development will tie into.

Environmental baseline:

- An upfront description of the surveys used in support of the development should be provided. This should include detail of the methods used and justification for the location of sampling stations.
- A local scale bathymetry map for the development area is advised, highlighting any significant seabed features.

- The physical characteristics of the environment at the location should be fully described and include, for example, information on currents, wind speed, wave height / power, temperature and salinity. The MS MAPS National Marine Plan interactive (NMPi): https://marinescotland.atkinsgeospatial.com/nmpi/ is a useful source of information.
- MSS has recently added new spatial layers to the Marine Scotland MAPS National Marine Plan interactive (NMPi) showing predicted seabed habitats (https://marine.gov.scot/maps/68) and sediment types (http://marine.gov.scot/maps/745) which are advised, to provide additional regional context. These spatial layers may be viewed on the Marine Scotland MAPS National Marine Plan interactive (NMPi) web site : https://marinescotland.atkinsgeospatial.com/nmpi/.
- MSS advise that good quality, high resolution images of the local sediment / benthic community, are included in the ES. These should ideally be labelled with a description of the features and fauna observed, provide some scale and be linked to a location on the map.
- A summary of any particle size analysis and contaminant analysis of sediments should be provided.

Biological environment:

Plankton:

MSS advise that ES includes baseline data on plankton and considers any potential impacts on plankton. Useful information is available in the Strategic Environmental Assessment (OESEA3) (https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-3-oesea3) and Appendix 1a.1.

Benthic ecology:

- MSS advise that a biotope classification is assigned for the area in accordance with the EUNIS / JNCC indices.
- Where species of conservation concern or species indicative of habitats of conservation concern are identified, it is advised that the abundance of animals is discussed in accordance with the SACFOR abundance scale (https://mhc.jncc.gov.uk/media/1009/sacfor.pdf).
- MSS advise that *Lophelia pertusa* should now be regarded as *Desmophyllum pertusum.*
- The Marine Scotland MAPS National Marine Plan interactive (NMPi) now contains useful layers showing the known locations of species and habitats of conservation importance. MSS advise this is represented visually. More details may be obtained from the 'healthy and biologically diverse' sections at the following web address: http://marine.gov.scot/themes/healthy-and-biologically-diverse and on NMPi here: https://marinescotland.atkinsgeospatial.com/nmpi/.

Fish and shellfish ecology:

- A basic assessment of the spawning habits and preferred habitats of the main species identified, as compared to the conditions experienced locally, may highlight additional mitigation opportunities.
- Reference to the following report is advised, which provides a modelled spatial representation of the probability of presence of 0 age group fish (fish in the first year of their life) and the probability of aggregations of 0 age group fish. It is recommended these data are presented visually in conjunction with the Coull *et al* (1998) and Ellis *et al* (2012) nursery maps, as there are certain limitations with the data (please see here for full report - (https://data.marine.gov.scot/dataset/updating-fisheries-sensitivity-maps-british-waters) (DOI: 10.7489/1555-1). The report should be cited as; Aires, C., González-Irusta, J.M., Watret, R (2014) Scottish Marine and Freshwater Science Report, Vol 5 No 10, Updating Fisheries Sensitivity Maps in British Waters. Further details are available here: (http://marine.gov.scot/node/12828).
- Scottish Natural Heritage (now NatureScot), The Joint Nature Conservation Committee and Marine Scotland have developed a priority list of marine habitats and species in Scotland's seas, known as Priority Marine Features (PMF's), which should referred to in the ES. This list will help deliver Marine Scotland's vision for marine nature conservation outlined in the Marine Nature Conservation Strategy (https://www.webarchive.org.uk/wayback/archive/20160107013417mp_/http://www.gov.scot/Resource/Doc/295194/0115590.pdf). A list of PMF's was adopted on 24th July 2014 and contains habitats and species considered to be of conservation importance in Scotland's seas. A list of all PMF's in Scotland's seas and further information may be obtained here: https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/priority-marine-features-scotlands-seas

Commercial fisheries:

- New aggregated VMS fishing effort data sets for 2010 - 2020 are now available on the National Marine Plan Maps interactive web site (NMPi). The data are split into three groups of fishing method: bottom trawls, dredges and crustaceans caught by bottom trawl (i.e. *Nephrops*). Further information may be obtained here http://marine.gov.scot/node/12832. Map layers showing average annual fishing effort (mW fishing hours) in the Greater North Sea Ecoregion during 2015–2018 are also available via EMODNET. Data are split by gear type: beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines and static gears. Further information is available here: https://www.emodnet-humanactivities.eu/view-data.php.
- MSS also advise visual representation of the recently added nine new spatial layers to the National Marine Plan interactive (NMPi) showing changes over the last five years of published statistics for:

  1. tonnage for demersal, pelagic and shellfish species;
  2. value (£) for demersal, pelagic and shellfish species;
  3. effort (days) (by UK vessels >10m length) for demersal active (bottom trawls, dredges etc.); pelagic active (pelagic trawls, purse seines etc.); and passive (pots/creels, gillnets etc.).
- Tabulated fisheries statistics are advised in addition to any graphics provided.
- The following paper highlights a number of fisheries incidents with oil and gas infrastructure in this area for which claims were submitted to the Fishing Compensation Fund "Rouse, S., Hayes, P., and Wilding, T. A. Commercial fisheries losses arising from interactions with offshore pipelines and other oil and gas infrastructure and activities. – ICES Journal of Marine Science, doi:10.1093/icesjms/fsy116". It is advised that finer scale information regarding specific losses in the location of the development are available from the Environment Manager at Oil and Gas UK and it may be useful to take these into account.
- MSS has recently added new spatial layers to the Marine Scotland MAPS National Marine Plan interactive (NMPi) showing the intensity of mobile fishing associated with oil and gas pipelines and cables in the UK for 2007 - 2015. Further information and shape files containing the data may be found here: https://data.marine.gov.scot/dataset/uk-fishing-intensity-associated-oil-and-gas-pipelines-2007-2015-0
- A minor error is noted in section 3.5 of the scoping report where the proportion of pelagic fish landed in ICES rectangle 50E7 in 2020 is described as 53% of the landed weight and 52% of the value. It is advised these figures are the wrong way round and this should be 53% of the value and 52% of the landed weight.

Other sea users:

- The EMODNET Human Activities data portal now contains useful up to date shipping information based on the Automatic Identification System (AIS). Further information is available here: https://www.emodnet-humanactivities.eu/view-data.php.
- MSS advise that the location of existing oil and gas infrastructure and previously drilled wells in the area is shown. The Oil and Gas Authority quadrant maps may be useful: (https://data-ogauthority.opendata.arcgis.com/pages/pdf-maps).
- MSS advise that the Sectoral Marine Plan for Offshore Wind Energy 2020 areas (http://marine.gov.scot/information/sectoral-marine-plan-offshore-wind-energy-plan-options), the Sectoral Marine Plan for Offshore Wind Innovation and Targeted Oil and Gas Decarbonisation (INTOG) areas (https://marine.gov.scot/information/sectoral-marine-plan-offshore-wind-innovation-and-targeted-oil-and-gas-decarbonisation) and the ScotWind option agreement offer areas as of February 2022 (http://marine.gov.scot/node/15039) are taken into account.
- Where there is potential for shoreline oiling on the Scottish coastline as a result of an accidental event scenario, MSS advise that impacts on aquaculture and Shellfish Water Protected Areas are considered. The following information sources are advised:

  - The National Marine Plan interactive (https://marinescotland.atkinsgeospatial.com/nmpi/);
  - Shellfish Water Protected Areas (https://www.gov.scot/policies/water/protected-waters/);
  - Scotland's Aquaculture website (http://aquaculture.scotland.gov.uk/map/map.aspx);
  - The Scottish Shellfish Farm Production survey 2020 (https://www.gov.scot/publications/scottish-shellfish-farm-production-survey-2020/) (These statistics are usually published in May each year);
  - The Scottish Finfish Farm Production survey 2020 (https://www.gov.scot/publications/scottish-fish-farm-production-survey-2020/) (These statistics are usually published in September each year).

Potential environmental impacts:

- MSS advise that the ES includes a detailed assessment of how the proposal is aligned with the policies and objectives of the Scotland's National Marine Plan (https://www.gov.scot/publications/scotlands-national-marine-plan/?msclkid=88c6a548a69d11ec8bd2d29e22d47d07). The assessment should take account of the applicable general policies as outlined in Chapter 4 of the plan and the sector specific policies and objectives as outlined in Chapter 9.
- MSS welcome that modelling work will be conducted to demonstrate the impact areas associated with drilling the wells. MSS would like to highlight that impact areas associated with disturbance of sediments during pipeline installation should also be considered and that modelling work may be useful in demonstrating this.
- When discussing potential impacts on species or habitats of conservation concern, MSS advise that the Feature Activity Sensitivity Tool – FEAST (http://www.marine.scotland.gov.uk/feast/) and MARLIN sensitivity reviews (https://www.marlin.ac.uk/sensitivity/sensitivity_rationale) are referred to.

Any further correspondence relating to this development should be directed to MS.PON15@gov.scot

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D/4218/2018 – Chevron North Sea Limited - Rosebank Field Development – Environmental Statement

Application summary

This Environmental Statement (ES) presents the results of the Environmental Impact Assessment (EIA) conducted to evaluate the environmental impacts of the proposed Rosebank Field Development located in quadrants 213 and 205 (Rosebank field) and 206, 206, 207, 6 and 7 (Rosebank pipeline route), which comprises:

- The installation of an Floating Production Storage and Offload (FPSO) vessel;
- The drilling of up to 17 sub-sea wells from two drill centres (North and South) using a semi-submersible drilling rig;
- The installation, of;
    - A surface laid (236 km long) 16" carbon steel gas export pipeline, tying into the Shetland Island Regional Gas Export System (SIRGE) pipeline;
    - Five manifold structures, three subsea distribution units, a Sub-Sea Isolation Valve (SSIV) riser base manifold module, a Pipeline End Manifold (PLEM) and a Pipeline End Termination Unit (PLET);
    - Associated in-field flexible flowlines, umbilicals, tie in spools and jumpers.
- The (worst case) use of protective materials (124,000 tonnes of rock and an unspecified number of concrete mattresses);
- The discharge of produced water (the base case, however, is for the re-injection of produced water).

Response summary

The ES for this development is considered to be of a good standard and appropriate for the nature of this development. The document is well thought out and uses a logical process to identify potential impacts and describes appropriate mitigation. The assessment addresses Marine Scotland's areas of interest well and the project is assessed against and aligned with Scotland's National Marine Plan.

Marine Scotland would advise that the ES is acceptable for a project of this nature but would advise that the following points are considered;

- The worst case number of concrete mattresses to be used should be detailed. It is highlighted that the use of concrete mattresses alone (without adequate rock cover), outwith safety zones, can pose a snagging risk to towed fishing gear;
- The items of infrastructure designed to be fishing friendly should be detailed and whether these are located within / outwith safety zones;
- The length of polyester ropes used to moor the FPSO should be detailed. It is highlighted that polyester rope may not be detected by sonar on fishing vessels, rendering them more prone to snagging. Will these be marked on the Fishsafe system? It is advised this aspect is considered with input from fishing representative bodies such as the Scottish Fisherman's Federation (SFF) and any additional suggested mitigation incorporated;
- Consideration of a 500 m safety zone at the SIRGE tie in point as additional mitigation for the additional proposed seabed infrastructure in this area of high demersal fishing intensity;

- It is understood that the worst case accidental event scenario has been modelled for the purposes of this ES, however, given the length of pipeline involved in this project, Marine Scotland would like to have seen consideration of an accidental release from the gas pipeline in the accidental events section;
- Given the high energy environment in this location, it would appear sensible to conduct a pipeline inspection after the first winter, which would then inform the required inspection frequency;
- The document states that removal of the 16" gas export pipeline is 'theoretically' possible. Is this considered satisfactory by the Department?
- Marine Scotland welcome that Chevron North Sea Ltd are committed to reducing volumes of rock required as much as possible, however, it is advised that the likely volumes of rock that may be required over the lifetime of the project with regards to possible free span rectification are detailed.

It is noted that a detailed pipeline route survey is to be undertaken prior to installation that will better inform the requirement for protective materials. Marine Scotland would advise that an addendum to the ES is provided in the event that this survey work differs significantly from the information presented in the ES and that this should be highlighted to the operator.

Overall, the mitigation proposed appears proportionate and appropriate to minimise potential impacts of the project.

Section comments

Option selection and project description

It is highlighted that an ES (D/4160/2013) for the development of the Rosebank project was submitted for review by Marine Scotland in 2013 and that this development was similar in nature to the project now proposed. Marine Scotland raised no significant concerns with the previous ES.

The ES acknowledges that this project includes a long (236 km) pipeline, routed through a Nature Conservation Marine Protected Areas (NCMPA's) and a proposed Special Protected Area (SPA) but fully describes alternative options considered and systematically rules these out. A useful figure (Figure 2.1.) shows the decision making process and alternatives considered. Marine Scotland consider the option of an FPSO and the proposed gas export route the most appropriate option. Marine Scotland welcome that the gas export pipeline has been re-routed to avoid the Foula SPA and potential areas of reef classified in accordance with Annex 1 of the Habitats Directive.

Marine Scotland welcomes the target of 98% for the re-injection of produced water. The discharge of produced water from the new FPSO is fully described and Marine Scotland welcomes that any such discharges will be maintained within regulatory limits (30mg/l).

The full assessment of the chemicals to be used in the well completion, future drilling and any pipeline commissioning is, correctly, deferred until the production of the relevant permit submissions. However, Chapter 8 gives a comprehensive description of the expected discharges to sea from the Rosebank development.

The non-technical summary is well written for the non-technical reader and is logically presented.

Environmental Description

The environmental section is of a good standard and is supported by up-to-date (2014), good quality site survey information and use of regional site surveys. A summary is provided of the survey methods used and design of the surveys, which is welcomed, with the location of environmental sampling stations clearly shown on a map. Good use has been made of images showing bathymetry and seabed features.

Significant parts of the physical environment are, as would be expected, described on the basis of generic data. Marine Scotland are satisfied that the plankton, benthos and fish spawning / nursery information sections are adequately constructed with good use of photographs and figures. The herring spawning assessment is a welcome addition in understanding the potential for interaction with this species during pipe laying activities.

The commercial fisheries section is well constructed and makes good use of figures. It is not clear whether the SCOTMAP project has been incorporated into the assessment? http://marine.gov.scot/information/scotmap-inshore-fisheries-mapping-project-scotland. This is advised if not already considered as part of the Xodus Group report. Marine Scotland would like to have seen representation of the following report, which assesses Vessel Monitoring Systems (VMS) data for all UK-registered commercial fishing vessels (≥15m length) for the period 2009 – 2013: (http://marine.gov.scot/node/12882).

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Other sea users and oil and gas infrastructure are identified and information in these sections is well presented. Could a source and date for the well data (as shown in Figure 4.45) please be provided. It is highlighted that whilst the inset figure captures the location of the majority of wells in the area, additional wells are located close to the pipeline route just to the south of the inset figure which would benefit from being highlighted such as the Nexen Petroleum 'Crastor' exploration well shown as drilled under DRA-469?

Conservation areas both offshore and onshore appear to be correctly identified with a useful description provided of the conservation interest in each area.

Environmental Impact Assessment Process

Marine Scotland agree with the list of potential impacts and pathways identified in this ES and the assessment process is defined, logical and well presented. Marine Scotland welcome the level of consultation that has been held regarding this project and that a number of ENVID workshops have been conducted to take account of the changing environmental impacts as the project has developed. Section 6.3. summarises issues raised by stakeholders which is very useful and details how any concerns have been addressed.

The physical presence / seabed disturbance, discharges to sea, atmospheric emissions sections are considered to be appropriately constructed.

Marine Scotland welcome that the timing of the pipe laying activities is planned to avoid the herring spawning season in August and September and see this as important mitigation for the project. It is advised that further detail regarding the scheduling of pipe laying activities is provided in the relevant permit.

It is understood cement may be discharged at the seabed as a result of cementing casings in place and it is advised that the potential impacts of this on commercial fishing and future decommission operations is discussed at the relevant permitting stage.

Marine Scotland welcome that an approved Offshore Pollution Emergency Plan (OPEP) will be in place prior to development commencing and that all vessels will a have a Ship Oil Pollution Emergency Plan (SOPEP) onboard.

The potential cumulative and transboundary impacts are identified in each section which is deemed adequate for the purposes of this ES.

General comments

Section 3.5.8.2. (Subsea and FPSO installation phases) - Could the operator please clarify what is meant by "installing and retrieving polyester line FPSO test pieces"?

Section 3.8.5. (Rock placement and mattressing requirement for gas pipeline) - Figure 3.2.4. shows the pipeline routed through reef areas and rock dump within the same area? Could this be explained further as Section 4.5.2.2. states that the route had been amended to avoid two areas with medium to high potential as Annex 1 reef areas?

Section 4.2.7.1. (Faroe-Shetland Channel) – The section refers to Station RBK-EBC 310 to 46% - which it is assumed should read 31% to 46%?

Section 4.3.2.1.5. (Macrofauna) – *Bathyarca phillipiana* should be referred to as *Bathyarca philippiana. Myriochele oculata* should be referred to as *Galothowenia oculata*.

Section 4.3.3.1.1. (Species, migrations, spawning and nursery grounds) – The section states that the area around Rosebank is regarded as a high intensity spawning ground for blue whiting in April and May, however, this is not described by the cited literature? The section also refers to Figure 4.24 which it is assumed should state section 4.23?

Section 4.3.3.1.3. (Elasmobranchs – sharks, skates and rays) – *Prinonace glauca* should be shown as *Prionace galuca.*

Figure 4.23 - A discreet area considered to be a plaice spawning area is described by Coull *et al,* 1998 to the southwest of Shetland and would benefit from being recognised. Plaice spawning occurs from December to March.

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Section 4.3.3.2.1. Anglerfish are not described as using the area as high intensity spawning grounds by the cited literature? Table 4.4. – The peak spawning period for Norway pout in shelf waters is detailed as February to March in the cited literature.

Section 4.3.5.2.2. (Continental Shelf South and West of Shetland) – Updated seal density maps are available to to view on The Marine Scotland National Marine Plan interactive (NMPi) pages (https://marinescotland.atkinsgeospatial.com/nmpi/) and further information is available here (http://www.marine.gov.scot/node/12697).

Section 4.4.1.1.3 (Landings Value) – Should the mean landings value for pelagic fisheries not be £118 rather than £592?

Section 4.4.1.2.1. (Fishing effort) – This section (and section 4.4.1.2.3.) states 'amalgamated VMS data from the years 2013 – 2016/7' has been considered, however, it is assumed this should simply refer to landings data? The section states that seine nets represented the most used gear type in the project area, however, the most utilised gear type in 2017 appears to be trawls?

The average pelagic effort is described as 138 days, demersal as 485 days and shellfish as 351 days but it is not clear how these figures were calculated?

A reference is advised for the following statement "Shellfish fisheries target scallops, brown crab and lobster in the shallow waters around Shetland, with brown crab and Norway lobster also being targeted in water depths down to 100 m".

Figure 4.4.1. appears incorrect. Data for ICES rectangle 49E8 has been used twice.

Section 4.5.2.3. (Species) – The section discusses the Southern North Sea cSAC, however, it is questioned whether consideration of the Inner Hebrides and the Minches cSAC would be more appropriate.

Survey requests

Marine Scotland would like to request a copy of the following surveys / reports cited in this submission for our archive:

- Fugro (2014b) – ROSEBANK PROJECT – UKCS BLOCKS 205, 206 & 213. Survey Dates: 1 to 16 August 2014. FSLTD Report No: 140594V5.0. Fugro EMU Report No: J/2/25/2701 Volume 5 of 5: Environmental Baseline Survey;
- Fugro (2015a) – Deep-sea Sponge Assessment. Chevron Rosebank to HT2. Re-analysis of survey data collected 11th May – 6th July 2012, and 1st to 16th August 2014. Fugro EMU report no j/3/25/2942;
- Xodus Group (2012). Rosebank to Tee-2 Route. Fishing Intensity Study. Document number A-30611-S11-REPT-001-A01;
- Xodus Group (2013a). Drill cuttings dispersion modelling report. Document number ROS-PGEN-HES-RPT-XOD-0000-00012-00-E01;
- Xodus Group (2013b). Hydrotest and pre-commissioning discharges modelling report. Document number ROS-PGEN-HES-RPT-XOD-0000-00013-00-H01;
- Xodus Group (2015). Oil Spill Modelling Report. Document number ROS-PGEN-HES-RPT-XOD-0000-00053-00;
- Xodus Group (2018a). Aqueous Discharge Modelling Report. Document number ROS-PGEN-HES-RPT-XOD-0000-00066-00;
- Xodus Group (2018d). Aqueous Dispersion Modelling Report. Document number ROS-PGEN-HES-RPT-XOD-0000-00065-00.

Please do not hesitate to contact MS.PON15@gov.scot should anything in this response be unclear.
[PERSONAL INFO REDACTED REGULATION 11]

Marine Environmental Advisor / Offshore Energy Environmental Advice
Marine Scotland - Science

23/8/18

marinescotland

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The Scottish Government

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Aberdeen

MARINE SCOTLAND SCIENCE RESPONSE

SA-281
GS-191-0 (Version 3)
CHEVRON: Consent to Undertake a Geophysical Survey, Rosebank Route Survey

There are no spawning sensitivities during the proposed route survey (August – December) which will include geotechnical sampling and take place over 18 days. Therefore Marine Scotland has no objection to the survey going ahead.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by mail to 'MS.PON15@scotland.gsi.gov.uk'.

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemical Coordinator
21 August 2014

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MARINE SCOTLAND SCIENCE RESPONSE

SA-1584
GS-1371-0 (Version 1)
EQUINOR: Consent to Undertake Geophysical Survey, Rosebank, Sub-bottom Profilier CHIRP Survey

Marine Scotland Marine Laboratory has reviewed the information included in the above submission. There are no fish spawning sensitivities in the area of the Sub-bottom Profilier CHIRP Survey, which is scheduled to last for 29 days between April and August 2022 and therefore Marine Scotland has no objection to the survey going ahead.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to MS.PON15@gov.scot.

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemical Coordinator
31 March 2022

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MARINE SCOTLAND COMMENTS ON THE ROSEBANK FIELD DEVELOPMENT ENVIRONMENTAL STATEMENT

D/4160/2013 Rosebank Field Development Block 213/27 – Chevron North Sea Limited

This Environmental Statement (ES) describes the project to undertake the first phase of the development of the Rosebank Field in UKCS quadrants 213 and 205. The Rosebank Field was first discovered in 2004 and has an estimated resource of 95,000,000 tonnes of hydrocarbons. This is a large development consisting of an FPSO, the drilling of 7 new production wells and 7 water injection wells (in stage one) and the construction of a new gas export pipeline 236km long connecting to the SIRGE pipeline at Tee-2.

Option Selection and Project description

There were five alternative options for this development but these were not explained in great detail. Chevron seemed to have a preferred option in mind (FPSO) so the other 5 options were only discussed briefly. However, Marine Scotland consider the option of an FPSO the most appropriate for a number of reasons: there are several FPSO's in operation in the West of Shetland area therefore there is considerable knowledge and experience of FPSO's working in the challenging environmental conditions of the area; the depth of the water at Rosebank (1,100m); the large wax content of the oil and low temperatures makes it difficult to maintain oil flow therefore long pipelines are not a good option (thus ruling out a semi-submersible, tension leg platform and SPAR as these all require an oil pipeline), and the fact that the decommissioning of an FPSO is less complex than other options. The FPSO will have no drilling capability so Chevron have commissioned a new 6th generation Mobile offshore Drilling Unit (MODU) Bollsta Dolphin, specially designed to work in the deep waters of the Atlantic. The Bollsta Dolphin will have no requirement for anchors and will maintain position using thrusters. Good use of photographs of and diagrams has been made throughout these sections.

The project description describes how during the first stage of the Rosebank Field development 7 production wells and 7 water injection wells will be drilled, with a total of up to 24 over all stages of the field development. Drilling will take place from 4 drill centres. It is anticipated that 4 production and 2 water injection wells will be drilled and completed prior to the FPSO arriving at the site.

Gas will be exported from the FPSO via a new 236km, 16" pipeline connecting to the Shetland Islands Regional Gas Export (SIRGE) pipeline at Tee-2 off the south-east of Shetland. Six possible pipeline routes were identified. Four routes were discounted due to one passing through a highly productive fishing area, two because they did not have the option of allowing gas import later in field life and one due to the anticipated volumes of gas and H_2S production. From the remaining two options, one option was discounted due to environmental reasons as it went through Yell Sound Coast SAC and the availability of space was limited due to the amount of pipeline which are already in Yell Sound. The pipeline route chosen was also re-routed to avoid the Foula SPA. Marine Scotland consider the choice of routing the pipeline from the Rosebank development south of Foula and mainland Shetland to the SIRGE pipeline at Tee-2 the most appropriate.

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The pipeline will be surfaced laid (due to the hard nature of the seabed) and held in place by rock placement. However there is no mention of how much rock dump is anticipated to be used along the gas export pipeline. Table 3.9 gives a summary of the pre-lay and post-lay rock placement but only gives the length of pipeline over which rock will be placed. There is no actual value in tonnes of how much rock dump it is anticipated will be used in total?

The full assessment of the chemicals to be used in the well completion, future drilling and any pipeline commissioning is, correctly, deferred until the production of the relevant PON15 submissions. However, Chapter 8 gives a comprehensive description of the expected discharges to sea from the Rosebank development.

Environmental Description

The environmental section is of an acceptable standard and is supported by up-to-date, good quality site survey information. Good use has been made of images showing bathymetry, seabed features and the location of environmental sampling.

Significant parts of the physical environment are, as would be expected, described on the basis of generic data. The plankton, as expected is described in a generic manner. Data show that the macrofauna was abundant and co-dominated by annelids and crustaceans and that species diversity in waters shallower than 450m was higher than at deeper stations. The infauna was dominated by polychaetes and amphipods and biomass peaked between 300-400m. There is however quite a lot of repetition in the text which therefore makes it quite a long read, especially because this section was split in two (waters > 200 m depth and from Shetland coastal waters out to 200 m depth). Good use has been made of photographs of various species found at the Rosebank development site. However, there are a few minor issues within this section:

In Figure 4.10 there is a mix up with some of the pictures. The Figure (4.10b) which is labelled as showing the ophiuroid brittlestar on sediment is actually the sea spider *Colossendeis* (Figure 4.10c) and the sea spider in Figure 4.10c is actually the ophiuroid brittlestar!

In Figures 4.12 and 4.22 it is not clear to me how relative abundance was calculated. Has the area that was sampled been taken in to consideration or is it just the total number of individuals caught in each sample added up and converted in to a proportion?

Personally, I feel that the commercial fisheries information could have been presented more effectively. There is information about fishing effort (Figure 4.31) but there is no information on fisheries landings from the area? It would be quite easy to present the proportions of demersal, pelagic, shellfish landings (say as pie-charts) in each ICES statistical rectangle at the development site and also surrounding it and the ICES rectangles that the pipeline passes through. Even a table would be useful showing the total landings of pelagic, demersal and shellfish in each rectangle impacted by the development of a short time series?

In the text there is mention of the gas export pipeline passing over herring spawning grounds. It is not clear from the ES whether there were any specific surveys done to assess the seabed for herring spawning suitability along the length of the pipeline or was this information just taken from the Coull et al., 1998 report? As a pipeline survey was carried out, depending on the methods used, it may be possible to more accurately determine the area of herring spawning ground the pipeline route crosses?

Environmental Impact Assessment Process

An Environmental Issues Identification (ENVID) workshop was conducted for the project and I am content that the list of potential impacts appear to have been correctly identified. Marine Scotland would have no argument with the selection of potential issues and the Environmental Impact Assessment that was conducted. Marine Scotland was fully consulted at various stages of the EIA process and Marine Scotland's areas of interest are well dealt with. For each identified impact, the potential sources of that impact are accurately identified, as is the scale of the impact. The mitigation proposed is also acceptable.

I am content that the section on accidental events (oil and chemical spills) is correctly constructed and the selection of the specific spill/blow-out scenarios appears to be as realistic as feasible. The potential impacts on the sensitive receptors are also clearly identified.

Conclusion

All of the comments are considered by Marine Scotland to be very minor in nature and may be dealt with by an addendum to the existing Environmental Statement. None of the comments is of sufficient concern that we

would wish to delay the progress of the ES through the system so Marine Scotland is prepared to accept this Environmental Statement for the Chevron North Sea Limited, Rosebank Field Development.

As usual, the size of this response does not accurately reflect either the effort that went into its preparation or was required for its assessment.

[PERSONAL INFO REDACTED REGULATION 11]
Marine Environmental Advisor
11 July 2013

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Copy To: (And Fax No)		Date:	04 Nov 08

Fisheries Research Services PON 15 Response

PON15B variation for Rosebank North 213/27- RNL version 1

FRS has reviewed the changes to the above PON15B variation.

The variation to include the addition of five products to various drilling sections, an increase to the use and discharge of two products and a decrease to the discharge of one product in the completion section is acceptable.

All five new products added are PLONOR.

Therefore we can confirm that FRS has no objections to the variation to the Chemical Permit for this well.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemicals Administrator

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Copy To: (And Fax No)		Date:	22 Apr 09

Marine Scotland PON 15 Response

PON15B variation for Rosebank 213/27-3

Marine Scotland, Marine Laboratory has reviewed the changes to the Chemical Risk Assessment included in the above PON15B.

The variation to add Jet Lube 21 and to increase the use and discharge of Bestolife 3010 Ultra is acceptable.

The justification provided for Jet Lube 21 as it has a substitution warning is acceptable.

Therefore we can confirm that Marine Scotland has no objections to the variation to the Chemical Permit for this well.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemicals Administrator

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Copy To: (And Fax No)		Date:	31 Aug 09

Marine Scotland PON 15 Response

PON15B variation for Rosebank 213/27-4

Marine Scotland, Marine Laboratory has reviewed the changes to the Chemical Risk Assessment included in the above PON15B.

The variation to add an 8.5 inch reservoir sidetrack drilling section is acceptable.

Marine Scotland agrees with the generated RQs and the justification for Soltex as it has a Substitution warning is adequate.

Therefore we can confirm that Marine Scotland has no objections to the variation to the Chemical Permit for this well.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemicals Administrator

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Copy To: (And Fax No)		Date:	10 Sep 09

Marine Scotland PON 15 Response

PON15B variation for Rosebank 213/27-4

Marine Scotland, Marine Laboratory has reviewed the changes to the Chemical Risk Assessment included in the above PON15B.

The variation to add Hydrosure Bioscav Bags and to remove the duplicate entry for Barazan D in the 8.5 inch reservoir sidetrack is acceptable.

Marine Scotland agrees with the RQ for Hydrosure Bioscav Bags and adequate justification was provided for this product which has a Substitution warning label.

Therefore we can confirm that Marine Scotland has no objections to the variation to the Chemical Permit for this well.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

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Offshore Environmental and Chemicals Administrator

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MARINE SCOTLAND SCIENCE RESPONSE

SA-1603
GS-1393-0 (Version 1)
EQUINOR: Consent to Undertake Geophysical Survey, Rosebank, Shallow Drilling Operation Site Survey

Marine Scotland Marine Laboratory has reviewed the information included in the above submission. There are no fish spawning sensitivities in the area of the shallow drilling operation site survey which is scheduled to last for 7 days between June and November 2022 and therefore Marine Scotland has no objection to the survey going ahead.

Marine Scotland Marine laboratory has noted that the proposed survey area is adjacent to the Faroe – Shetland Sponge Belt Marine Protected Area (MPA).

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to MS.PON15@gov.scot.

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemical Coordinator
11 May 2022

FISHERIES RESEARCH SERVICES

Name:	Environment Management Team	From:	[PERSONAL INFO REDACTED REGULATION 11]
Address:	DTI Atholl House	Tel:	01224 295452
Country:		Your Ref:	W/2905/2005
Fax No:	By e-mail (EMT @dti.gsi.gov.uk)	Date:	5th January 2006
Copy To: (And Fax No)	[PERSONAL INFO REDACTED REGULATION 11]	No of Pages:	1

Environmental Statement Response

Rosebank and Lochnagar

This ES describes the drilling of up to three appraisal wells in the Faroe - Shetland channel (block 213/27) close to the UK - Faroes boundary. They will be drilled by an anchored semi-submersible drilling rig using WBM under discharge or OBM under containment. The wells will be tested by flaring, and a VSP programme will be conducted. The wells will likely be abandoned and permanently sealed but some may be suspended.

FRS agrees the conclusion of the ES that impacts will be transient in time and space and therefore has no objections to consent being granted.

Regards

[PERSONAL INFO REDACTED REGULATION 11]

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Fax No:	254019	BERR No:	W3655/2007
Copy To: (And Fax No)		Date:	8 Aug 07

Fisheries Research Services PON 15 Response

PON15B Variation for Rosebank 213/27-A2

FRS has reviewed the changes to the Chemical Risk Assessment included in the above PON15B variation.

We entered into discussion with the operator with regard to a missing substitution label clarification of any further dilutions prior to discharge for BDF-395.

These issues have been addressed and an UPDATE will be forwarded to DTI.

FRS agrees with all the generated RQs and adequate justification was provided for RQs>1, products with substitution warnings and other products of an environmental concern.

Therefore we can confirm that FRS has no objections to a Chemical Permit for this well.

The applicant should be made aware that the chemicals mentioned below may fall from certification before / during the course of the drilling operation and appropriate action should be taken to ensure they are either re-certified or replaced.

Sodium Bromide Brine Expires 29/10/07
Oxygon Expires 11/11/07

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Chemicals Administrator

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Copy To: (And Fax No)		Date:	25 May 09

Marine Scotland PON 15 Response

PON15B variation for Rosebank 213/27- Y

No changes pertinent to the environmental issues at stake are made in this update so marine Scotland remains at the position that we have no objection to the issue of a direction for this operation.

Marine Scotland, Marine Laboratory has reviewed the Chemical Risk Assessment included in the above PON15B update.

We entered into discussion with the operator with regard to a minor discrepancy within a justification.

The operator provided the information in an Update and submitted this to the DECC PORTAL.

Marine Scotland agrees with all the generated RQ's and adequate justification was provided for RQ's>1, products with substitution warnings and other products of an environmental concern.

An update to include the addition of Erifon HD603N to allow for compatibility test on a replacement product is acceptable.

Therefore we can confirm that Marine Scotland has no objections to a Chemical Permit for this well.

The assessment of this application was conducted [PERSONAL INFO REDACTED REGULATION 11] Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemicals Administrator

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MARINE SCOTLAND SCIENCE RESPONSE

SA-1603

EQUINOR Geophysical Survey Rosebank Shallow Drilling Operation

Marine Scotland, Marine Laboratory has reviewed the Chemical Risk Assessment included in the above Email.

Marine Scotland has checked the Cefas templates for the two products included in the email sent 6th May 2022 and Pure Bore and Flowzan Biopolymer are PLONOR and OCNS E. The Cefas certification for both products would be valid between 1st June 2022 and 30th September 2022 (GS-1393 and GS-1394).

Unfortunately Marine Scotland cannot make any further assessment as the attachment provided in the mail is blank. The EA Justification document provided for SA-1603 GS-1393 describes the use of the equipment, Portable Remotely Operated Drill (PROD) unit and that Pure Bore and Flowzan Biopolymer will be used as a liquid polymer in the drill water. However, there is no mention of what products (if any) make up the drill water and what the discharge would look like (surface or seabed / continuous or batch / etc).

Section 5.1 of the EA Justification document provided for SA-1603 GS-1393 states 'Risk assessments indicate that chemical discharges will not have a significant impact on the marine environment'. However, only Pure Bore and Flowzan Biopolymer are listed in the email and they are Non-CHARMable, PLO, E with no toxicity included on the Cefas templates.

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent to MS.PON15@gov.scot

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Senior Offshore Chemical Risk Assessor
13th May 2022

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Copy To: (And Fax No)		Date:	10 July 07

Fisheries Research Services PON 15 Response

PON15B for Rosebank 213/27-A2

Following discussions with the operator, FRS now has no objection to the issue of a direction for this West of Shetland well, noting that oiled cuttings will be skipped and shipped to shore for processing.. The application contains a reference to a proposed VSP operation and it should be noted that approval for this has been sought and FRS has commented on the application.

FRS has reviewed the Chemical Risk Assessment included in the above PON15B.

We entered into discussion with the operator with regard to incorrect chemical label codes, incorrect RQs, an incorrect CHARM algorithm and incomplete justifications.

These issues have been addressed and an UPDATE will be forwarded to DTI.

FRS agrees with all the generated RQs except for two which could not be emulated. However, the RQs were <1 therefore of low environmental impact. Adequate justification was provided for RQs>1, products with substitution warnings and other products of an environmental concern.

Therefore we can confirm that FRS has no objections to a Chemical Permit for this well.

The applicant should be made aware that the chemicals mentioned below may fall from certification before / during the course of the drilling operation and appropriate action should be taken to ensure they are either re-certified or replaced.

Barite - May expire 13/07/07
Deuterium Oxide - May expire 20/07/07
LITEFIL* D124 Extender - Expired 09/07/07

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

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Copy To: (And Fax No)		Date:	23 Oct 08

Fisheries Research Services PON 15 Response

PON15B for Rosebank North 213/27- RNL version 2

FRS has no objection to the issue of a direction for this exploration well in block 213/27, noting that when OBM is used the resultant cuttings will be returned to shore for processing.

This PON15B application is supported by an already accepted Environmental Statement.

FRS has reviewed the Chemical Risk Assessment included in the above PON15B.

We entered into discussion with the operator with regard to RQs>1, 100% discharge of pipe dopes, batch dilution factor parameters and incorrect chemical label codes.

The operator provided the information in an Update and submitted this to the BERR PORTAL.

FRS cannot emulate the batch dilution factor provided for the cementing chemicals using the parameters in table 6.1. However, the RQs for products with a BDF of 4.26E-04 were <1 therefore of low environmental impact.

FRS agrees with all the generated RQs and adequate justification was provided for RQs>1, products with substitution warnings and other products of an environmental concern.

Therefore we can confirm that FRS has no objections to a Chemical Permit for this well.

The applicant should be made aware that the chemicals mentioned below may fall from certification before / during the course of the drilling operation and appropriate action should be taken to ensure they are either re-certified or replaced.

PAC-R - Expired 19/10/08
SOLTEX - Expires 23/11/08
BARASIL-S - Expires 04/01/09
XP-07 PE - Expires 04/01/09
DRILTREAT - Expires 23/01/09

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EGMBE - Expires 11/12/08
ERIFON HD603N - Expires 20/12/08
JET-LUBE SEAL-GUARD ECF - Expires 09/01/09

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemicals Administrator

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Copy To: (And Fax No)		Date:	17 Apr 09

Marine Scotland PON 15 Response

PON15B for Rosebank 213/27-Y version 3

Marine Scotland has no objection to the issue of a direction for this exploration well in block 213/27, noting that only the use of water based muds is intended in the drilling programme.

This PON15B application is supported by an already accepted Environmental Statement.

Marine Scotland Marine Laboratory has reviewed the Chemical Risk Assessment included in the above PON15B.

We entered into discussion with the operator with regard to incorrect RQs, incorrect BDFs, an incorrect chemical label code and incomplete justifications.

The operator provided the information in an Update and submitted this to the DECC PORTAL.

Marine Scotland agrees with all the generated RQs and adequate justification was provided for RQs>1, products with substitution warnings and other products of an environmental concern.

An update to include the addition of Jet-Lube 21 pipe dope due to problems with the original pipe dopes is acceptable.

Therefore we can confirm that Marine Scotland has no objections to a Chemical Permit for this well.

The applicant should be made aware that the chemicals mentioned below may fall from certification before / during the course of the drilling operation and appropriate action should be taken to ensure they are either re-certified or replaced.

POTASSIUM CHLORIDE BRINE - Expires 13/11/09
PAC-LE - Expires 26/09/09
PAC-RE - Expires 26/09/09
Deuterium Oxide - Expires 14/04/09
PERFORMATROL - Expires 16/04/09
HALAD-300L NS - Expires 14/06/09

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Erifon EcoMac - Expires 05/10/09
Monoethylene Glycol - Expires 13/04/09
RIGGER-1 - Expires 02/09/09

The assessment of this application was conducted by [PERSONAL INFO REDACTED REGULATION 11]. Any correspondence should be sent by email to 'PON15@marlab.ac.uk'

Regards

[PERSONAL INFO REDACTED REGULATION 11]
Offshore Environmental and Chemicals Administrator

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BEIS
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MARINE SCOTLAND SCIENCE RESPONSE

ES/2022/001 - EQUINOR - Rosebank Field Development Project

MSS advise the application should meet the requirements and recommendations of the Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020 (https://www.legislation.gov.uk/uksi/2020/1497/introduction/made), The Petroleum Act 1998 (as amended) (https://www.legislation.gov.uk/ukpga/1998/17/contents) and associated guidance documents (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005109/The_Offshore_Oil_and_Gas_Exploration__Production__Unloading_and_Storage__Environmental_Impact_Assessment__Regulations_2020_-_A_Guide__July_2021.pdf) and (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/760560/Decom_Guidance_Notes_November_2018.pdf).

MSS also advise the application should consider how the proposed works comply with Scotland's National Marine Plan, which was published in March 2015, in accordance with the Marine (Scotland) Act 2010. The Plan provides a comprehensive overarching framework for all marine activity in our waters. It enables sustainable development and use of Scotland's marine area in a way which will protect and enhance the marine environment whilst promoting both existing and emerging industries. Further information regarding Scotland's National Marine Plan can be found here: https://www.gov.scot/publications/scotlands-national-marine-plan/.

Discharges and Emissions

MSS advise the site specific modelling should provide the best understanding of the potential fate and impact of discharges / emissions. Where an assessment is not based on site specific modelling, MSS recommend BEIS satisfy themselves that studies used to support the impact assessment are comparable to the operation being undertaken.

Where cement deposits are expected at the seabed, MSS advise that BEIS ensure such deposits will not pose a future hazard to other sea users or impact the ability to decommission adjacent infrastructure.

Fish Spawning

If the operation is within or up to 1 km away from:

- A spawning area of a vulnerable benthic spawning species (sandeel / herring (1) or;
- An occasional / recurrent cod spawning area (1)

and

- Sediments at the site are considered suitable for that species (Cod: coarse sand (2) herring: gravel, sandy gravel and gravely sand1. Sandeel: fines content of less than 10% (3).

(1) As defined by the following reports:

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- (1) Coull, K.A., Johnstone, R., and S.I. Rogers. 1998. Fisheries Sensitivity Maps in British Waters. Published and distributed by UKOOA Ltd (https://www.cefas.co.uk/media/o0fgfobd/sensi_maps.pdf);
- (1) Ellis, J.R., Milligan, S.P., Readdy, L.,Taylor, N. and Brown, M.J. 2012. Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas Lowestoft, 147: 56 pp. (https://www.cefas.co.uk/publications/techrep/TechRep147.pdf);
- (1) Aires, C., González-Irusta, J.M., Watret, R. (2014) Updating Fisheries Sensitivity Maps in British Waters. Scottish Marine and Freshwater Science Vol 5 No 10. Edinburgh: Scottish Government, 88pp. DOI: 10.7489/1555-1 (https://www.gov.scot/publications/scottish-marine-freshwater-science-volume-5-number-10-updating-fisheries/documents/);
- (1) Boyle, G., New, P ., 2018. ORJIP Impacts from Piling on Fish at Offshore Wind Sites: Collating Population Information, Gap Analysis and Appraisal of Mitigation Options Collision and Avoidance Study. Final report – June 2018. The Carbon Trust. United Kingdom. 247 pp (https://www.carbontrust.com/news-and-events/news/new-research-provides-clarity-on-fish-spawning-hotspots-near-offshore-wind).
- (2) As defined by José M. González-Irusta, Peter J. Wright, Spawning grounds of Atlantic cod (Gadus morhua) in the North Sea , ICES Journal of Marine Science, Volume 73, Issue 2, January/February 2016, Pages 304–315, https://doi.org/10.1093/icesjms/fsv180
- (3) NatureScot Commissioned Report 771: A review of the recovery potential and influencing factors of relevance to the management of habitats and species within Marine Protected Areas around Scotland (https://pdf.printfriendly.com/downloads/pdf_1656687066_e68ec2A4.pdf).

MSS recommend the timing of the operation is moved out-with the spawning period for that species or that BEIS satisfy themselves the operator has demonstrated that spawning stock level impacts are not likely, taking account of associated cumulative impacts.

If the operation is more than 1 km from a vulnerable benthic spawning species (sandeel / herring) spawning area or an occasional / recurrent cod spawning area, or the operator has demonstrated that the sediment type at the site is not suited to the spawning of the species of concern, MSS have no specific concerns.

Commercial Fishing:

MSS advise operators should demonstrate that the installation or removal of infrastructure will not significantly impact commercial fishing operations or pose a hazard to other sea users.

In order to demonstrate the nature and scale of fishing activity in the area, MSS advise reference to the following data sources:

- Finalised Scottish Government fisheries statistics for 2020 (October 2021). Operators are advised to refer to the combined Excel spreadsheets which include statistics for 2016 - 2020. (https://data.marine.gov.scot/dataset/2020-scottish-sea-fisheries-statistics-fishing-effort-and-quantity-and-value-landings-ices);
- Map layers on the National Marine Plan interactive (http://marine.gov.scot/node/12674) for the following:
  - 1. tonnage for demersal, pelagic and shellfish species;
  - 2. value (£) for demersal, pelagic and shellfish species;
  - 3. effort (days) (by UK vessels >10m length) for demersal active (bottom trawls, dredges etc.); pelagic active (pelagic trawls, purse seines etc.); and passive (pots/creels, gillnets etc.).
- Aggregated Vessel Monitoring System (VMS) fishing effort data sets for 2010 - 2020 (http://marine.gov.scot/node/12832);
- Map layers showing average annual fishing effort (mW fishing hours) in the Greater North Sea Ecoregion during 2015–2018 are also available via EMODNET (https://www.emodnet-humanactivities.eu/view-data.php).

Aquaculture and Shellfish Water Protected Areas

Where modelling demonstrates the possibility of oil reaching the Scottish coastline, if an accidental event were to occur, MSS advise that BEIS ensure impacts on aquaculture and Shellfish Water Protected Areas are considered. The following resources are advised:

- The National Marine Plan interactive (https://marinescotland.atkinsgeospatial.com/nmpi/):
- Shellfish Water Protected Areas (https://www.gov.scot/policies/water/protected-waters/);
- Scotland's Aquaculture website (http://aquaculture.scotland.gov.uk/map/map.aspx):
- The Scottish Shellfish Farm Production survey 2020 (https://www.gov.scot/publications/scottish-shellfish-farm-production-survey-2020/) (These statistics are usually published in May each year);

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• The Scottish Finfish Farm Production survey 2020 (https://www.gov.scot/publications/scottish-fish-farm-production-survey-2020/) (These statistics are usually published in September each year).

MSS do not provide advice on impacts from oil and gas activities to designated conservation sites, marine mammals, seabirds, accidental events, noise or greenhouse gas or methane emissions. MSS may provide further and/or bespoke advice relevant to Marine Scotland's interests in response to future applications associated with this development / field.

Any further correspondence relating to this response should be directed to MS.PON15@gov.scot

Marine Scotland Science
14 September 2022

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