ConocoPhillips Australia Sequoia 3D Marine Seismic Survey Environment Plan – titleholder response

This titleholder response has been prepared in accordance with NOPSEMA's Guidance Note *Responding to public comment on environment plans* (N-04750-GN1847, A662607, September 2020) using the template provided by NOPSEMA document N-04750-FM1846.

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1	***There would be unacceptable losses of giant crab and future catches resulting from the survey.*** Claims were made that seismic pulses will kill giant crab, including larvae, resulting in future economic losses to the giant crab commercial fishery. Some stakeholders requested that the south west corner of the operational area be excised from the survey, which would remove the impact of the seismic activity from a significant part of the Tasmanian giant crab fishery.	ConocoPhillips Australia undertook an assessment of the publicly available information, commissioned a report by South East Trawl Fishery Association (SETFIA), and undertook consultation with relevant government departments and other relevant persons with commercial fishing interests. The assessment undertaken found that the acquisition area overlaps 1.1% of the Tasmanian giant crab commercial fishery. Over the last 10 years, an average annual catch of 7.4 tonnes has been caught from the survey area, representing 39% of the fishery's total annual catch. Based on available literature, it was concluded that the key commercial catch areas mostly targeted by the giant crab fishery was at water depths of 140-300m, which is in the southwestern corner the acquisition area (Figure 1.1) and over the southern-most lead (Figure 2.1). Jasco Applied Sciences was commissioned to undertake acoustic modelling at these water depths to determine the distance to 'no-effect' for benthic crustaceans (Appendix 15). This modelling work concluded the distance to 'no-effect' being a 425 m buffer along the 130 m contour and a 455 m buffer along the 300 m contour. In response to consultation, ConocoPhillips Australia has redesigned the Sequoia 3D marine seismic survey (MSS) such that the 140-300 m water depths have been excised. The excise area combined with the abovementioned buffers has resulted

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		in a loss of 4.9% of the original acquisition area. The excise area and the buffers still allow for acquisition in the remaining southwest section of the acquisition area where giant crab fishing does not occur but does compromise data capture objectives on the southern-most lead. This is discussed in the 'Evolution of the Survey Design' in Section 2.6 of the EP. The control measures adopted in response to this claim include: • Excising the giant crab fishery area (140-300 m plus buffers) from the acquisition area. • The adoption of ConocoPhillips' Compressive Seismic Imaging (CSI) technology (Section 2.4.1). • Using a maximum acoustic array of 3,480 cui.
2	***The ecology of the southern rock lobster and giant crab particularly breeding and larval release was insufficiently described.*** Claims were made that an insufficient description of the ecology of these species means that the timing of the survey has not been optimised to avoid impacts.	ConocoPhillips Australia examined these claims and included additional information on the ecology of southern rock lobster and giant crab to the EP (Section 5.5.1). Key life phases for these species is as follows: • Southern rock lobster (*Jasus edwardsii*) – mate from April to July, fertilized eggs carried for 4-6 months before being released between September and November. The larvae (phyllosoma) then live in the plankton and undergo 11 developmental stages over 12-24 months while being carried by ocean currents, often far beyond the continental shelf. The phyllosoma then moult and metamorphose into a puerulus larvae, still living in the water column and then settle on reef in shallower waters, moutling again into pigmented juvenile lobsters. In adults, moulting generally occurs in September and October. Southern rock lobster reach commercial fishing size after 3 to 10 years. • Giant crab (*Pseudocarcinus gigas*)– this species is endemic to the waters of southern Australia, living along the upper slope of the continental shelf. Giant

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		crab beed in June and July, with the females carrying eggs for about four months. After the eggs hatch between October to November, the larval duration is about 50 days. This species can live up to 30 years and is slow growing (reaching 12-14 cm at maturity, but up to 20 cm and 10 kg in weight). Juveniles moult their carapace every 3-4 years and adult females about once every nine years. Mating is only possible when the new shell is still soft. In deciding the optimal time to undertake the Sequoia 3DMSS, ConocoPhillips Australia has balanced the ecology of these species with those of key threatened cetaceans known to occur in the region, particularly for the migration and foraging seasons of the pygmy blue whale (PBW) and southern right whale (SRW). The key life stages for the threatened whales and key fisheries target species are illustrated in Figure 2.4 of the EP. This figure clearly demonstrates that there is no one period of time through the year where critical life stages for species of concern to stakeholders can be entirely avoided by the survey, though peak migration times for whales are avoided. ConocoPhillips Australia has aimed to undertake the survey that best protects threatened whale species and avoids overlap with peak periods of commercial fishing for the giant crab and southern rock lobster.
3	***Impacts to southern rock lobster and giant crab larvae have been understated.*** Claims have been made that the survey will result in death of larvae and subsequent losses to commercial fishing stocks in the survey area.	ConocoPhillips Australia assessed the potential for the Sequoia 3DMSS to have an impact on adult southern rock lobster and giant crab larvae. The EP also includes results from the only known study on the impacts of seismic surveys on early-stage embryonic (entirely soft tissue) southern rock lobsters. This assessment was supported by a comprehensive review of scientific literature and informed with the outputs of underwater acoustic modelling (Appendix 15). Acoustic modelling applied the seafloor PK-PK threshold of 202 dB as the level of particle motion from sound that could cause an impact to crustaceans. Particle

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		motion is considered to be the most appropriate metric to use as opposed to sound pressure level as it is this element of sound that crustaceans are most sensitive to. The distance from the source to this level varied between 324 m and 414 m depending on water depth. ConocoPhillips Australia's assessment concludes that impacts to the larvae of these species are localised, temporary and managed to a level that does not create an unacceptable impact on future recruitment and catch rates productivity because: • Of the small overlap with the southern rock lobster fishery (1%) and the absence of suitable rock lobster habitat in the survey area; • No overlap with the giant crab fishery, based on the excise of the 140-300 m water depths (plus buffers); • Research conducted to date does not indicate mortality of exposed adult crustaceans (meaning that breeding success may not be affected); and • The acoustic modelling undertaken for plankton indicates that crustacean in the drifting planktonic phase are not likely to be impacted by the seismic pulses unless within 210 m of the sound source.
4	***The impacts of the survey to zooplankton have been understated and there would be unacceptable impacts to zooplankton productivity.*** Claims were made that impacts to zooplankton selectively presented data favourable to the oil and gas industry while ignoring recent contradictory research findings, and that primary productivity would be adversely impacted.	ConocoPhillips Australia has undertaken a thorough environmental impact assessment of the impacts of MSS on zooplankton, using the latest Australian and international research. ConocoPhillips Australia acknowledges that impacts to zooplankton are likely, but that the research is limited and as such is an ongoing area of interest and research. The acoustic modelling undertaken for the Sequoia 3DMSS indicates the range at which mortality or mortal injury for zooplankton would occur is 210 m from the sound source. Plankton populations will be replenished by currents from non-impacted areas and mortality is predicted to be low compared with natural mortality levels.

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		Measures in place to ensure that impacts to zooplankton are localised, temporary and managed to a level that is as low as reasonably practicable that do not create an unacceptable impact on primary productivity include: • Running the survey lines in a north-south direction, which run across the prevailing currents, thereby allowing for maximum recovery of plankton. • Undertaking the survey outside of the Bonney Upwelling period (generally January to April). • The adoption of ConocoPhillips' Compressive Seismic Imaging (CSI) technology (Section 2.4.1) • Using a maximum acoustic array of 3,480 cui.
5	***The seismic survey will result in injury or death to whales and dolphins.*** Claims were raised that the Sequoia 3DMSS will injure or kill dolphins and whales and that recent strandings of pilot whales in Tasmania may have been related to a seismic survey.	ConocoPhillips Australia is cognisant of the concerns regarding potential impacts to whales and dolphins from MSS. The Australian oil and gas exploration industry has operated within well-defined guidelines for minimising such impacts for many years, and there have been no reported cases of injury or death to cetaceans from MSS in Australian waters. The stranding of 470 pilot whales in Macquarie Harbour in western Tasmania in late September 2020 is not related to MSS. There were no MSS occurring in western Bass Strait or the Southern Ocean at this time, and the nearest MSS (which occurred in eastern Bass Strait) occurred from January to July 2020. ConocoPhillips Australia has undertaken a thorough assessment of the known migration areas, foraging, breeding and calving areas for cetaceans in the survey area and surrounding regions, and mapped these biologically important areas (BIA) in the EP.

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		The evaluation of impacts to cetaceans has been supported by acoustic modelling using inputs from the Sequoia 3DMSS design and using the latest research results regarding acoustic thresholds for cetaceans (divided into low frequency, mid-frequency and high frequency cetaceans). These acoustic modelling results are included in Section 7.1 of the EP and outline the distances to effect for temporary threshold shift (TTS), permanent threshold shift (PTS) and behavioural effects. Features of the survey design that avoid or minimise impacts to threatened cetaceans include: • Timing the survey to avoid spatial and temporal overlap with the peak migration and foraging period of the threatened PBW. • A small overlap (1.75%) with the SRW known core range BIA, with little data to indicate this area is important for migration or foraging. The acquisition area is located 34 km south of a 'known migration area' BIA, 17 km west of the 'connecting habitat' BIA along the King Island coastline and 90 km southeast of the 'aggregation' BIA in southwest Victoria. • A very small (0.2%) overlap with the humpback whale 'core range' BIA in southeast Australia. The controls adopted by ConocoPhillips Australia to avoid or minimise impacts to cetaceans include: • Implementing the EPBC Act Policy Statement 2.1 (Part A) – pre-start visual observations, soft start, start-up delay, stop work and night-time and low visibility procedures). • Implementing the EPBC Act Policy Statement 2.1 (Part B.1) – use of Marine Mammal Observers (MMOs). • Cetacean strategy will be discussed each day to assess all available data on whale presence at the time of the survey.

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		ConocoPhillips Australia is confident that adopting these controls will reduce the impacts to cetaceans (e.g., death, injury or disruption to migration, foraging and feeding) to ALARP and an acceptable level.
6	***Seismic surveys should not be allowed to proceed until the* Senate Inquiry regarding the Impact of seismic testing on fisheries and the marine environment *is complete and a report is released.*** Claims were made that the Sequoia 3DMSS should not be allowed to proceed until the Senate Inquiry has reached its conclusion.	The Senate Inquiry on the *Impact of seismic testing on fisheries and the marine environment* is independent of the NOPSEMA assessment and approvals process for MSS EPs. ConocoPhillips Australia is following the current process under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006.*
7	***The timing of public exhibition over the Christmas and new year period was underhanded and designed to give stakeholders less time to provide comments.*** Claims were made that the timing of public exhibition should be extended.	ConocoPhillips Australia is cognisant of the fact that the timing of EP exhibition was not ideal with regards to the holiday period. This timing was not a deliberate act to minimise the time in which the public were able to provide comments. The Sequoia 3DMSS is aiming to commence in August 2021. The approvals process can be lengthy because it has a number of steps, including: • Sufficient time for pre-submission stakeholder engagement; • EP preparation; • Public exhibition of the EP; • Addressing comments from public exhibition; • Formal submission to NOPSEMA and assessment; and • Any necessary re-submissions to address assessment comments from NOPSEMA.

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		The length of the approvals process meant that the public exhibition period for the EP necessarily occurred over the holiday period. It is important to note that 'relevant persons' as defined under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations (OPGGS(E)) has taken place since August 2020, with face-to-face meetings prevented due to the COVID-19 pandemic travel restrictions. ConocoPhillips Australia has consulted, and is continuing to consult with all 'relevant persons', especially commercial fisheries associations, to ensure concerns about the survey are addressed in the survey design and in the EP.
8	***The risk of an oil spill during the survey is too high.*** Claims were made that there is a high risk of a diesel spill during the survey and that this would pollute large parts of Bass Strait and be detrimental to marine life.	Marine seismic surveys occur regularly around Australia, including Bass Strait. There have been no known large-scale diesel spills resulting from these surveys. Section 2.5.1 of the EP (pg 50) describes ConocoPhillips' vessel selection procedure, which aims to ensure only vessel contractors with the highest operating standards are chosen (thereby minimising the risk of a diesel spill). ConocoPhillips Australia commissioned diesel spill modelling to understand the risks associated with a diesel spill within the survey area. These results (based on the most credible but worst-case spill scenario), and the associated risk assessment, are included in Section 7.12 of the EP. In brief, these results indicate that the: • Maximum probability to shoreline contact is 16%. • The maximum probability to shoreline contact at King Island is 9% (at the 10 g/m^2 threshold), 5% (at the 100 g/m^2 threshold) and 0% (at the 1,000 g/m^2 threshold). • Minimum time to shore is 40 hours (2.75 days). • Maximum volume of hydrocarbons ashore of 27.6 m^3. The Environmental that May Be Affected (EMBA) by the diesel spill scenario is the amalgamation of 100 randomly timed spills (to take into account various wind and

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		water currents), not a single spill. Maps showing the extent of a single worst-case spill for diesel on the sea surface (Figure 7.13) and diesel on the shoreline (Figure 7.16) clearly indicate that very small areas are at risk. Table 7.74 of the EP presents the residual risk ratings (after controls are applied) for each of the key receptors at risk during a diesel spill, noting that these risks are 'low' for each receptor. The control measures adopted relevant to this claim include: • Adopting ConocoPhillips vessel selection procedure (as described in Section 2.5.1). • Implementing the vessel's planned maintenance system. • Applying a Permit to Work and Job Hazard Analysis system for bunkering events. • Ensuring sufficient emergency response capability is in place.
9	***Tasmania's and King Island's 'clean and green' reputation is at risk.*** Claims were made that the Sequoia 3DMSS will damage Tasmania's and King Island's 'clean and green' reputation and tourism credentials.	ConocoPhillips Australia is cognisant of the marketability of Tasmania's and particularly King Island's image as a 'clean and green' area in which to fish, given the low human population in the region and relative absence of polluting industries. Figure 2.2 of the EP presents maps of the numerous 2D and 3D MSS that have occurred around King Island, which have not damaged King Island's current 'clean and green' reputation. ConocoPhillips Australia takes its environmental responsibility seriously, and its Sustainable Development Position and Biodiversity Position are included in Section 3.9 of the EP. ConocoPhillips Australia believes these positions are met in the design of the Sequoia 3DMSS, the environmental impact assessment presented in the EP and the controls that will be adopted for the survey. As such, ConocoPhillips Australia believes that the Sequoia 3DMSS will not result in any damage to Tasmania's 'clean and green' reputation.

Note: As per NOPSEMA guidance note, *claims* are noted in this table. However, these *claims* are generally only implied or inferred in the submissions rather than expressly stated, so there may be some error in interpreting what the claims are.